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Report No: 58328-AFR

PROJECT APPRAISAL DOCUMENT

FOR

PROPOSED IDA GRANTS

IN AN AMOUNT EQUIVALENT TO SDR 11.0 MILLION (US$16.8 MILLION EQUIVALENT) TO THE REPUBLIC OF BENIN
AND
IN AN AMOUNT EQUIVALENT TO SDR 4.6 MILLION (US$7 MILLION EQUIVALENT) TO THE REPUBLIC OF THE GAMBIA
AND
IN AN AMOUNT EQUIVALENT TO SDR 7.8 MILLION (US$12 MILLION EQUIVALENT) TO THE REPUBLIC OF SIERRA LEONE
AND
IN AN AMOUNT EQUIVALENT TO SDR 7.8 MILLION (US$12 MILLION EQUIVALENT) TO THE REPUBLIC OF TOGO

AND PROPOSED IDA CREDITS
IN AN AMOUNT EQUIVALENT TO SDR 3.9 MILLION (US$6 MILLION EQUIVALENT) TO THE REPUBLIC OF LIBERIA
AND
IN AN AMOUNT EQUIVALENT TO SDR 19.5 MILLION (US$30 MILLION EQUIVALENT) TO THE REPUBLIC OF NIGER
AND
A PROPOSED GRANT UNDER THE FOOD PRICE CRISIS RESPONSE CORE MULTI DONOR TRUST FUND
IN AN AMOUNT EQUAL TO US$5 MILLION TO THE REPUBLIC OF THE GAMBIA
AND
PROPOSED JAPAN PHRD GRANTS

IN AN AMOUNT EQUAL TO US$8 MILLION TO THE REPUBLIC OF LIBERIA,
AND IN AN AMOUNT EQUAL TO US$10 MILLION TO THE REPUBLIC OF SIERRA LEONE
FOR
THE 3RD SERIES OF PROJECTS UNDER THE FIRST PHASE OF THE
WEST AFRICA AGRICULTURAL PRODUCTIVITY PROGRAM (WAAPP-1C)

February 28, 2011

Agriculture and Rural Development Unit (AFTAR)
Sustainable Development Department
Africa Regional Integration Department (AFCRI)
Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2010)

Currency Unit	=	United States dollars (US$)
FCFA 490.1240	=	US$1
US$1	=	SDR 0.649338

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AAA	Analytical and Advisory Activity
ACMV	African Cassava Mosaic Virus
ADB	African Development Bank
APL	Adaptable Program Lending
AWP&B	Annual Work Program and Budget
ASPEN	Africa Safeguard Policy Enhancement
CAADP	Comprehensive Africa Agricultural Development Program
CARGS	Competitive Agricultural Research Grant Scheme
CARI	Central Agricultural Research Institute
CAS	Country Assistance Strategy
CFMAG	Mechainization Training Center of Grand-Lahou *(Centre de Formation à la Mécanisation Agricole de Grand-Lahou)*
CGIAR	Consultative Group on International Agricultural Research
CGS	Computer Generated Solutions
CNRA	National Council for Agronomic Research *(Conseil National de la Recherche Agronomique)*
CORAF	West and Central African Council for Agriculture Research and Development (*Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles)*
DA	Designated Account
DLC	Distance Learning Course
EA	Environmental Assessment
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMF	Environmental and Social Management Framework
FAO/CP	Food and Agriculture Organization of the United Nations / Cooperative Programme
FARA	Forum for Agricultural Research in Africa
FM	Financial Management
FNAIA	National Agricultural Fund (*Fonds National d'Appui Institutionnel Agricole)*

FPCR	Food Price Crisis Response
GDP	Gross Domestic Product
GEAPP	Gambia Emergency Agricultural Production Project
FPCR	Food Crisis Response Core Program
ha	Hectare
ICB	International Competitive Bidding
ICT	Information and Communications Technology
ICAT	Togo Extension National Services (*Institut de Conseil et d'Appui Technique)*
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Centre
IFPRI	International Food Policy Research Institute
IFR	Interim Financial Report
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
INP–HB	Institut National Polytechnique–Houphouet Boigny
INRAB	Benin National Institute of Agricultural Research *(Institut National de Recherche Agricole de Bénin)*
INRAN	Niger National Institute of Agricultural Research *(Institut National de la Recherche Agronomique du Niger)*
IPRs	Intellectual Property Rights
IRR	Internal Rate of Return
ITC	International Trade Commission
ITRA	Togo Agricultural Research Institute *(Institut Togolais de Recherche Agronomique)*
JICA	Japan International Cooperation Agency
LASIP	Liberia Agriculture Sector Investment Program
MoA	Ministry of Agriculture
MAEP	Ministry of Agriculture, Livestock and Fisheries *(Ministère de l'Agriculture, de l'Elevage et de la Pêche*)
MOHERST	Ministry of Higher Education, Research, Science, and Technology *(Ministre de l'Enseignement Supérieur et de la Recherche*)
MAG/EL	Ministry of Agriculture and Livestock *(Ministère de l'Agriculture et de l'Elevage)*
MAFFS	Ministry of Agriculture Forestry and Food Security
M&E	Monitoring and Evaluation
MRU	Mano River Union
MTR	Mid-Term Review
MOU	Memorandum of Understanding
NARC	Njala Agricultural Research Centres
RARC	Rokpur Agricultural Research Centres
NARS	National Agricultural Research Systems
NCOS	National Centers of Specialization
NCB	National Competitive Bidding
NCD	Newcastle disease
NEPAD	New Partnership for Africa's Development

NGO	Non-Governmental Organizations
ORAF	Operational Risk Assessment Framework
PAC-2	Community Action Program *(Programme d'Actions Communautaires)*
PADAT	Togo Agricutural Development Support Project *(Projet d' Appui au Développement de l'Agriculture au Togo)*
PASA	Agricultural Sector Support Project *(Projet d'Appui au Secteur Agricole)*
PCU	Project Coordination Unit
PDO	Project Development Objectives
PHRD	Policy and Human Resources Development
PHRDTF	Policy and Human Resources Development Trust Fund
PIM	Project Implementation Manual
PNDA	National Agricultural Development Policy *(Politique Nationale de Development Agricole)*
PNIASA	National Agricultural Investment and Food Security Program *(Programme National d'Investissement Agricole et de Securité Alimentaire)*
ProCADA	Agricultural Diversification Support Program *(Programme Cadre d'Appui à la Diversification Agricole)*
PRSP	Poverty Reduction Strategy Paper
PUASA	Emergency Food Security Support Project *(Projet d'Urgence d'Appui a la Sécurité Alimentaire)*
QAG	Quality Assurance Group
RARC	Rokupr Agricultural Research Centre
R&D	Research and Development
R&E	Research and extension
RAP	Resettlement Action Plan
RIAS	Regional Integration Assistance Strategy
RPF	Resettlement Policy Framework
RPSDP	Rural and Private Sector Development Project
SDR	Rural Development Strategy *(Stratégie de Développement Rural)*
SE/CNRA	Executive Secretariat of the National Council of Agricultral Research (*Secrétariat Exécutif du Conseil National de Recherche Agricole)*
SLARI	Sierra Leone Agricultural Research Institute
SNRA	Togo National Agricultural Research System *(Système National de Recherche Agricole* Togo)
UGP	Program Management Unit *(Unité de Gestion du Programme)*
WAAPP	West Africa Agricultural Productivity Program

Vice President:	Obiageli Katryn Ezekwesili
Country Directors:	Yusupha B. Crooks-Regional Integration
	Madani M. Tall – Benin, Togo
	Ishac Diwan – Liberia and Sierra Leone
	Habib Fentini – The Gambia
	Kathryn Hollifield (Acting) – Niger
Sector Director:	Jamal Saghir
Sector Manager:	Karen McConnell-Brooks
Task Team Leader:	Abdoulaye Toure

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PAD DATA SHEET

THE 3RD SERIES OF PROJECTS UNDER THE FIRST PHASE OF THE WEST AFRICA AGRICULTURAL PRODUCTIVITY PROGRAM (WAAPP-1C)

PROJECT APPRAISAL DOCUMENT

AFRICA
AFTAR

Date: February 28, 2011 **Country Director:** Yusupha B. Crookes **Sector Director:** Jamal Saghir **Sector Manager:** Karen McConnell Brooks **Team Leader(s):** Abdoulaye Toure **Project ID:** P122065 **Lending Instrument:** Adaptable Program Loan (APL)	**Sector(s):** Agricultural extension and research (100%) **Theme(s):** Technology diffusion (29%); Rural services and infrastructure (29%); Export development and competitiveness (14%); Trade facilitation and market access (14%); Regional integration (14%) **EA Category:** B (Partial Assessment)

Project Financing Data:

Proposed terms: International Development Association (IDA) terms, with a maturity of 40 years, including 10 years of grace period.

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

Source	Total Amount (US$ million)
Total Project Cost:	$120.7
Co-financing:	
Japan PHRD	$ 18.0
FPCR-Core MDTF	$ 5.0
Borrowers/Recipients:	$ 13.9
Total Bank Financing:	$ 83.8
IBRD	-
IDA	$ 83.8
New	
Recommitted	

Financing Plan (US$ million)			
PHASE 1A and PHASE 1B (already approved)			
Source	**Local**	**Foreign**	**Total**
PHASE 1- C			
Source	**Local**	**Foreign**	**Total**
BORROWER/RECIPIENT	13.9	0.0	13.9
IDA	61.4	22.4	83.8
JAPAN PHRD	14.7	3.3	18.0
FPCR-Core MDTF	3.5	1.5	5.0
Total	101.7	29.0	130.7

Of which Republic of Benin (US$ million financed by IDA) (US$ million financed by Borrower/Recipient)	13.3 2.77	3.5 0.0	16.8 2.77
Of which Republic of Niger (US$ million financed by IDA) (US$ million financed by Borrower/Recipient)	20.5 3.06	9.5 0.0	30.0 3.06
Of which Republic of Togo (US$ million financed by IDA) (US$ million financed by Borrower/Recipient)	8.1 5.17	3.9 0.0	12.0 5.17
Of which Republic of Sierra Leone (US$ million financed by IDA) (US$ million financed by Japan PHRD) (US$ million financed by Borrower/Recipient)	10.5 9.0 1.30	1.5 1.0 0.0	12.0 10.0 1.30
Of which Republic of The Gambia (US$ million financed by IDA) (US$ million financed by FPCR Core MDTF) (US$ million financed by Borrower/Recipient)	5.5 3.5 1.03	1.5 1.5 0.0	7.0 5.0 1.03
Of which Republic of Liberia (US$ million financed by IDA) (US$ million financed by Japan PHRD) (US$ million financed by Borrower/Recipient)	3.5 5.7 0.57	2.5 2.3 0.0	6.0 8.0 0.57
Total Phase 3 following set of countries (US$ million financed by IDA) (US$ million financed by JAPAN PHRD) (US$ million financed by FPCR- Core MDTF)	61.4 14.7 3.5	22.4 3.3 1.5	83.8 18.0 5.0

Recipients:

Phase 1C: Togo, Benin, Niger, Sierra Leone, Liberia and The Gambia.

Responsible Agencies:

Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles /West and Central African Council for Agricultural Research and Development **(CORAF/ WECARD)**
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République du Niger
Tel : (00227) 20 73 20 58

Estimated Disbursements IDA (Bank FY/US$ million)					
FY	12	13	14	15	16
Total Project					
Total *Annual*	10.0	20.0	20.0	25.0	8.8
Cumulative	10.0	30.0	50.0	75.0	83.8
Disbursement per country					
Benin *Annual*	2	3	5	4	2.8
Cumulative	2	5	10	14	16.8
The Gambia *Annual*	1	1	2	2	1
Cumulative	1	2	4	6	7
Liberia *Annual*	1	1	2	1	1
Cumulative	1	2	4	5	6
Sierra Leone *Annual*	1	3	3	3	2
Cumulative	1	4	7	10	12
Niger *Annual*	3	8	8	8	3
Cumulative	3	11	19	27	30
Togo *Annual*	1	3	3	3	2
Cumulative	1	4	7	10	12
Estimated Disbursements Japan PHRD (Bank FY/US$ million)					
FY	12	13	14	15	16
Total Project					
Total *Annual*	2.0	3.0	5.5.0	5.5.0	2.0
Cumulative	2.0	5.0	10.5	16.0	18.0
Disbursement per country					
Liberia *Annual*	1	1	2.5	2.5	1
Cumulative	1	2	4.5	7	8
Sierra Leone *Annual*	1	2	3	3	1
Cumulative	1	3	6	9	10
Estimated Disbursements FPCR (Bank FY/US$ million)					
FY	12	13	14	15	16
The Gambia *Annual*	1.0	1.0	1.0	1.0	1.0
Cumulative	1.0	2.0	3.0	4.0	5.0

Project implementation period: March 24, 2011 – June 30, 2016 (**5 Years)** Expected effectiveness date: **July 2011** Expected closing date: **June 30, 2016**	
Does the project depart from the CAS in content or other significant respects?	○ Yes ● No
If yes, please explain:	
Does the project require any exceptions from Bank policies? Have these been approved /endorsed (as appropriate by Bank management? Is approval for any policy exception sought from the Board?	● Yes ○No ● Yes ○ No ○ Yes ● No
If yes, please explain: The memo authorizing to proceed with the Niger Project in the context of the application of OP7:30 to Niger has been approved by AFRVP on February 25, 2011.	
Does the project meet the Regional criteria for readiness for implementation?	● Yes ○ No
If no, please explain:	
Project Development Objective The development objective of WAAPP-1C is to generate and accelerate the 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.	
Project description [*one-sentence summary of each component]* **Component 1**: **Enabling Conditions for Sub-Regional Cooperation in the Generation**, **Dissemination, and Adoption of Agricultural Technologies** to allow ECOWAS member countries to benefit from those technologies. In the specific context of the Mano River Union (MRU) countries, this component aims also at strengthening the institutional mechanisms and procedures for integration of regional rice markets and cross-border/national dissemination of technologies. **Component 2: National Centers of Specialization (NCOS)/ Strengthening of the Research System.** This component will support the strengthening of NCOS in Niger for livestock, Benin for maize, and Sierra Leone for mangrove rice, while for countries including Togo, Liberia, and The Gambia it will only focus on strengthening capacities for adaptive research and technology transfer. **Component 3: Support to Demand-driven Technology Generation**, **Dissemination and Adoption** by financing priority-focused agricultural research and advisory services within participating countries and complementing core program activities financed under Component 2. **Component 4: Project Coordination, Management and Monitoring and Evaluation** to ensure an effective and efficient management and coordination of the Project at national and regional levels.	

Safeguard policies triggered?	
Environmental Assessment (OP/BP 4.01)	● Yes ○ No
Natural Habitats (OP/BP 4.04)	● Yes ○ No
Forests (OP/BP 4.36)	○ Yes ○ No
Pest Management (OP 4.09)	● Yes ○ No
Physical Cultural Resources (OP/BP 4.11)	○ Yes ○ No
Indigenous Peoples (OP/BP 4.10)	○ Yes ○ No
Involuntary Resettlement (OP/BP 4.12)	● Yes ○ No
Safety of Dams (OP/BP 4.37)	○ Yes ○ No
Projects on International Waters (OP/BP 7.50)	○ Yes ○ No
Projects in Disputed Areas (OP/BP 7.60)	○ Yes ○ No

Conditions of Board presentation: None

Board presentation: March 24, 2011

Conditions of effectiveness:

A. Financing Agreements:

(a) For each of the countries, that the Subsidiary Grant Agreement has been executed on behalf of the Recipient and CORAF.

(b) For The Gambia, Liberia and Sierra Leone: that the Grant Agreement (for the FPCR or PHRD Grant) has been executed and delivered and all conditions precedent to its effectiveness or to the right of the country to make withdrawals under it (other than the effectiveness of the Financing Agreement) have been fulfilled.

(c) For Togo: that Togo shall have strengthened the Secretariat General to carry out the Project, under terms of reference and with staff in numbers and with qualifications satisfactory to the Association. As part of such staffing, there shall be in place for the Secretariat General: (i) an assistant operational coordinator; (ii) a financial management specialist and a procurement specialist, and (iii) a consulting firm to reinforce the coordination capacity of the Secretariat General in the implementation of the tools required for a quality fiduciary management.

B. Grant Agreements:

(a) For Sierra Leone and Liberia, that the Japanese PHRD Trust Fund Grant Agreement has been executed and delivered and all conditions precedent to the effectiveness of the Financing Agreement with the respective country have been fulfilled.

(b) For The Gambia, that the FPCR Core Trust Fund Grant Agreement has been executed and delivered and all conditions precedent to the effectiveness of the Financing Agreement with The Gambia have been fulfilled.

C. Disbursement Conditions of the Financing Agreements:

(a) For disbursements under Parts 1.2, 1.5, 3.1 (a) and 4(i) of the Project (to be implemented by CORAF), no disbursement shall be made until and unless at least three Financing Agreements with the participating countries have been executed and delivered and all conditions precedent to their effectiveness have been fulfilled

D. Covenants applicable during Project implementation:

For the IDA Grants and Credits and, as applicable, for the FPCR Core Trust Fund Grant and the Japan PHRD Trust Fund Grants:

(a) for each of the six countries, each Recipient shall, not later than three (3) months after the Effective Date, establish and/or maintain throughout project implementation, a national oversight or advisory committee under terms of reference satisfactory to the Association vested with responsibility for providing policy guidance and for overseeing the Project ("Oversight or Advisory Committee"). The Oversight or Advisory Committee shall be chaired by the recipient's minister responsible for the agriculture (or his/her designee) and its composition shall include representatives from the government, stakeholders, farmers and the private sector. The Oversight or Advisory Committee shall meet at least twice each Fiscal Year to undertake, *inter alia*, the review and approval of the draft Annual Work Program and Budget (AWP&B) and the approval of the annual report to be prepared by the Project Coordinator not later than October 31 each year to follow-up on, and assess the progress in, the carrying out of the precedent AWP&B.

(b) for each of the six countries, in order to maximize the benefits to be derived from the Project, each Recipient shall: (a) select: (i) the core facilities of the research institutions proposed to be constructed and rehabilitated under Part 2.3 of the Project; and (ii) the public research stations proposed to be upgraded under Part 3.3 (ii) of the Project, applying the following criterion: the facility or the station has been identified by the management of research institutions on the basis of consultations carried out with its researchers during the preparation of the priority list of works and during the validation of the design of the works; and (b) thereafter, furnish to the Association for approval for financing out of the proceeds of the Grants and Credits the facilities and stations as so selected.

(c) For each of the six countries except Togo, prior to the award of each contract for works under Parts 2.3 or 3.3 (ii) of the Project, the Recipient shall: (i) furnish to the Association a written attestation for the specific site where the works will be undertaken that the works shall not cause or result in Resettlement or submit to the Association for its review and approval the related site-specific Resettlement Action Plan (RAP) in accordance with the provisions of the Resettlement Policy Framework (RPF) and in form and substance satisfactory to the Association; (ii) submit to the Association for its review and approval the related site-specific Environmental and Social Impact Assessment (ESIA) or Environment and Social Management Plan (ESMP), as the case may be, in accordance with the provisions of the ESMF and in form and substance satisfactory to the Association; (iii) consult upon and disclose the site-specific ESIA or ESMP and RAP, if there is one, as approved by the Association; and (iv) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and RAP, if applicable, are appropriately included in the works contract concluded for the site and that they are implemented in the carrying out of Parts 2.3 and 3.3(ii) of the Project.

(d) the Association; and (iii) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and the RRP, if applicable to the site, are appropriately included in the works contract concluded for the site and that they are implemented in the carrying out of Parts 2.3 and 3.3(ii) of the Project.

(e) For each of the six countries and CORAF, each Recipient and CORAF shall follow and apply at all times in the implementation of Parts 2 and 3 of the Project the provisions of the Pest Management Plan (PMP) in a timely manner, ensuring that: (i) mitigation and monitoring measures acceptable to the Association are designed and implemented with due diligence and employing appropriate environmental expertise; and (ii) adequate information on the implementation of the measures contained in the PMP is appropriately included in the Progress Reports to be prepared under the Project.

(f) For each of the six countries, except Togo, and CORAF: the Recipient or CORAF shall take all measures required on its behalf so that the entity responsible for the execution of Parts 2.1 and 3.1 (b) of the Project or CORAF, as the case may be: (i) screen, under Parts 2.1 and 3.1 (b) of the Project, the activities under the Research Proposals and Grants proposals submitted for financing out of the proceeds of the Grants and the Credits; (ii) ensure that each Beneficiary: (A) carry out an appropriate site-specific Environmental and Social Impact Assessment (ESIA) or Environment and Social Management Plan (ESMP), as the case may be, and a Resettlement Action Plan, if there is Resettlement, for each such activities in accordance with the provisions of the ESMF and RPF, as the case may be, and in form and substance satisfactory to the Association; and (B) consult upon and disclose the site-specific ESIA or ESMP, as the case may be, and the RAP, if there is one, as approved by the Association; (iii) verify (through its own staff, outside experts, or existing environmental/social institutions) before approving the Research Proposal or Grant proposal that the activities meet the environmental and social requirements of appropriate national and local authorities and that they are consistent with the Association's applicable environmental and social assessment and safeguard policies and comply with the environmental and social review procedures set forth in the Project Implementation Manual; and (iv) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and RAP, if there is one, are appropriately implemented.

(g) For Togo: Togo shall take all measures required on its behalf so that the ITRA or the Secretariat General/FNAIA, as the case may be: (i) screen, under Parts 2.1 and 3.1 (b) of the Project, the activities under the Research Proposals and Grants proposals submitted for financing out of the proceeds of the Financing; (ii) ensure that each Beneficiary: (A) carry out an appropriate site-specific Environmental and Social Impact Assessment (ESIA) or Environment and Social Management Plan (ESMP), as the case may be, for each such activities in accordance with the provisions of the ESMF and in form and substance satisfactory to the Association; and (B) consult upon and disclose the site-specific ESIA or ESMP, as the case may be, as approved by the Association; (iii) verify (through its own staff, outside experts, or existing environmental/social institutions) before approving the Research Proposal or Grant proposal that the activities meet the environmental and social requirements of appropriate national and local authorities and that they are consistent with the Association's applicable environmental and social assessment and safeguard policies and comply with the environmental and social review procedures set forth in the Project

Implementation Manual or the FNAIA Manual of Procedures, as the case may be; and (iv) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and RRP, if applicable to the activities under the Research Proposals and Grants proposals, are appropriately implemented.

(h) For Togo: Togo, through the Secretariat General, shall take all action necessary on its behalf: (i) to carry out the RRP with due diligence and efficiency and at all times provide the funds necessary therefore; (ii) to adequately monitor and evaluate the carrying out of the activities provided in the RRP in the carrying out of the Project; and (iii) to maintain the Association suitably informed of the progress in the implementation of the RRP.

(i) For each of the six countries and CORAF the Recipient and CORAF shall carry out Parts 1.1, 1.3, 1.4, 2, 3.1(b), 3.2, 3.3 and 4 (ii) of the Project pursuant to obligations under, and in accordance with environmental safeguards and international good practice and standards consistent with those of, the Cartagena Protocol on Biosafety.

(j) For the Financing Agreement with Benin: the Recipient shall, not later than three (3) months after the Effective Date, recruit for the PMU a Project Manager, one (1) assistant to the Project Manager, one (1) procurement assistant, one (1) additional accountant to handle Project activities, one (1) monitoring and evaluation assistant, and one (1) communications officer, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association.

(k) For the Financing Agreement with Togo: the Recipient shall, not later than three (3) months after the Effective Date, recruit for the Secretariat General one (1) internal auditor, (1) assistant procurement specialist, and one (1) monitoring and evaluation specialist, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association.

(l) For the Financing and Grant Agreements with The Gambia: the Recipient shall, not later than three (3) months after the Effective Date, recruit for the PCU two (2) monitoring and evaluation assistants and one (1) procurement assistant, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association

(m) For the Financing and Grant Agreements with Sierra Leone: the Recipient shall, not later than three (3) months after the Effective Date, recruit for the PCU a Deputy Project Coordinator, one (1) procurement specialist, one (1) accountant, one (1) monitoring and evaluation officer, one (1) communications officer and one (1) operations officer, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association.

(n) For the Financing and Grant Agreements with Liberia: the Recipient shall, not later than three (3) months after the Effective Date: (i) set up within the PCU an internal audit unit headed by a qualified internal auditor under terms of reference satisfactory to the Association; and (ii) recruit for the PCU two (2) procurement specialists, one (1) accountant, one (1) monitoring and evaluation specialist, and one (1) communication officer, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association.

(o) For the Financing Agreement with Niger: the Recipient shall, not later than three (3) months after the Effective Date: (i) amend the consultant contract between the MAL and the external auditor retained for the NCU to expand the scope of the consultancy so as to include a similar assignment under the Project, all under terms of reference satisfactory to the Association; and (ii) recruit for the NCU an Assistant Coordinator responsible for the Project, one (1) procurement specialist, one (1) accountant, and (1) communications specialist, all on the basis of terms of reference and with qualifications and experience satisfactory to the Association.

(p) For each of the six countries and CORAF, the Recipient and CORAF shall maintain policies and procedures adequate to enable it to monitor and evaluate on an ongoing basis, the carrying out of the Project and the achievement of the objective thereof, prepare, under terms of reference satisfactory to the Association, and furnish to the Association, on or about September 30, 2013, a report integrating the results of the monitoring and evaluation activities and setting out the measures recommended to ensure the efficient carrying out of the Project and the achievement of the objective thereof during the period following such date, and review with the Association, on or about October 31, 2013, or such later date as the Association shall request, the aforementioned report and, thereafter, take all measures required to ensure the efficient completion of the Project and the achievement of the objective thereof, based on the conclusions and recommendations of the said report and the Association's views on the matter.

(q) for each of the six countries, for the purposes of carrying out Parts 1.2, 1.5, 3.1(a) and 4 (i) of the Project, the Recipient shall make a portion of the proceeds of the Grants and Credits available to CORAF on a grant basis under a subsidiary grant agreement to be entered into between the Recipient and CORAF, under terms and conditions approved by the Association (Subsidiary Grant Agreement). The Recipient shall exercise its rights and carry out its obligations under the Subsidiary Grant Agreement in such manner as to protect the interests of the Recipient and the Association and to accomplish the purposes of the Grants and Credits. Except as the Association shall otherwise agree, the Recipient shall not assign, amend, abrogate or waive the Subsidiary Grant Agreement or any of its provisions.

(r) for each of the six countries, The Recipient shall prepare and furnish to the Association as part of the Project Report not later than forty-five (45) days after the end of each calendar semester, interim unaudited financial reports for Parts 1.1, 1.3, 1.4, 2, 3.1(b), 3.2, 3.3 and 4(ii) of the Project covering the semester, in form and substance satisfactory to the Association.

(s) The Recipient shall have its Financial Statements audited in accordance with the provisions of Section 4.09(b) of the General Conditions. Each audit of the Financial Statements shall cover the period of one Fiscal Year of the Recipient. The audited Financial Statements for each such period shall be furnished to the Association not later than six (6) months after the end of such period.

I. Strategic Context

A. Country Context

1. Agriculture is a dominant economic sector in the Economic Community of West African States (ECOWAS), but its low productivity seriously erodes the competitiveness of African products on world and domestic markets. About 65 percent of the ECOWAS population lives in rural areas and most depend on agriculture, which contributes 35 percent of the regional Gross Domestic Product (GDP) and over 15 percent of exports. Regional production covers 80 percent of domestic food needs, with about 20 percent of its imports being food products. As a net importer of cereals and livestock products, West Africa is severely affected by the current rise in global food and fuel prices. Intra-regional agricultural trade is limited and its share of total world agricultural trade is minuscule. Climate change poses an additional challenge to rural livelihoods in this natural-resource-dependent economy. The 15 ECOWAS members, which are all low income countries, face an urgent need to improved agricultural productivity to satisfy the food needs of the growing and increasingly urbanized population, promote sustainable economic growth, and build a strong regional agricultural market.

2. Among all economic sectors in the region, agriculture has the greatest potential to generate growth. The subsectors that make the greatest contribution to the region's agricultural growth and to producers' benefits in Research and Development (R&D), as identified in the IFPRI regional baseline study (IFPRI, 2008)[1], are: roots and tubers, livestock, rice, cereals, fruits and vegetables, oil seeds and bulk export crops (cotton, coffee, cocoa). Despite this potential, the study found that rice yields grew by only 1 percent in western Africa compared to 1.9 percent in southern Asia between 1961 and 2007. And for most countries in West Africa, much of the improvement in rice yields occurred between 1970 and 1986, during which more recent technological innovations have not been largely adopted by farmers and agro processors. Consequently, the analysis of yield growth in West Africa shows that there is still plenty of room to rapidly growing yields, by expanding the use of yield-increasing technologies, improving processing methods and reducing losses.

3. The study cautioned, however, that growth in agricultural production in Africa has been driven mainly as a result of expansion of cultivated areas, a strategy that is far from sustainable. An alternative strategy would be to create the conditions that enable agricultural productivity to increase.

4. The study concluded that: (i) countries sharing similar agro-ecological conditions could greatly benefit by pooling resources to find common solutions for technology development, adoption and diffusion; (ii) investments on a regional scale are required to enhance efficiency of investments in adaptive research and extensions services; (iii) regional markets should play a strategic role in expanding demand and guaranteeing regional food security and price stability; and (iv) enhanced linkages are required between agricultural and non-agricultural sectors, such as agribusinesses and output and agro-input markets. The WAAPP derives its strength from these and similar strategic analysis of West African agriculture, as there is a growing recognition of the

[1] Johnson, M., R. Birner, J. Chamberlin, X. Diao, S. Fan, A. Nin-Pratt, D. Resnick, L. You, and B. Yu (2008), "Regional Strategic Alternatives for Agriculture-led Growth and Poverty Reduction in West Africa," ReSAKSS Working Paper 22, International Food Policy Research Institute (IFPRI).

exigency for regional cooperation to strengthen food security and promote agriculture-led growth.

B. Sectoral and Institutional Context

5. The World Development Report 2008[2] emphasizes the role of agricultural productivity in agricultural and overall economic growth, rural poverty reduction and food security**.** The report concluded that: (i) growth originating in agriculture is four times as effective in reducing poverty as growth originating outside of the agricultural sector; (ii) increases in agricultural growth are highly dependent upon improvements in agricultural productivity; and (iii) investments in agricultural research are among the most important determinants of agricultural productivity.

6. In West Africa, the potential returns to investments in generating and disseminating agricultural technology are high—46 percent on average (IFPRI, 2008). Yet spending on agricultural research and extension remains low in proportion to total spending by governments in West Africa**.** It is also noted that linkages between research systems, extension services, farmers and agribusinesses are weak in sub-Saharan Africa. In addition, even when technologies are generated, the mechanism for their dissemination and adoption are inefficient, ineffective and constrained by the lack of supporting agribusiness services. Furthermore, national regulatory frameworks for cross-border dissemination of technologies do not exist or are not in line with the ECOWAS common regulations for genetic materials, pesticides, and agrochemicals.

7. The Africa Union's (AU) New Partnership for Africa's Development (NEPAD) calls for 3 percent annual growth in agricultural productivity through technology generation and dissemination and 6 percent growth in agricultural GDP to reach the Millennium Development Goals by 2020. To this end, NEPAD has initiated and brought before the donor community the Comprehensive Africa Agricultural Development Program (CAADP). This program has four pillars, the fourth being agricultural research, technology dissemination, and technology adoption. The agricultural policy of the ECOWAS countries (ECOWAP) provides the framework for implementing the CAADP in West Africa.

8. At the regional level, the agricultural investment plan of ECOWAS is structured around three mobilizing programs that constitute the framework for major actions to integrate the agricultural sector over the next five years. The first program focuses on promoting strategic products for food sovereignty; the second program aims at promoting an overall environment favorable to regional agricultural development; and the third program focuses on reducing food vulnerability and promoting sustainable access to food.

9. The WAAPP is aligned with the three mobilizing programs of ECOWAS to foster regional integration of agriculture, and the first WAAPP countries, under WAAPP-1A, already work on the high-priority value chains identified in the mobilizing programs: roots and tubers, dry land cereals, and rice for which the NCOS are in Ghana, Senegal and Mali respectively. Countries that joined the WAAPP under WAAPP-1B are investing in strategic ECOWAS value chains: such as those for fruits and vegetables (mangoes and onions), bananas and plantains, and aquaculture (catfish and tilapia) for which NCOS will be respectively in Burkina Faso, Cote d'Ivoire and Nigeria. The seven countries joining under the proposed Project, WAAPP-1C will

[2] World Bank (2007), *World Development Report 2008: Agriculture for Development,* Washington, DC.

expand the range of commodities to include livestock, maize, and mangrove rice with the strengthening of the additional NCOs in Niger, Benin and Sierra Leone respectively.

10. The justifications for regional integration are strong. First, under the leadership of ECOWAS, the CAADP process has matured with the signing of country compacts emphasizing regional coordination and cooperation. Second, regional integration in generating and adopting agricultural technology helps to overcome the "small-countries" challenges of marshalling sufficient resources and researchers for sound and efficient research programs. Third, lessons from WAAPP-1A strongly validate the program's emphasis on a regional approach to technology generation to help countries to confront those challenges. Fourth, the *Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles* (CORAF) has established the capacity to play a coordinating role, facilitate knowledge sharing, and provide relevant advisory services to the national agricultural research systems (NARS) in the region. Finally, and most importantly, it is essential that the countries within the region join forces to deal successfully with the emerging and continuing challenges posed by the food and fuel crises, the global financial crisis, and climate change.

C. Higher Level Objectives to which the Project Contributes

11. The WAAPP is a two-phase, ten-year, horizontal and vertical APL to support the implementation of ECOWAP through the implementation of CAADP's fourth pillar. Under the first phase of WAAPP, the Board has already approved two series: WAAPP-1A (Mali, Senegal, and Ghana) in 2007 and WAAPP-1B (Burkina Faso, Côte d'Ivoire and Nigeria) in 2010. Successful results in WAAPP-1A countries (in harmonizing regulations, setting up centers of specialization, operating demand-driven research systems, and sharing researchers and released technologies) justify the Bank's support for extending the program to all ECOWAS member states, as envisaged originally.

12. The WAAPP is an instrument of the World Bank's Regional Integration Assistance Strategy (RIAS) for West Africa and its Regional Action Plan for sub-Saharan Africa. The program also supports the implementation of the Country Assistance Strategies (CAS) in the region, and contributes to two principal objectives of the Bank: (i) make agriculture more productive and sustainable to increased economic growth, improve food security, and reduce poverty; and (ii) support regional integration. WAAPP may thus be viewed as part of a larger commitment by the World Bank to assist countries to enhance long-term food availability by providing a mix of support for short-term supply responses and sustainable medium and longer-term investments for increased agricultural productivity.

13. The design of this program demonstrates the Bank's long-term commitment to generating and disseminating technology and knowledge, building capacity, and fostering regional integration. The Bank already supports a number of ECOWAS member states at the national level in technology generation and dissemination and is well suited to create synergies and added value among national projects.

14. The extension of WAAPP to new countries under WAAPP-1C meets IDA's regional project eligibility criteria. It will: (i) generate social and economic benefits that spill across national boundaries; (ii) support the agricultural strategies of regional economic communities; and (iii) strengthen the platform for regional policy harmonization. The WAAPP will provide a regional framework for ECOWAS countries to collaborate in the implementation of national and

regional agricultural strategies for technology generation and dissemination. It will further this collaboration through the development of specialized centers for technology generation and dissemination, which will also serve as regional knowledge-sharing centers.

15. WAAPP-1C will also provide specific support to the Mano River Union (MRU) countries, which are fragile states emerging from long conflicts and war, that destroyed or seriously weakened their human resources, infrastructures, and institutional capacity.

16. The countries that currently meet the readiness conditions and will be covered under the proposed Project, WAAPP-1C, are: Benin, Liberia, Niger, Sierra Leone, Togo and The Gambia. These countries, will receive the following IDA allocation, including one-third from their national IDA and two-thirds from the regional IDA: Benin (US$16.8 million), Liberia (US$6 million), Niger (US$30 million), Sierra Leone (US$12 million), Togo (US$12 million) and The Gambia (US$7 million). A financing of US$27 million equivalent from the Japan Policy and Human Resources Development (PHRD) Trust Fund will be provided to the Mano River Union countries (Liberia and Sierra Leone) for the development of the rice value chain. An additional co-financing of US$5 million equivalent from the FPCR-MDTF-Core will be provided to The Gambia to support accelerated adoption of technologies and help mitigate the effect of high food prices in this country.

II. Project Development Objectives (PDO)

A. PDO

17. Similar to WAAPP-1A and 1B, the development objective of WAAPP-1C is to generate and accelerate the 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.

1. Project Beneficiaries

18. The Project's beneficiaries will include farmers, agricultural producers and value chain actors. The Project is expected to contribute to increased beneficiaries' access to improved technologies, including post-harvest technologies. These beneficiaries are also the key participants in the generation and dissemination of technology, along with researchers, public and private extension agencies, universities, and government agencies, involved in value chains management and public regulatory services provision.

2. PDO Level Results Indicators

19. The key outcomes expected at the end of the Project for all the six participating countries include: (i) a total of 1,2 million beneficiaries (40 percent of whom are female); (ii) at least 3 technologies released by each of the three targeted NCOS ; (iii) 100 percent of the released technologies from the NCOS show an improvement in yield of at least 15 percent compared to the control technology; (iv) a total area of 1.0 million hectares under improved technologies disseminated under the Project in the beneficiary countries; and (v) a total of 720,000 producers, in the participating countries, have adopted improved varieties made available under the Project by beneficiary countries.

III. Project Description

A. Project components

20. The proposed WAAPP-1C PDO, components, results framework, outcome indicators, and triggers are consistent with those of WAAPP-1B and WAAPP-1A (updated in May 2010 during the WAAPP-1A Mid-Term-Review (MTR). The main differences in WAAPP-1C compared to WAAPP-1A and WAAPP-1B is: (i) the proposed support to the Mano River Union countries which are fragile states, with a special focus on rebuilding their adaptive research and technology transfer capacities; and (ii) the fact that under Component 2, some countries will not have their own center of specialization.

21. **Component 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies (US$10.16 million of which: IDA: US$9.27 million).** This component aims at strengthening the institutional mechanisms and procedures 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. In the specific context of the MRU countries, Component 1 also aims at strengthening institutional mechanisms and procedures for integrating regional rice markets and cross-border/national dissemination of technologies.

22. The component will finance studies, study tours, workshops, and consultant services to support: (i) CORAF to develop and animate technical networks to strengthen regional cooperation and sharing of experience, primarily through a series of distance learning courses with the support of the World Bank Institute; (ii) CORAF and each country to develop and implement annual communication action plans based on the regional communication strategy prepared by CORAF, including the networking of knowledge management, information, and communications systems to accelerate the sharing of agricultural technology, tools, and best practices; (iii) each country to implement the common regulations of ECOWAS on genetic materials and agrochemicals as well as the harmonized regulations on fertilizers that ECOWAS is currently preparing; (iv) each country to establish/strengthen its national registration committees for the effective release of genetic materials, approval of pesticides, and management of intellectual property; (v) each country to prepare and implement an action plan to mainstream climate change considerations in research and development (R&D) programs; (vi) each country to develop and implement an action plan to mainstream gender considerations in R&D programs based on the gender strategy prepared by CORAF; and (vii) the MRU Secretariat to develop mechanisms and procedures to establish a regional food security hub.

23. **Component 2: Strengthening National Centers of Specialization/Strengthening of the Research System (US$45.11 million of which: IDA: US$29.33 million; Japan TF: US$8.68 million).** Unlike WAAPP-1A and WAAPP-1B, in WAAPP-1C this component will not systematically support the establishment of NCOS in all WAAPP-1C countries. Rather, it will support the strengthening of NCOS in Niger for livestock, Benin for maize and Sierra Leone for mangrove rice, and the rebuilding of the capacities for adaptive research and technology transfer in Togo, The Gambia and Liberia.

24. This component will therefore finance: (i) capacity-building for researchers, along with the facilitation of regional and international partnerships, including backstopping from research centers in the Consultative Group on International Agricultural Research (CGIAR), support for

research exchange programs, on-the-job-training of young researchers, and implementation of annual capacity-building plans; (ii) construction and/or rehabilitation of core facilities (such as laboratories, buildings, and experimental fields), and the provision of equipment; (iii) supply chain analyses, benchmarking, and monitoring and impact analysis for commissioned or strategic research; and (iv) the financing of small grants to implement research to assess available technologies originating within or outside the territory of the participating country.

25. **Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption. (US$57.84 million of which: IDA: US$33.48 million; Japan TF: US$8.44 million; GFRP: US$4.64 million).** This component aims at financing priority-focused agricultural research and advisory services within participating countries and complement core program activities financed under Component 2. The component has three subcomponents:

26. **Sub-component 3.1: Demand-driven technology generation:** This sub-component will support the strengthening and/or the setting up of the institutional framework of the regional and national Competitive Agricultural Grant Scheme (CARGS) with strong buy-in from major stakeholders.

27. Under this sub-component the Project will: (i) support the strengthening of the regional CARGS, managed by CORAF; (ii) provide technical assistance and resources to make operational the established but non-functional national CARGS in Togo; and (iii) finance studies, study tours and workshops to set up national CARGS in Liberia, The Gambia, Niger, Benin and Sierra Leone by the end of the Project. The grant schemes supported by the Project will finance small grants on a competitive basis for research teams to implement proposals addressing high-priority needs of stakeholders along the value chains.

28. Funding of the CARGS will follow clear and transparent guidelines adapted from current procedures, best practices and lessons learned from WAAPP-1A, which will be described in the procedures manual.

29. **Sub-component 3.2: Support to accelerated adoption of released technologies.** To bridge the gap between farmers' yields and yields obtained by researchers, this sub-component will accelerate the adoption of technologies that have already been released, particularly technologies for the six strategic value chains identified as priorities at the regional level (rice, maize, cassava, livestock, meat, and milk). The Project's strategy is to focus initially on technologies identified during Project preparation, which are already available and are likely to have a rapid impact. The Project will also support the dissemination of technologies generated under WAAPP-1B.

30. This sub-component will support: (i) stakeholders' workshops to prepare national dissemination action plans for released technologies; (ii) the promotion of released technologies through various communications media to improve awareness of technologies and expand their use; (iii) the introduction of information technology in the technology transfer system; (iv) participatory training on released technologies for extension service providers, including national extension services, non-governmental organizations (NGOs), input providers, farmers' organizations, and other stakeholders; and (v) field demonstrations of released technologies.

31. **Sub-component 3.3: Facilitating access to improved genetic material.** This sub-component will increase the availability of and producers' access to improved genetic materials (seed, planting materials, fingerlings, and animal breeds) for the identified strategic value chains

targeted by the WAAPP including rice, maize, yam and cassava, livestock, meat, milk, and aquaculture.

32. This sub-component will support all relevant stakeholders along the supply chains (for example, research institutions for producing foundation seed, the private sector and farmers for multiplying and marketing seed) to scale up the production of breeder, foundation, and certified seed and planting materials and quality animal stocks, including upgrading the capacity of selected public research stations through investments in irrigation, laboratory and storage facilities.

33. **Component 4: Project Coordination, Management and Monitoring and Evaluation. (US$17.59 million of which: IDA: US$11.72 million; Japan TF: US$0.88 million; GFRP: US$0.36 million)**. This component will establish an effective coordination, management, and M&E system for the Project at the national and regional levels. Like WAAPP-1A and WAAPP-1B, WAAPP-1C will also be implemented at the regional level by CORAF (ECOWAS' mandated implementing agency) and at the national levels by the national coordinating units.

34. This component will finance the implementation of: (i) a financial management and procurement systems at CORAF and each participating country; (ii) a reporting system of Project activities; (iii) regional and national agricultural productivity M&E ; and (iv) a communication strategy. The support to CORAF provided under the Project will complement the financing from other CORAF partners.

B. Project Financing

1. Lending Instrument

35. The lending instrument of the Program is a regional IDA of 10-year APL consisting of two phases, each lasting five years. The APL follows a horizontal approach that started in 2007 with IDA financing to three countries (Ghana, Mali, and Senegal) followed in 2010 by an IDA financing for additional three other countries (Cote d'Ivoire, Burkina Faso and Nigeria). WAAPP-1C will expand the program's geographic coverage to all candidate ECOWAS countries. It is co-financed by a Japan PHRD Grant to the MRU countries (Sierra Leone and Liberia) and a Global Food Crisis Response Program (GFRP) trust fund (The Gambia).

2. Project Financing Table

36. Table 1 is the summary cost table for WAAPP-1C (the tables for the Project cost by country are found in Annex 2)

Table 1. WAAPP-1C summary cost table by Components

	(000US$)			IDA Financing	% Financing
	Local	Foreign	Total		
A. Enabling Conditions for Regional Cooperation and Market Integration					
Harmonizing national regulations at the ECOWAS level	4.91	1,75	6.66	6.80	5.63
Establishing a national framework for technology generation and dissemination	0.94	0,52	1,46	1.52	1.26
Knowledge management, information and communication	0.89	0,25	1,14	0.95	0.79
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	6.74	2,52	9.26	9.27	7.68
B. National Center of Specialization					
Upgrading core facilities and equipment	13.45	5.93	19.38	13.58	11.25
Upgrading the capacity of researchers and development workers	7.14	1,02	8.16	6.66	5.52
Support to priority research programs	7.76	3,10	10.86	9.09	7.53
Subtotal National Center of Specialization	28.35	10.05	38.40	29.33	24.30
C. Technology Generation, Dissemination and Adoption					
Competitive agricultural research grant scheme	19.50	1,15	20.65	13.64	11.30
Support to technology transfer	8.85	1.97	10.82	6.38	5.29
Promotion of sustainable seed systems	11.68	7.18	18.86	13.46	11.15
Subtotal Technology Generation, Dissemination and Adoption	40.03	10.30	50.33	33.48	27.74
D. Project Management, Monitoring and Evaluation					
Project Management and Coordination	10.99	2.36	13.35	10.37	8.59
Project Monitoring and Evaluation	1.40	0.25	1.65	1.35	1.12
Subtotal Project Management, Monitoring and Evaluation	12.39	2.61	15.00	11.72	9.71
Total BASELINE COSTS	**87.53**	**25.48**	**113.01**		
Physical Contingencies	0.66	0.65	1.31		
Price Contingencies	5.69	0.68	6.37		
Total PROJECT COST	**93.88**	**26.81**	**120.69**	**83.80**	**69.43**

C. Lessons Learned and Reflected in the Project Design

37. The lessons summarized in the WAAPP-1B project document remain relevant for WAAPP-1C. They include (i) the generic lessons from previous technology generation and dissemination interventions funded by the Bank in the region, (ii) lessons learned from the implementation of WAAPP-1A, and (iii) lessons learned from the regional Quality Assurance Group (QAG). Additional lessons reflected in the Project design include:(i) the use of project staff from countries already involved in the WAAPP to support preparation in new countries have proven to be very effective in speeding project preparation, networking competencies at the regional level, sharing experiences and stimulating new entrants interest in the Project; and (ii) CORAF coordination role is changing as more and more countries are joining and the development of technical networks being promoted by CORAF is likely to increase the exchange of best practices and experiences, and increase Project efficiency, and facilitate achievement of the PDO.

IV. Implementation

A. Institutional and Implementation Arrangements

38. CORAF will continue to implement the WAAPP at the regional level. At the national level, WAAPP-1C will be implemented by existing institutions in each participating country: (i) the PCU of the Emergency Support to Enhance Food Security Project *(Projet d'Urgence d'Appui à la Securité Alimentaire*- PUASA) financed under the European Union Food Crisis Rapid Response Facility in Benin;; (ii) the common Project Coordination Unit (PCU) of the Liberia Agriculture Sector Investment Program (LASIP) in Liberia; (iii) the National Coordination Unit of the IDA-financed Community Action Program Support Project 2 (*Programme d'Actions Communautaires*,PAC-2) in Niger; (iv) the IDA-financed Rural and Private Sector Project (RPSDP) in Sierra Leone; (v) the Project Implementation Unit established under the Emergency Agricultural Production Project (GEAPP) financed under European Union Food Crisis Rapid Response Facility Trust Fund in The Gambia, and (vi) by the Secretariat General of the Ministry of Agriculture in Togo.

39. IDA will enter into Financing Agreements with each of the participating countries and into a Project Agreement with CORAF. At least one-fifteenth (1/15th) of the proceeds of the country IDA financing will be made available to CORAF under subsidiary grant agreements to be concluded between each of the participating countries and CORAF for regional coordination activities as well as the implementation of the regional competitive grant scheme. With respect to the resources coming from the Japan PHRD Trust Fund and the GFRP, the Bank and IDA, acting as administrator of such trust funds, will conclude a grant agreement with each of the MRU countries (Liberia and Sierra Leone) for Japan PHRD and The Gambia for GFRP.

40. CORAF will monitor the overall implementation of the Project. It will report on progress related to the effectiveness of the dissemination mechanisms and the increase in agricultural productivity and competitiveness in the Project's areas of interest.

41. Each country will establish a WAAPP Oversight or Advisory Committee to provide policy guidance. The committee will meet at least twice each Fiscal Year to undertake, inter alia, the review and approval of the draft Annual Work Program and Budget (AWP&B), the approval of the annual report to be prepared by the Project Coordinator, and the review of implementation progress. The countries will send representatives to the Regional level Oversight Committee already established under WAAPP-1A and -1B, which is chaired by ECOWAS and meets twice a year to review the draft regional AWP&B and discuss overall implementation issues.

42. Sub-components 1.3 and 1.4 will be implemented by the national coordination units of each country on the basis of result-based Memorandum of Understanding (MOU) concluded with each concerned directorate of the ministries in charge of agriculture, livestock or fisheries or other government implementing partners, depending on the country's particular set-up. The MOU will delegate the responsibility for Project implementation to the relevant directorate or other partner and will set forth the details of implementation.

43. Component 2 will be implemented by the *Institut National de Recherche Agricole du Bénin* (INRAB) in Benin, the Liberia Agronomic Research Institute (LARI) in Liberia, the *Institut National de* Recherche *Agronomique du Niger* (INRAN) in Niger, the Sierra Leone Agricultural Research Institute (SLARI) in Sierra Leone, the National Agronomic Research

Institute (NARI) in The Gambia, and the *Institut Togolais de Recherche Agronomique* (ITRA) in Togo.

44. The national window under Sub-component 3.1 will be implemented, in Benin by the PCU until the *Fonds National de Développement Agricole* (FNDA) is established and operational, in Niger by the *Conseil National de Recherche Agronomique* (CNRA), and in Togo by the *Fonds National d'Appui Institutionnel Agricole* (FNAIA). In Liberia, Benin, Sierra Leone and The Gambia the PCU will implement the national window and transfer the technical management to the national CARGS when it will be set up. The regional window of Sub-component 3.1 will be implemented by CORAF.

45. The national coordination units will be responsible for Sub-components 3.2 and 3.3 on the basis of contractual arrangements to be concluded with suitable advisory service providers in accordance with the provisions of the Project Implementation Manual (PIM).

46. Component 4 will be implemented by each country for the national level and by CORAF for the regional level.

47. Each country has prepared and adopted a PIM, providing detailed information on institutional and implementation arrangements, especially in the key areas of (i) setting priorities for research and extension, and (ii) monitoring and evaluating of Project outcomes and outputs.

B. Results Monitoring and Evaluation

48. The M&E system will be designed to document Project outcomes and intermediate results. CORAF will have the primary responsibility for the Project's M&E. In this capacity, CORAF has already defined under WAAP-1A a standard methodology for data collection and processing techniques as well as for the measurement of impacts at both the national and regional levels to allow comparability across countries. CORAF issued a regional M&E manual with the standard methodology used by the WAAPP-1A, which was adapted for WAAPP-1B countries and will now be extended to WAAPP-1C countries.

49. At the country level, the PCU will be responsible for the overall M&E of Project indicators and outcomes. To that end, the PCU and NCOS will conduct farm surveys to measure the indicators on productivity improvement and technology adoption. The M&E units of the PCUs will be strengthened with additional staff solely dedicated to WAAPP activities. The anchor projects in the participating countries have developed M&E systems; their M&E manuals have been updated to include M&E needs for WAAPP-1C.

50. Based on the M&E system CORAF and each participating country will produce semi-annual reports along with synthesis of information on the priority commodity sector in each country and information on research grants and results. CORAF will produce an annual consolidated report, based on the countries' reports and their specific studies, to be shared with all ECOWAS countries. Also on yearly basis, CORAF will inform participating countries on progress in implementing Project activities implementation progress and on the use of funds transferred from country proceeds, with all relevant documents (including financial statements, financial audit, and implementation progress reports) approved by its Oversight Committee.

51. Although the basic structure of the Project's M&E is in place, it will be strengthened and improved at the national and regional levels, as reflected in the Project's cost tables.

C. Sustainability

52. As specified in the Project Appraisal Document (PAD) of WAAPP-1B, the Project's sustainability critically depends on: (i) the development of clear mechanisms for disseminating and sharing technologies across countries; (ii) the establishment of recognized Regional Centers of Excellence (RCOE); and (iii) the development of appropriate financing mechanisms (budgetary contributions) to support core operations of the regional institutions (CORAF and RCOE). The proposed Project will contribute to WAAPP's long-term sustainability by helping participating countries to set up a sustainable funding mechanism, including contributions from governments and beneficiaries, to finance future technology generation and dissemination.

V. Key Risks

53. Overall **Risk rating is Medium-L.**

54. A detailed Operational Risk Assessment Framework (ORAF) has been prepared for the Project based on lessons from WAAPP-1A and WAAPP-1B and additional risk assessments in the new participating countries (Annex 4). Weak capacity among an aging cohort of research and extension staff in many of the participating countries poses major risks to this Project. This constraint is especially severe in Liberia which lost all of its research capacity during the prolonged war in the country.

55. To mitigate the risk posed by poor capacity in research and extension, the Project will support each country in implementing a capacity-building action plan that will include on-the-job and academic training for young researchers, with backstopping from CGIAR centers, and scaling up of the researcher exchange program formed under WAAPP-1A. A specific capacity plan was prepared for Liberia and Sierra Leone based on a comprehensive capacity assessment by CORAF and the Forum for Agricultural Research in Africa (FARA) under the Strengthening Capacity for Agricultural Research and Development in Africa Program of the latter.

A. Implementing Agency Assessment

56. CORAF has demonstrated strong capacity to coordinate project implementation at the regional level through the implementation of WAAPP-1A and the preparation of WAAPP-1B. WAAPP-1C will be implemented through existing institutions in each of the participating countries, except for Liberia. In Liberia, the PCU does not have experience in managing World Bank projects, although it is currently managing a financing from African Development Bank. An assessment by the World Bank identified the need to strengthen this PCU with additional staff, including a Financial Management (FM) Specialist, a Procurement Specialist and an M&E Specialist.

B. Project Stakeholder Assessment

57. An assessment of project stakeholders has already been conducted at regional level and in each of the Participant countries. The main stakeholders include producer organizations along the selected value chains, key directorates of ministries of agriculture and livestock, technology generation and dissemination institutions (National research institutions, National extension services, Universities and NGOs). The project is working with existing institutions. Capacity

strengthening needs and action plans has already been developed and included in the draft country documents.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

58. The analysis mainly focuses on the returns from the investments under Component 2 ("National Centers of Specialization") and Component 3 ("Funding of Demand-Driven Technology Generation and Adoption"). More specifically, the analysis estimates the returns from the improved efficiency of the value chains supported at the national and regional levels. Benefits are expected to arise from: (i) the generation, diffusion and adoption of new or improved technologies; (ii) the enhanced technology spillovers among ECOWAS countries resulting from an integrated policy environment with regards to agricultural cooperation; and (iii) sound communications and dissemination approaches to enhance the Project's visibility, transparency, and effectiveness. The Project also creates a number of positive externalities under Component 1 ("Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination and Adoption of Agricultural Technologies") and Component 4 ("Project Coordination, Management, Monitoring and Evaluation"). These externalities have not been assessed directly in the analysis because it is difficult to quantify the effects of institutional strengthening and capacity building.

59. The economic and financial analysis (see Annex 7 for detail) for WAAPP-1C used the same framework and methodology (minimum national impact assessment) as the analysis in the PAD of WAAPP-1B. It include the general issues for economic analysis of agricultural research and extension (R&E) projects, reviews returns to past investments in agricultural R&E projects in West Africa, and discusses the potential for R&E spillovers in West Africa, and presents an overview of the economic importance of the main commodities supported by WAAPP-1C, the methodology and the basic assumptions supporting it, and the outcomes of the analysis including the baseline results and sensitivity analysis.

60. Results from the baseline and sensitivity analysis show that WAAPP-1C is an economically desirable Project. If spillovers occur between the innovating countries and the other ECOWAS countries, the minimal annual growth rates required to breakeven—that is, to reach an Internal Rate of Return (IRR) of 12 percent for the proposed Project—are modest and attainable in each country, as shown in the table below (summary of baseline results, minimum yield increases required to breakeven). Detailed results of the sensitivity analysis are presented in Annex 7.

Table 1. Results of baseline economic analysis of WAAPP-1C[3]

Baseline scenario	Minimum yield increase required to breakeven, % (End of WAAPP, cumulative)
BENIN	
(i) Without spillovers	5.2
(ii) With spillovers in Togo	3.92
(iii) With spillovers in West Africa	0.344
NIGER	
(i) Without spillovers	37.6
(ii) With spillovers in Nigeria and Burkina Faso	16
(iii) With spillovers in West Africa	4.8
SIERRA LEONE	
With spillovers in Liberia	1.75

B. Technical

61. The Project design incorporated lessons from implementing WAAPP-1A and preparing WAAPP-1B. The Project is also anchored in the national agricultural medium-term programs prepared through the CAADP process. Furthermore the preparation of the proposed Project was done through a participatory process that led to strong country ownership in participating countries. Project staff from WAAPP-1A and -1B countries participated also actively in the preparation in new countries, which resulted in an enhanced experience sharing, sped the preparation process and produced quality documents.

C. Financial Management (FM)

62. The World Bank's financial management team conducted an assessment of WAAPP-1C in November 2010 in accordance with the new Financial Assessment Principles and ORAF guidelines. WAAPP-1C, which continues to involve CORAF at the regional level and brings in a new set of countries (Togo, Benin, Niger, Liberia, Sierra Leone and The Gambia), follows upon the acceptable implementation of WAAPP-1A and -1B and will benefit from the capacity-building activities in FM conducted at the regional level. During the FM assessment, the Bank's FM team consulted the various texts establishing the national institutions in charge of implementing the Project and reviewed the fiduciary arrangements of the proposed implementing entities. A review of the FM capacity of the entities involved in WAAPP-1C identified inherent and control risks, for which the team developed corresponding mitigation measures. The proposed FM arrangements for this Project are considered adequate to meet the Bank's minimum fiduciary requirements under OP/BP10.02. The implementing entities are compliant with the Bank's FM requirements and there are no overdue audit reports and interim financial reports from these entities. The assessment recommended: (i) developing a comprehensive manual of

[3] The analysis focuses on returns in countries with NCOs (Benin, Niger, and Sierra Leone) and spillover effects in the other countries. The analysis did not take into account the case of The Gambia as, the Gambia was included in the project at the last moment after the analysis was completed.

procedures encompassing the operations of the implementing entities; (ii) recruiting additional FM staff; (iii) selecting the external auditor; and (iv) the due approval of Subsidiary Grant Agreements in form and substance satisfactory to IDA between CORAF and each participating country. The detailed FM assessment, together with the proposed arrangements for disbursements, accounting, auditing, and monitoring is provided in Annex 3.

63. The Overall Risk Rating for FM is Medium-L.

D. Procurement

64. Procurement assessments for CORAF and the implementing agencies in Niger, Togo, Benin, Sierra Leone, Liberia and The Gambia were done during the period of November to December 2010. The assessments reviewed the procurement procedures, organizational structures, staffing, and skills at the country and project management levels. The overall risk for procurement (prior to mitigation measures) is considered Medium-L for CORAF because of their experience in implementing WAAPP projects and the strong capacity strengthening provided under WAAPP-1B. Overall risk for procurement was, Medium-Impact for Benin, Niger, Sierra Leone and The Gambia owing to their procurement experience in implementing other projects financed by the Bank. Overall procurement risk was High for Togo and Liberia, where the implementing entities have very little experience in implementing procurement procedures for Bank financing. The assessments recommended a number of actions to mitigate the procurement risks. With implementation of these measures the procurement risks are expected to be reduced to Medium-Likelihood for all of WAAPP-1C countries.

65. For the proposed Project, the following guidelines will apply: (i) "Guidelines: Procurement Under IBRD Loans and IDA Credits" (May 2004, revised October 2006 and May 2010); (ii) "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" (May 2004, revised October 2006 and May 2010); and (iii) “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants” (October 15, 2006, and revised in January 2011).

E. Social (including safeguards)

66. WAAPP-1C is expected to have no significant negative social impacts. Project beneficiaries are mainly small-scale farmers who dominate African agriculture not only in local food production but also production for regional and international markets—in which women play a critical role. The Project will work to ensure that the circumstances of small-scale farmers, particularly women, are accounted for in setting priorities for the CARGS and implementing the research they finance. The grant schemes will require, for example, that bids for competitive grants clearly identify the farm population that will benefit from the research. Adaptive research will be conducted in farmers’ fields. Competitive grants to implement R&D will be open to producers’ organizations and agribusiness associations and not only to research organizations. The Project will work with development operations and public–private partnerships to promote producers’use of technologies.

67. Under WAAPP-1A and -1B CORAF has recently designed a regional gender strategy to mainstream gender considerations in technology generation and adoption. The Project will support implementation of this strategy in each participating country, and the strategy will be

improved with the proposed Comprehensive Social Impact Assessment. The assessment will highlight country-specific initiatives and national strategies to further mainstream gender dimensions considerations in the agricultural sector, and it will capture potential sources of human conflict, especially between herders and farmers, which if not mitigated could have serious negative impacts on the Project.

68. During the pre-appraisal mission site visits that covered some of the participating countries (Benin, Togo, Liberia and Sierra Leone) identified issues related to land acquisition and/or loss of economic activity on the part of individuals or groups particularly in Togo. Therefore, the proposed Project launched studies to prepare a Resettlement Action Plan (RAP) for Togo and a Resettlement Policy Framework (RPF) for all other participating countries, as well as a Environmental and Social Management Framework (ESMF) and Pest Management Plan (PMP) for The Gambia. The documents were consulted upon, reviewed by the Bank, and disclosed in-country and at the InfoShop before appraisal. These instruments provide sufficient guidelines for their implementation, both at regional level (by CORAF that has appointed 2 Social and Environmental Focal Points) and at national levels (by the 2 Social and Environmental Focal Points in each country). A comprehensive World Bank Social and Environmental Safeguard Workshop will be organized in 2011 to provide these key stakeholders with the tools and means to help the proposed Project comply with World Bank operational safeguard policies. This proposed safeguard clinic will assemble participants from all WAAPP countries.

F. Environment (including safeguards)

69. WAAPP-1C is expected to have a positive environmental impact through its support for agricultural technologies that promote better use of land and water resources. Potential environmental risks could include point and nonpoint pollution of water sources, other issues associated with the use of agricultural chemicals, and negative environmental impacts associated with the rehabilitation of irrigation or small-scale civil works on research stations. Research on transgenic crops is neither explicitly planned nor excluded. If it becomes part of the research agenda supported under the Project, it will proceed with environmental safeguards consistent with international good practice and the regulatory framework of the host country. In particular, such research must be done in accordance with the obligation of each country under international treaties to which it is a party, including the Cartagena Protocol on Biosafety. Potential adverse environmental impacts associated with the NCOS activities will be of low intensity, minor, site specific, and handled under safeguard measures already in place for ongoing activities.

70. Mitigation measures under the Project will include the application of integrated pest management practices and the application and promotion of pesticide management practices outlined in the guidelines of the International Code of Conduct on the Distribution and Use of Pesticides; risk management for transgenic crops through the national biosafety framework and international best practice; and the use of environmental impact assessments, as appropriate, for minor civil works.

71. Four of the World Bank's Environmental safeguard policies apply to the Project: Environmental and Social Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Pest Management (OP 4.09), and Involuntary Resettlement (OP/BP 4.12). The triggering of the Natural Habitats Policy applies specifically to Sierra Leone, where field research activities by Rockpur Agricultural Research Center (RARC), are located near mangrove areas. CORAF

prepared an ESMF and PMP which were reviewed during a stakeholder sub-regional workshop in Dakar in August 2010, consulted upon, reviewed by the Bank, and disclosed regionally by CORAF and at Bank InfoShop on December 13, 2010. Additionally, since the Gambia has been included in the project at a letter stage, these regional ESMF and PMP have been updated to include The Gambia, reviewed by the Bank, and disclosed in by CORAF and at Bank Infoshop on January 20, 2011. The Resettlement Action Plan (RAP) for Togo and a Resettlements Policy Framework for all other participating countries have also been consulted upon, revised by the Bank, and disclosed on January 20, 2011.

Annex 1: Results Framework and Monitoring

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

Results Framework

PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR 1	YR 2	YR3	YR 4	YR5			
Indicator One: Direct Project beneficiaries of which female(breakdown 40% of whom are female)	☒	Number	B=0	5,000	30,000	100,000	200.000	250,000	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	5,000	20,000	50,000	80,000	100,000			
			Li=0	5,000	20,000	50,000	100,000	150,000			
			Ni=0	3,000	50,000	150,000	250,000	300,000			
			SL=0	5,000	40,000	100,000	150,000	200,000			
			T=0	3,000	30,000	70,000	150,000	200,000			
Indicator Two: Number of released technologies by NCOS (at least 3 over five years, cumulative)	☐	Number	B=0	0	2	3	5	5	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga	N/A	N/A	N/A	N/A	N/A			
			Li	N/A	N/A	N/A	N/A	N/A			
			Ni=0	0	1	3	5	5			
			SL=0	0	2	3	5	5			
			T	N/A	N/A	N/A	N/A	N/A			
Indicator Three: Percentage of released technologies by NCOS with at least 15% increase in farm level productivity over the control.	☐	Percent	B=0	0	100 %	100 %	100 %	100 %	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga	N/A	N/A	N/A	N/A	N/A			
			Li	N/A	N/A	N/A	N/A	N/A			
			Ni=0	0	100%	100%	100%	100%			
			SL=0	0	100%	100%	100%	100%			
			T	N/A	N/A	N/A	N/A	N/A			
Indicator Four: Area under new technologies (ha, breakdown per country and/ or per technology)	☐	Hectare	B=0	3,600	21,600	72,000	144,000	240,000	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	3,600	14,400	36,000	57,600	70,000			
			Li=0	3,600	14,400	36,000	72,000	110,000			
			Ni=0	2,160	36,000	108,000	180,000	220,000			
			SL=0	3,600	28,800	72,000	108,000	150,000			
			T=0	1,000	10, 000	21,000	45,000	100,000			
Indicator Five: Number of producers (agribusinesses) who have adopted improved technologies made available under the Project	☐	Number	B=0	3,000	18,000	60,000	120,000	150,000	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	3,000	12,000	30,000	48,000	60,000			
			Li=0	3,000	12,000	30,000	60,000	90,000			
			Ni=0	1,800	30,000	90,000	150,000	180,000			
			SL=0	3,000	24,000	60,000	90,000	120,000			
			T=0	1,800	18,000	42,000	90,000	120,000			
INTERMEDIATE RESULTS											
Intermediate Result (Component One): Enabling conditions for sub-regional cooperation in the generation, dissemination and adoption of agricultural technologies											
Intermediate Result indicator One: Number of regulations	☐	Number	B=1	1	2	3	3	3	Annual	Supervision missions and Annual	PCU and CORAF/WECARD
			Ga=0	1	2	3	3	3			
			Li=0	0	2	2	3	3			
			Ni=1	1	2	3	3	3			

adopted per country and aligned to regional regulations (number), cumulative			SL=0	0	1	2	3	3		assessments/survey	
			T=0	0	1	1	2	2			
Intermediate Result indicator Two: Common framework for e.g., IPR, farmers' rights and/or Geographic Indicators (GI) developed and agreed on	☐	Yes/No	B=N	N	Y	Y	Y	Y	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=N	Y	Y	Y	Y	Y			
			Li=N	N	Y	Y	Y	Y			
			Ni=N	N	N	Y	Y	Y			
			SL=N	Y	Y	Y	Y	Y			
			T=N	N	Y	Y	Y	Y			
Intermediate Result indicator Three: A system for data collection, analysis and reporting on agricultural technologies, research skills, and regional agricultural productivity is established and managed by CORAF/WECARD is adopted	☐	Yes/No	B=N	N	Y	Y	Y	Y	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=N	Y	Y	Y	Y	Y			
			Li=N	N	Y	Y	Y	Y			
			Ni=N	Y	Y	Y	Y	Y			
			SL=N	Y	Y	Y	Y	Y			
			T=N	N	N	Y	Y	Y			
Intermediate Result indicator Four: National (Variety/Breed) Registration Committee operational	☐	Yes/No	B=N	N	Y	Y	Y	Y	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=N	Y	Y	Y	Y	Y			
			Li=N	N	Y	Y	Y	Y			
			Ni=N	N	Y	Y	Y	Y			
			SL=N	Y	Y	Y	Y	Y			
			T=N	N	Y	Y	Y	Y			
Intermediate Result indicator Five: Web-based information system on agricultural technologies and research skills is established and managed	☐	Yes/No	B=N	N	Y	Y	Y	Y	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=N	Y	Y	Y	Y	Y			
			Li=N	Y	Y	Y	Y	Y			
			Ni=N	N	Y	Y	Y	Y			
			SL=N	N	Y	Y	Y	Y			
			T=N	N	Y	Y	Y	Y			
Intermediate Result (Component Two): National Centre of Specialization/ Strengthening of the Research System											
Intermediate Result indicator One: Number of technologies generated by NCOS and demonstrated by the project in the project area (breakdown by technology)	☐	Number	B=0	0	2	3	5	5	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga	N/A	N/A	N/A	N/A	N/A			
			Li	N/A	N/A	N/A	N/A	N/A			
			Ni=0	0	1	3	5	5			
			SL=0	0	2	3	5	5			
			T	N/A	N/A	N/A	N/A	N/A			
Intermediate Result indicator Two: Number of technologies generated outside the country and tested by a non-	☐	Number	B	N/A	N/A	N/A	N/A	N/A			
			Ga=0	2	3	5	6	6			
			Li=0	2	4	5	6	6			
			Ni	N/A	N/A	N/A	N/A	N/A			
			SL	N/A	N/A	N/A	N/A	N/A			
			T=0	2	4	6	8	8			

NCOS country											
Intermediate Result indicator Three: Number of technologies released by NCOS and demonstrated in at least two ECOWAS countries outside the country of origin (breakdown by technology and country)			B=0	0	1	2	3	3	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga	N/A	N/A	N/A	N/A	N/A			
			Li	N/A	N/A	N/A	N/A	N/A			
			Ni=0	0	1	2	3	3			
			SL=0	0	1	2	3	3			
			T	N/A	N/A	N/A	N/A	N/A			
Intermediate Result indicator Four: Number of client days of training provided (includes scientists, extension agents, agro dealers, farmers, community members, etc)	☐	Number	B=0	90	180	270	360	450	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	60	140	250	400	600			
			Li=0	100	1,000	1,500	2,000	3,000			
			Ni=0	200	1,200	2,200	3,200	4,800			
			SL=0	500	1,500	2,500	3,500	4,500			
			T=0	460	380	380	160	120			
Intermediate Result indicator Five: Number of Scientific exchange visits/study tours	☐	Number	B=0	1	4	6	8	10	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	1	2	3	4	5			
			Li=0	2	4	7	12	15			
			Ni=0	2	4	6	8	10			
			SL=0	3	6	10	14	18			
			T=0	3	3	5	5	10			
Intermediate Result indicator One: Number of Multi-country research proposals financed by the regional Competitive Agricultural Research Grant System (CARGS)	☐	Number	B=0	0	1	2	2	3	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	0	1	2	3	3			
			Li=0	0	1	1	2	3			
			Ni=0	0	1	2	3	3			
			SL=0	0	1	2	3	3			
			T=0	0	0	1	2	3			
Intermediate Result indicator Two: National Research projects financed (number, % of proposals received)	☐	Number	B=0	3	7	11	20	20	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	3	5	10	15	15			
			Li=0	0	2	4	6	6			
			Ni=0	3	8	12	20	20			
			SL=0	6	14	20	20	20			
			T=0	4	8	12	16	16			
Intermediate Result indicator Three: Number of technologies generated under the CARGS and demonstrated by the project in the project area (breakdown by technology and by country)	☒	Number	B=0	0	0	2	3	4	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	0	0	2	4	5			
			Li=0	0	0	0	1	1			
			Ni=0	0	0	1	2	4			
			SL=0	0	4	6	8	8			
			T=0	0	0	2	4	6			
Intermediate Result indicator Four: Number of publications	☐	Number	B=0	0	2	4	6	8	Annual	Supervision missions and Annual	PCU and CORAF/WECARD
			Ga=0	0	1	3	7	10			
			Li=0	0	0	1	2	2			
			Ni=0	0	2	8	10	10			

released in a regional/national journals/magazines			SL=0	0	2	5	8	10		assessments/survey	
			T=0	0	1	3	5	7			
Intermediate Result indicator Five: Foundation seeds and breed stock produced through the program support (cereals: tons, cassava: units/ha, etc.)	☐	Ton	B=0	100	150	250	4,00	500	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	100	150	200	250	300			
			Li=0	100	200	300	400	500			
			Ni Livest.=0 Crops=0	700 115	1300 145	2,000 175	2,500 200	3,000 230			
			SL= 0	20	40	50	70	100			
			T=0	5	30	70	160	200			
Intermediate Result indicator One: Percentage of procurement activities are executed in conformity with the procurement plan, the implementation manual, and IDA procedures	☐	Percent	B=0	100%	100%	100%	100%	100%	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	90%	95%	100%	100%	100%			
			Li=0	100%	100%	100%	100%	100%			
			Ni=0	100%	100%	100%	100%	100%			
			SL= 0	100%	100%	100%	100%	100%			
			T=0	100%	100%	100%	100%	100%			
Intermediate Result indicator Two: Percentage of reports are presented within 45 days of the end of the relevant period.	☐	Percent	B=0	100%	100%	100%	100%	100%	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	90%	95%	100%	100%	100%			
			Li=0	100%	100%	100%	100%	100%			
			Ni=0	100%	100%	100%	100%	100%			
			SL= 0	100%	100%	100%	100%	100%			
			T=0	100%	100%	100%	100%	100%			
Intermediate Result indicator Three: A national M+E system is established and operational	☐	Yes/No	B=N	Y	Y	Y	Y	Y	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=N	Y	Y	Y	Y	Y			
			Li=N	Y	Y	Y	Y	Y			
			Ni=N	Y	Y	Y	Y	Y			
			SL= N	Y	Y	Y	Y	Y			
			T=N	Y	Y	Y	Y	Y			
Intermediate Result indicator Four: Percentage of sub-project granted with environmental management plan that have been implemented effectively	☐	Percent	B=0	100%	100%	100%	100%	100%	Annual	Supervision missions and Annual assessments/survey	PCU and CORAF/WECARD
			Ga=0	100%	100%	100%	100%	100%			
			Li=0	100%	100%	100%	100%	100%			
			Ni=0	100%	100%	100%	100%	100%			
			SL= 0	100%	100%	100%	100%	100%			
			T=0	100%	100%	100%	100%	100%			

***Please indicate whether the indicator is a Core Sector Indicator (see further http://coreindicators)**
****Target values should be entered for the years data will be available, not necessarily annually.**

Annex 2: Detailed Project Description

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

1. The WAAPP is a two-phase, ten-year, horizontal and vertical APL to support the implementation of ECOWAP through the implementation of CAADP's fourth pillar. Under the first phase of WAAPP, the Board has already approved two series: WAAPP-1A (Mali, Senegal, and Ghana) in 2007 and WAAPP-1B (Burkina Faso, Côte d'Ivoire and Nigeria) in 2010. Successful results in WAAPP-1A countries (in harmonizing regulations, setting up centers of specialization, operating demand-driven research systems, and sharing researchers and released technologies) justify the Bank's support for extending the program to all ECOWAS member states, as envisaged originally.

2. The design of this program demonstrates the Bank's long-term commitment to generating and disseminating technology and knowledge, building capacity, and fostering regional integration. The Bank already supports a number of ECOWAS member states at the national level in technology generation and dissemination and is well suited to create synergies and added value among national projects.

3. The extension of WAAPP to new countries under WAAPP-1C meets IDA's regional project eligibility criteria. It will: (i) generate social and economic benefits that spill across national boundaries; (ii) support the agricultural strategies of regional economic communities; and (iii) strengthen the platform for regional policy harmonization. The WAAPP will provide a regional framework for ECOWAS countries to collaborate in the implementation of national and regional agricultural strategies for technology generation and dissemination. It will further this collaboration through the development of specialized centers for technology generation and dissemination, which will also serve as regional knowledge-sharing centers.

4. The countries that currently meet the readiness conditions and will be covered under the proposed Project, WAAPP-1C, are: Benin, Liberia, Niger, Sierra Leone, Togo and The Gambia . These countries will receive the following IDA allocation, including one-third from their national IDA and two-thirds from the regional IDA: Benin (US$16.8 million), Liberia (US$6 million), Niger (US$30 million), Sierra Leone (US$12 million), Togo (US$12 million) and The Gambia (US$7 million).

5. WAAPP-1C will also provide specific support to the Mano River Union (MRU) countries, which are fragile states emerging from long conflicts and war, that destroyed or seriously weakened their human resources, infrastructures, and institutional capacity, by supporting the development of the rice sector in these countries. To this end a financing of US$18 million equivalent from the Japan Policy and Human Resources Development (PHRD) Trust Fund will be provided to the Mano River Union countries (Liberia and Sierra Leone) for the development of the rice value chain. The development of the rice sector will be conducted in synergy and close collaboration with the present and future programs operated by the Japan International Cooperation Agency (JICA) in the MRU countries (Box 1).

Box 1- The JAPAN PHRD support to Rice Sector in the MRU countries

1. **Rice has been identified as the priority commodity in the four Mano River Union (MRU) countries**: Liberia, Sierra Leone, Guinea and Ivory Coast. The contribution of rice to agricultural GDP amount to 35.5%, 32.9% and 9.9% in respectively Sierra Leone, Guinea and Ivory Coast[4]. Demand for rice in these four countries has outstripped production gains during last 4 decades, making them a major rice import market. Total imports of rice amounted to approximately 1.3 million metric tons in 2008 (see Table 2.2).

Table 2.2: Demand and supply for rice

Country	Rice produced (mt)	Rice imported (mt)	Rice consumed (mt)	Self-sufficiency rate
Sierra Leone (2007)	421,000	100,000	521,000	81%
Guinea (2008)	821,000	300,000	1,121,000	73%
Liberia (2008)	215,000	140,000	355,000	61%
Côte d'Ivoire (2008)	700,000	750,000	1,450,000	48%
Total MRU	2 ,157,000	1,290,000	3,447,000	63%

Source: National Rice Development Strategies of Liberia, Guinea, Ivory Coast and Sierra Leone.

2. Amongst numerous challenges of the rice value chain, key challenges to be tackled are: (a) enhanced productivity of rice production; and b) improved processing in order to obtain clean and good quality consumer rice. Yield increases (between 30% and 250%) are mainly based on improved water management, a broad adoption of improved rice varieties (e.g. Nerica), and improved crop husbandry practises.

3. The MRU countries have prepared National Rice Development Strategies (NRDS) through the JICA sponsored process of the Coalition for Africa Rice development (CARD) with support of CORAF and AfricaRice Centre (AfricaRice). The National Rice Development Strategies (NRDS) of these countries aim to double rice production by 2018, in order to achieve self sufficiency.

4. A Japan PHRD of US$18 million will be provided under WAAPP-1C to support the implementation of the NRDS of the MRU countries (Liberia and Sierra Leone). WAAPP-1C will mainly support these countries to: (i) align their regulations on genetic materials and pesticides with ECOWAS common regulations in order to better benefit from the regional technology space; (ii) build adaptive research capacities for rice value chain development in national agricultural research institutes in each countries with the support of AfricaRice and IRRI; (iii) strengthen the Rockpur research station in Sierra Leone as a Center of Specialization on mangrove rice for the sub-region; (iv) develop a sound and efficient seed sector; and (v) accelerate adoption of improved technologies along the rice value chain. The MRU Secretariat will be supported to assess the feasibility and eventually establish a sub-regional food security hub that will provide real time data and information on the rice and other key staple foods.

6. Furthermore, an additional co-financing of US$5 million equivalent from the FPCR-MDTF-Core will be provided to The Gambia to support accelerated adoption of technologies and help mitigate the effect of high food prices in this country.

7. Similar to WAAPP-1A and 1B, the development objective of WAAPP-1C is to generate and accelerate the 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.

8. Agricultural producers and other value chain actors —the users of improved production and post-harvest technologies made available through the Project—will be the primary beneficiaries. They will also be key participants, along with those involved in generating and disseminating the technologies (researchers, public and private extension agencies, and

[4] No quantitative data available for Liberia.

universities) and government agencies involved in value chain management and public regulatory services. Details of the proposed Project's components follow.

9. **Component 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies (US$10.16 million of which: IDA: US$9.27 million).** Effective national implementation of ECOWAS regulations on genetic materials and agrochemicals will stimulate sub-regional trade in agricultural produce and improve the generation and dissemination of agricultural technologies (mainly seed and agrochemicals). Component 1 aims to speed implementation of ECOWAS regulations within participating countries to allow them to benefit from regional technical and scientific cooperation.

10. Component 1 will therefore focus on the following key areas:

11. **Participating countries will implement ECOWAS regulations on genetic materials and** agrochemicals. ECOWAS has adopted common regulations on genetic materials and pesticides and is preparing a common policy on fertilizer. WAAPP will thus accelerate national implementation of ECOWAS regulations by fostering awareness of their importance and establishing bodies to implement them. To promote awareness of the regulations among stakeholders, the Project will develop a dissemination action plan that will involve awareness tools such as workshops, pamphlets (in English, French, and local languages), and other awareness mechanism. The Project will support evaluations of the characteristics of improved technologies, build capacity within government institutions in charge of implementation of the regulations, and cover the operating costs associated with the implementation of and communication about the process.

12. **National frameworks for technology generation and dissemination will be strengthened** so that all participating countries in the Project benefit efficiently and effectively from their collaboration. WAAPP will assist participating countries to: (i) design (mainly for MRU countries) or review their seed production, agricultural research and extension policies, strategies and action plans; (ii) establish or strengthen the national registration committees for the release of genetic materials, and approval of the use of pesticides and other agrochemicals; (iii) manage intellectual property rights (IPR); and (iv) establish or strengthen government institutions in charge of seed and agrochemicals and national seed certification services.

13. **Efficient and sustainable competitive funding mechanisms** and accompanying institutional arrangements will be established or strengthened to support the generation, dissemination, and adoption of improved and resilient agricultural technologies with the potential to provide region-wide benefits**.** Under WAAPP-1B CORAF reviewed the national legislations for the current competitive fund schemes in order to harmonize technical and financial procedures, promote their effective, transparent, and participatory management, and foster M&E systems and accompanying institutional arrangements that would also improve the likelihood that the schemes perform well. The proposed Project will finance study tours, consultant services, and workshops to support participating countries in the design or improvement of their policies and financing mechanism to make competitive fund schemes more sustainable and robust.

14. **Knowledge management, information, and communications systems will be developed** to speed technology dissemination and adoption within a regional framework for R&D cooperation facilitated by CORAF. These knowledge management and transfer systems are central to WAAPP's success. CORAF has worked under WAAPP-1A and -1B to develop a

comprehensive regional communications strategy with four pillars: Building relationships and knowledgeable team solutions, Promoting (regional) ownership and participation, Building capacity, training and skills to promote information and communications technology (ICT), and Creating awareness and visibility of Project objectives and results. The proposed Project will support the implementation of this strategy by financing: (i) a regional communications/information technical network of communications officers; (ii) the design and implementation of communications action plans; (iii) the contracting by CORAF and each participating country of a communications expert or firm to oversee the communications program and coordinate external and internal communication; (iv) the strenghening (at the national and CORAF level) of the web portal and initiation of regular web discussions among WAAPP members; and (v) the development by CORAF of a distance learning program that will facilitate networking and sharing of best practices among stakeholders in the sub region and the development of technical networks.

15. **Mainstreaming climate change and gender considerations** in R&D programs. Issues related to climate and gender demand greater and more consistent attention within agricultural R&D. Failure to consider climate change and gender in the development and dissemination of agricultural technology will present major challenges to sustained growth in agricultural productivity in West Africa. For example, more than half of the stakeholders in the targeted value chains for WAAPP are female, but most agricultural technologies released in the sub-region do not address women's specific needs. Under WAAPP-1A and -1B, CORAF released a comprehensive regional gender strategy and is working on the design of a regional climate change strategy. Furthermore, CORAF has recently launched a regional study to assess the vulnerability of eight priority commodities to climate change. WAAPP-1C will therefore complement this work by supporting CORAF and each participating country in the design and implementation of an action plan that is based on these strategies and seeks to mitigate the neglect of climate change and gender in technology generation and adoption. WAAPP-1C will also finance studies to assess the vulnerability of additional commodities to climate change.

16. **Component 2: National Centers of Specialization/Strengthening of the Research System (US$45.11 million of which: IDA: US$29.33 million; Japan TF: US$8.68 million).** The concept of NCOS is described in Annex 4 of the WAAPP-1B PAD. The main difference between WAAPP-1C and WAAPP-1A and -1B is that NCOS are not going to be established in every participating country. Rather WAAPP-1C will, in addition to strengthening NCOS in Benin for maize, in Niger for livestock and in Sierra Leone for mangrove rice and for inland valley/lowland[5] rice systems (Table 2.1), it will also rebuild the capacities for adaptive research and technology transfer and rehabilitate core agricultural adaptive research infrastructure in Togo, Liberia, Sierra Leone and The Gambia. This is because these countries—mainly Liberia and Sierra Leone— are emerging from long conflicts that eradicated the infrastructure and human capacity to develop and disseminate agricultural technology. For its part, Togo has experienced prolonged political instabilities that severely weakened their research capacities.

[5] Inland valley swamps (IVS), boliland, etc.

Table 2.1: NCOS host institutions and priority specialization areas in participating countries

Country	Host for NCOS	Area of specialization	Main Partner(s)
Sierra Leone	Rokupr Agricultural Research Centre (RARC)	Mangrove rice	AfricaRice Center
Benin	*Institut National de Recherche Agricole de Bénin* (INRAB)	Maize	International Institute of Tropical Agriculture (IITA)
Niger	*Institut National de Recherche Agricole de Niger (*INRAN)	Livestock	*Centre International de Recherche-Développement sur l'Elevage en Zone Subhumide,* International Livestock Research Institute (CIRDES, ILRI)

17. **Upgrading core facilities and equipment of NCOS and key partner institutions**. This component will therefore finance the rehabilitation/construction and equipment of laboratories, research and seed production fields, training centers, offices, staff residences, and guest accommodation, staff residence, research and seed production fields for key partners institutions including: (i) the Central Agricultural Research Institute (CARI) in Liberia, (ii) the Njala Agricultural Research and Rokpur Agricultural Research Centers (NARC and RARC respectively) in Sierra Leone, (iii) the *Institut* Togolais *de Recherche Agronomique* (ITRA), research centers of *Ativeme* and *Sotouboua* for rice and maize, *Kolocope Research Centre* for small ruminants and *Avetonou Research Centre* for poultry in Togo, (iv) the National Agricultural Research Institute (NARI) research stations and engineering workshops of *Sapu* and *Brikama* research station in The Gambia, and (v) the *Institut National de la Recherche Agronomique du Niger* (INRAN) livestock research centers of *Tokounous* and *Maradi*, INRAN crop research centers of *Kollo et Tahoua* and the laboratory (LABOCEL) of the *Faculté d'Agronomie* in Niger.

18. These facilities comprise several buildings, large research fields and research sub-stations located in the main agro-ecological zones of the participating countries. A preliminary assessment has identified the centers that will be rehabilitated and inventoried the rehabilitation requirements for the research fields and infrastructure, but the centers have not yet identified which civil works will be undertaken under the Project. Following further consultation with the researchers, research center managers will identify specific infrastructure and/or research fields for rehabilitation during Project implementation and prepare Environmental Assessments (EAs) or Environmental Management Plans (EMPs) as necessary. Selection of the works will be contingent on the consultations with researchers during the preparation of the priority list of works and during the validation of the design of the works. The Procurement Plan for the Project's first year includes consultancy services related to detailed technical studies for works and equipment. Investments will be contingent upon preparation of an ESIA. Details and procedures for carrying out specific ESIAs and ESMPs were discussed in the context of the disclosed ESMF.

19. **Building the capacity of researchers and facilitating regional research partnerships**. As stated earlier WAAPP-1C involves a large number of countries, many with weak or even nonexistent capacity. A CORAF/FARA assessment conducted in most of the participating

countries (under the Strengthening Capacity for Agricultural Research and Development in Africa Program) identified the key capacity needs. The conclusion of the assessment is the issue of aging research staff and the concomitant need for a strong capacity building plan to promote young researchers. The Project will support CORAF and each participating country to prepare a capacity plan to be implemented through the Project's annual capacity plans, presented in the AWP&B. Each plan should include the research exchange program for visiting scientists, on-the-job and academic training for young researchers, as well as specialized on-demand technical support from CGIAR Centes[6]. WAAPP-1C will provide resources for specific arrangements in Liberia and Sierra Leone to provide strong backstopping from the CGIAR centers to rebuild Core national research capacities. These countries will enter into MOUs with IITA and Africa Rice Center (AFRICARICE) that will cover the posting of senior scientists for at least three years and the provision on demand of short-term technical expertise. These arrangements will also include specialized master's and doctoral trainings for young graduates, in addition to an enhanced support of CORAF's "Mobility of Researchers" program to send researchers from other WAAPP countries for short-term assignments in Liberia and Sierra Leone.

20. Such visiting scientists will be considered to be on sabbatical leave. They will be paid by their home institutions while the host center bears their local costs, including lodging, board and miscellaneous expenses. These visiting programs can be extended for periods up to 12 months. Special consideration will be given to young and/or female scientists.

21. **Support to priority agricultural research programs**. The research programs of NCOS will involve core adaptive and commissioned research in addition to research conducted under short-term competitive grants (see Component 3). The Project will finance research to adapt and generate new technologies that respond to high-priority constraints along the value chain, including constraints in the post-harvest and processing stages. Programs for priority research will be developed with key stakeholders to ensure their relevance, and they should also receive input from scientists in at least two other ECOWAS countries facing similar issues. Each year, the NCOS will organize regional stakeholder workshops to ensure synergies and collaboration between participating countries, facilitate networking among researchers in the same field, and avoid duplication. The proposed Project will finance research activities through small grants to research teams (on the basis of the AWP&B) in addition to financing the organization of annual stakeholder workshops and the operation of the technical networks for key commodities.

22. **Supporting farm surveys, supply chains analysis, and benchmarking.** These efforts in data collection and analysis will be built around commissioned research on priority commodities in the participating countries, using a participatory process for supply chain analysis involving key stakeholders. The analyses will identify high-priority areas for research and document the progress and impact of transferred technologies over the Project's life. The studies will also regularly monitor the knowledge gap, identify key areas for research, and provide updates on countries' progress and performance along the value chains. To develop the studies and disseminate their results, the Project will finance consultant services, workshops, and seminars.

23. **Component 3: Support to Demand-driven Technology Generation, Dissemination, and Adoption (US$57.84 million of which: IDA: US$33.48 million; Japan TF: US$8.44; GFRP: US$4.64 million).** This component aims to accelerate the adoption of readily available technologies as well as to generate and disseminate adapted technologies for commodities of high regional and national priorities for WAAPP. The ultimate beneficiaries are producers and

[6] For example, IITA, the Africa Rice Center, ILRI, IRRI, and possibly others

their associations as well as the micro, small, and medium agribusiness enterprises involved in the supply and value chains for priority commodities.

24. **Sub-component 3.1: Support to Competitive Agricultural Research Grant Schemes (CARGS**) for technology generation and dissemination. Experiences under WAAPP-1A have demonstrated that CARGS are effective tools to address stakeholders' priority needs and mobilize existing capacities to speed the generation and adoption of technologies. Building on this experience, WAAPP-1C will support the strengthening and extension of CARGS to all participating countries.

25. Under this subcomponent the Project will strengthen the regional CARGS managed by CORAF. The **other** participating countries are at different stages of developing competitive grant schemes. Niger and Togo have instituted the regulations establishing the CARGS and have set up the schemes, although they are not yet operational. In Sierra Leone, Liberia, The Gambia and Benin the CARGS have yet to establish their grant schemes. This sub-component will, therefore, provide resources to the CARGS to finance small grants for research teams on a competitive basis, and it will support consultant services, stakeholder workshops, and study tours for the establishment of CARGS in those countries that do not have them.

26. **Sub-component 3.2: Support to Accelerated Adoption of Released Technologies.** This subcomponent will speed the adoption of released technologies to start bridging the gap between farmers' and **researchers'** yields for the priority commodities of WAAPP. As noted, the strategy is to disseminate already available technologies, in addition to any technologies developed or adapted under the Project by the NCOS in the sub-region; at the same time technology delivery systems will be strengthened, to achieve rapid and sustainable impact on the ground.

27. More specifically this sub-component will support: (i) consultative stakeholder workshops and **innovation** platforms to prepare dissemination action plans; (ii) the promotion of released technologies through various media to improve awareness among potential users; (iii) the introduction of information technology in technology transfer; (iv) training on released technologies for trainers and extension workers; (v) technical backstopping for rural development projects in production, rural marketing, processing, and product handling; and (vi) on-farm trials of production and post-harvest technologies in partnership with development partners. Funding for contracting extension service providers under this subcomponent will be channelled through the national CARGS (if operational). The sub-component will complement and strengthen effectiveness of other agricultural advisory services, routinely provided by public and private extension systems, value chain development projects and NGOs.

28. **Sub-component 3.3: Facilitating Access to Improved Genetic Materials (seed, planting material, and animal breeding stock).** This sub-component aims to support the development of national seed **systems**[7] to ensure reliable supplies of improved genetic materials and improve producers' access to them including crop seeds, other planting materials, and animal breeding stock for the strategic commodities under WAAPP. In particular, this sub-component will support stakeholders in the priority value chains by developing and scaling-up the production of breeder and foundation genetic material (mainly by specialized R&D institutions) and production of certified (or Quality Declared) commercial seed by public, private, NGOs and farmers or community-based organizations. The Project will: (i) help participating countries develop or improve their gene banks and thus manage their biodiversity

[7] See also the seed policies and development strategies discussed in Component 1.

and prepare for climate change through better conservation of their genetic assets; (ii) upgrade the capacity of public research stations to produce and store breeder seed by investing in irrigation, laboratory, and storage facilities; (iii) scale up production of certified seeds by small- and medium-scale enterprises and farmers' organizations; (iv) provide mini-kits of improved seed to producers to jump-start dissemination, along with training and technical assistance for seed companies and seed producers; (v) strengthen seed companies and producers' capacity to produce seed and improve its quality; (vi) link seed producers to plant breeding programs to facilitate access to improved varieties; (vii) promote ITC to develop networks of seed producers and users and deliver current information on improved varieties that might benefit small-scale farmers; and (viii) strengthen the capacity for the pertinent agency in each country to assure seed quality.

29. **Component 4: Project Coordination, Management and Monitoring and Evaluation (US$17.59 million of which: IDA: US$11.72 million; Japan TF: US$0.88 million; GFRP: US$0.36 million).** This component aims to establish an effective coordination, management, and M&E system at the **national** and regional levels. The IDA-supported WAAPP will be implemented at the regional level by CORAF (ECOWAS' mandated implementing agency) and at the national level by the respective coordinating units.

30. This component will ensure that the following key activities are implemented: (i) FM and procurement systems at CORAF and at the national coordination units; (ii) reporting on Project activities; (iii) M&E of regional and national agricultural productivity; and (iv) a communications strategy. This component will support consultant services (surveys and impact studies), vehicles and equipment, office supplies, workshops and short-term training, and operating costs of CORAF and the national coordinating units. The support to CORAF will complement parallel financing from other partners to CORAF.

Table 2.3: Available technologies to be promoted for quick adoption

Value Chain (Commodity/ Product)	On-the-shelf Improved Technology	Description/Outstanding Characteristics	Potential Impact
NIGER			
Livestock	Artificial insemination	Production of improved race of males through improvement in race purity	Increased carcass weight per animal; increase in the local production
	Improved feeding	High biomass production and feed value	Increased production, farmer income and food security
	Improved processing techniques for dry meat	High quality of processed meat	Increased production and processors income
Poultry	NCD vaccine, Gumboro and Lassota	Easy to administer and high efficacy	Increased production and farm profitability
Cowpea Onion Sorghum	Improved varieties	Disease/insect resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
BENIN			
Maize	Improved varieties	Disease/insect resistance,	Higher yields and grain

		adaptability to production systems, productivity and grain quality	quality
Cassava	Improved varieties	Disease/virus resistance (ACMV)	Higher yields and grain quality
Poultry	NCD vaccine, Gumboro and Lassota	Easy to administer and high efficacy	Increased production and farm profitability
TOGO			
Maize	Improved varieties	Disease/insect resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
Rice	Improved varieties	Disease resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
Poultry	NCD vaccine, Gumboro and Lassota	Easy to administer and high efficacy	Increased production and farm profitability
Small Ruminant	Improved breeds	Disease resistant, adapted	Increased carcass weight per animal; increase in the local production
LIBERIA			
Rice	Improved varieties	Disease resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
Cassava	Improved varieties	Disease/virus resistance (ACMV)	Higher yields and grain quality
SIERRA LEONE			
Rice	Improved varieties	Disease resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
Cassava	Improved varieties	Disease/virus resistance (ACMV)	Higher yields and grain quality
GAMBIA			
Rice	Improved varieties	Disease resistance, adaptability to production systems, productivity and grain quality	Higher yields and grain quality
	Combine organic and inorganic fertilization	Increased fertilizer use efficiency toxicity	Increased production and farm profitability
	Hand thresher	Light, easily handle by women and reduce post harvest losses	Increased production and reduce drudgery
Maize	DMR and Swan 2	Early, high yielding (3 - 4 tons) and resistant to stem borer	Increased production, farmers' incomes and food security
Poultry	Formulated feed	High feed value and ease of handling	Increased production, farmers' incomes and food security
	NCD vaccine, Gumboro and Lassota	Easy to administer and high efficacy	Increased production and farm profitability
Small ruminants	Improved fodder (Moringa leaf for sheep; Baobab fodder bank for	High biomass production and feed value	Increased production, farmers' incomes and food security

	goats)		
Vegetables	Improved vegetable gardens	Increased yields and quality of vegetables for the tourist industry	Increased production and marketed quantity of vegetables.

PROJECT COST

Project Costs Summary by Component and/or activity (000 US$)

	(000US$)		
	Local	Foreign	Total
E. Enabling Conditions for Regional Cooperation and Market Integration			
Harmonizing national regulations at the ECOWAS level	4.91	1.75	6.66
Establishing a national framework for technology generation and dissemination	0.96	0.52	1.48
Knowledge management, information and communication	0.89	0.25	1.14
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	6.76	2.52	9.28
F. National Center of Specialization			
Upgrading core facilities and equipment	13.45	5.93	19.38
Upgrading the capacity of researchers and development workers	7.14	1,02	8.16
Support to priority research programs	7.76	3,10	10.86
Subtotal National Center of Specialization	28.35	10.05	38.40
G. Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	19.50	1.15	20.65
Support to technology transfer	8.85	1.97	10.82
Promotion of sustainable seed systems	11.68	7,18	18.86
Subtotal Technology Generation, Dissemination and Adoption	40.03	10.30	50.33
H. Project Management, Monitoring and Evaluation			
Project Management and Coordination	10.99	2.36	13.35
Project Monitoring and Evaluation	1.40	0,25	1.65
Subtotal Project Management, Monitoring and Evaluation	12.39	2.61	15.00
Total BASELINE COSTS	**87.53**	**25.48**	**113.01**
Physical Contingencies	0.66	0.65	1.31
Price Contingencies	5.69	0.68	6.37
Total PROJECT COST	**93.88**	**26.81**	**120.69**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt	IDA	JPHRD	GFRP	Benef	Total
A. Enabling Conditions for Regional Cooperation and Market Integration						
Harmonizing national regulations at the ECOWAS level	0.12	6,80	0,00			**6.92**
Establishing a national framework for technology generation and dissemination	0	1,52	0,00			**1.52**
Knowledge management, information and communication	0,27	0,95	0,00			**1.22**
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.39	9,27	0,00			**9.66**
B. National Center of Specialization						
Upgrading core facilities and equipment	3.30	13,58	4.16			**21.04**
Upgrading the capacity of researchers and development workers		6,66	2.05			**8.71**
Support to priority research programs		9,09	2.47			**11.56**

Subtotal National Center of Specialization	3.30	29,33	8.68			**41.31**
C. Technology Generation, Dissemination and Adoption						
Competitive agricultural research grant scheme	1,93	13,64	2.82	1,82	1,69	**21.90**
Support to technology transfer	0,42	6,38	2.79	1,95	-	**11.54**
Promotion of sustainable seed systems	0,44	13,46	2.83	0,87	2.61	**20.21**
Subtotal Technology Generation, Dissemination and Adoption	2,79	33,48	8.44	4,64	4,30	**53.65**
D. Project Management, Monitoring and Evaluation						
Project Management and Coordination	3.02	10,37	0.63	0,27		**14.29**
Project Monitoring and Evaluation	0,09	1,35	0,25	0,09		**1.78**
Subtotal Project Management, Monitoring and Evaluation	3.11	11,72	0.88	0,36		**16.07**
Total PROJECT COSTS	**9.59**	**83.80**	**18.00**	**5.00**	**4.30**	**120.69**

BENIN - COST
Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Component 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	0.78	0.26	1.04
Establishing a national framework for technology generation and dissemination	0.43	0.15	0.58
Knowledge management, information and communication	0.14	0.05	0.19
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	1.35	0.46	1.81
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	0.94	0.43	1.37
Upgrading the capacity of researchers and development workers	0.84	0.28	1.12
Support to priority research programs	1.70	0.56	2.26
Subtotal National Center of Specialization	3.48	1.27	4.75
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	1.72	0.10	1.82
Support to technology transfer	2.67	0.05	2.72
Promotion of sustainable seed systems	4.56	1.14	5.70
Subtotal Technology Generation, Dissemination and Adoption	8.95	1.29	10.24
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	1.28	0.30	1.58
Project Monitoring and Evaluation	0.28	0.09	0.37
Subtotal Project Management, Monitoring and Evaluation	1.56	0.39	1.95
Total BASELINE COSTS	**15.34**	**3.41**	**18.75**
Physical Contingencies	0.09	0.02	0.11
Price Contingencies	0.63	0.08	0.71
Total PROJECT COST	**16.06**	**3.51**	**19.57**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt	IDA	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level		1.07	
Establishing a national framework for technology generation and dissemination		0.59	
Knowledge management, information and communication		0.19	

Subtotal Enabling Conditions for Regional Cooperation and Market Integration		1.85	
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	0.25	1.14	
Upgrading the capacity of researchers and development workers		1.17	
Support to priority research programs		2.35	
Subtotal National Center of Specialization	0.25	4.66	
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme		1.89	
Support to technology transfer		2.84	
Promotion of sustainable seed systems		3.67	2.39
Subtotal Technology Generation, Dissemination and Adoption		8.40	2.39
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	0.13	1.50	
Project Monitoring and Evaluation		0.39	
Subtotal Project Management, Monitoring and Evaluation	0.13	1.89	
Total PROJECT COSTS	**0.38**	**16.80**	**2.39**

GAMBIA - COST

Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	0.34	0.27	0.61
Establishing a national framework for technology generation and dissemination	0.02	0.00	0.02
Knowledge management, information and communication	0.04	0.04	0.08
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.40	0.31	0.71
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	1.07	0.73	1.80
Upgrading the capacity of researchers and development workers	0.06	0.02	0.08
Support to priority research programs	0.56	0.19	0.75
Subtotal National Center of Specialization	1.69	0.94	2.63
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	3.04	0.48	3.52
Support to technology transfer	1.96	0.99	2.95
Promotion of sustainable seed systems	1.04	0.41	1.45
Subtotal Technology Generation, Dissemination and Adoption	6.04	1.88	7.92
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	0.64	0.48	1.12
Project Monitoring and Evaluation	0.23	0.16	0.39
Subtotal Project Management, Monitoring and Evaluation	0.87	0.64	1.51
Total BASELINE COSTS	**9.00**	**3.77**	**12.77**
Physical Contingencies	0.01	0.02	0.03
Price Contingencies	0.18	0.05	0.23
Total PROJECT COST	**9.19**	**3.84**	**13.03**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt Budget	IDA	JPHRD	GFRP	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies					
Harmonizing national regulations at the ECOWAS level	0.00	0.61	0.00	0.00	0.00
Establishing a national framework for technology generation and dissemination	0.00	0.02	0.00	0.00	0.00
Knowledge management, information and communication	0.00	0.08	0.00	0.00	0.00
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.00	0.71	0.00	0.00	0.00
Component 2: National Center of Specialization/Strengthening of the Research System					
Upgrading core facilities and equipment	0.00	1.87	0.00	0.00	0.00
Upgrading the capacity of researchers and development workers	0.00	0.08	0.00	0.00	0.00
Support to priority research programs	0.00	0.76	0.00	0.00	0.00
Subtotal National Center of Specialization	0.00	2.71	0.00	0.00	0.00
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption					
Competitive agricultural research grant scheme	0.40	1.12	0.00	1.82	0.17
Support to technology transfer	0.11	0.95	0.00	1.95	0.00
Promotion of sustainable seed systems	0.12	0.47	0.00	0.87	0.00
Subtotal Technology Generation, Dissemination and Adoption	0.63	2.54	0.00	4.64	0.17
Component 4: Project Coordination, Management and Monitoring and Evaluation					
Project Management and Coordination	0.14	0.81	0.00	0.26	0.00
Project Monitoring and Evaluation	0.09	0.23	0.00	0.10	0.00
Subtotal Project Management, Monitoring and Evaluation	0.23	1.04	0.00	0.36	0.17
Total PROJECT COSTS	**0.86**	**7.00**	**0.00**	**5.00**	**0.17**

LIBERIA - COST
Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	0.15	0.24	0.39
Establishing a national framework for technology generation and dissemination	0.03	0.16	0.19
Knowledge management, information and communication	0.11	0.09	0.20
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.29	0.49	0.78
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	1.07	0.93	2.00
Upgrading the capacity of researchers and development workers	0.19	0.39	0.58
Support to priority research programs	0.97	1.95	2.92
Subtotal National Center of Specialization	2.23	3.27	5.50

Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	1.09	0.33	1.42
Support to technology transfer	1.54	0.56	2.10
Promotion of sustainable seed systems	1.33	0.59	1.92
Subtotal Technology Generation, Dissemination and Adoption	3.96	1.48	5.44
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	1.12	0.43	1.55
Project Monitoring and Evaluation			
Subtotal Project Management, Monitoring and Evaluation	1.12	0.43	1.55
Total BASELINE COSTS	**7.59**	**5.68**	**13.27**
Physical Contingencies	0.04	0.05	0.09
Price Contingencies	0.95	0.26	1.21
Total PROJECT COST	**8.58**	**5.99**	**14.57**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt Budget	IDA	JPHRD	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies				
Harmonizing national regulations at the ECOWAS level	0.00	0.40		0.00
Establishing a national framework for technology generation and dissemination	0.00	0.20		0.00
Knowledge management, information and communication	0.04	0.18		0.00
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.04	0.78		0.00
Component 2: National Center of Specialization/Strengthening of the Research System				
Upgrading core facilities and equipment	0.53		1.71	0.00
Upgrading the capacity of researchers and development workers	0.00	0.24	0.38	0.00
Support to priority research programs	0.00	1.45	1.70	0.00
Subtotal National Center of Specialization	0.53	1.69	3.79	0.00
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption				
Competitive agricultural research grant scheme	0.00	0.72	0.82	0.00
Support to technology transfer	0.00	0.71	1.63	0.00
Promotion of sustainable seed systems	0.00	0.39	1.76	0.00
Subtotal Technology Generation, Dissemination and Adoption	0.00	1.82	4.21	0.00
Component 4: Project Coordination, Management and Monitoring and Evaluation				
Project Management and Coordination	0.00	1.71		0.00
Project Monitoring and Evaluation	0.00			0.00
Subtotal Project Management, Monitoring and Evaluation	0.00	1.71		0.00
Total PROJECT COSTS	**0.57**	**6.00**	**8.00**	**0.00**

NIGER - COST
Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	1.60	0.82	2.42
Establishing a national framework for technology generation and dissemination	0.36	-	0.36
Knowledge management, information and communication	0.07	-	0.07
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	2.03	0.82	2.85
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	4.20	2.23	6.43
Upgrading the capacity of researchers and development workers	2.12	0.33	2.45
Support to priority research programs	1.77	0.36	2.13
Subtotal National Center of Specialization	8.09	2.92	11.01
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	7.42	0.24	7.66
Support to technology transfer	0.88	0.31	1.19
Promotion of sustainable seed systems	1.44	3.95	5.39
Subtotal Technology Generation, Dissemination and Adoption	9.74	4.50	14.24
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	2.27	0.56	2.83
Project Monitoring and Evaluation	0.13	-	0.13
Subtotal Project Management, Monitoring and Evaluation	2.40	0.56	2.96
Total BASELINE COSTS	**22.26**	**8.80**	**31.06**
Physical Contingencies	0.24	0.55	0.79
Price Contingencies	1.02	0.19	1.21
Total PROJECT COST	**23.52**	**9.54**	**33.06**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt Budget	IDA	JPHRD	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies				
Harmonizing national regulations at the ECOWAS level	0.00	2.54	0.00	0.00
Establishing a national framework for technology generation and dissemination	0.00	0.38	0.00	0.00
Knowledge management, information and communication	0.00	0.08	0.00	0.00
Subtotal Enabling Conditions for Regional Cooperation and Market Integration		3.00		
Component 2: National Center of Specialization/Strengthening of the Research System				
Upgrading core facilities and equipment	1.73	5.25	0.00	0.00
Upgrading the capacity of researchers and development workers		2.54		
Support to priority research programs	0.00	2.21	0.00	0.00
Subtotal National Center of Specialization	1.73	10.00	0.00	0.00
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption				
Competitive agricultural research grant scheme	0.59	6.92	0.00	0.53
Support to technology transfer	0.00	1.25	0.00	0.00

Promotion of sustainable seed systems	0.04	5.83	0.00	0.00
Subtotal Technology Generation, Dissemination and Adoption	0.63	14.00	0.00	0.53
Component 4: Project Coordination, Management and Monitoring and Evaluation				
Project Management and Coordination	0.17	2.86	0.00	0.00
Project Monitoring and Evaluation	0.00	0.14	0.00	0.00
Subtotal Project Management, Monitoring and Evaluation	0.17	3.00	0.00	0.00
Total PROJECT COSTS	**2.53**	**30.00**	**0.00**	**0.53**

SIERRA LEONE - COST
Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	0.55	0.16	0.71
Establishing a national framework for technology generation and dissemination	0.10	0.21	0.31
Knowledge management, information and communication	0.30	0.07	0.37
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.95	0.44	1.39
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	4.86	0.99	5.85
Upgrading the capacity of researchers and development workers	1.97	0.00	1.97
Support to priority research programs	2.03	0.04	2.07
Subtotal National Center of Specialization	8.86	1.03	9.89
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	3.34	-	3.34
Support to technology transfer	1.80	0.06	1.86
Promotion of sustainable seed systems	1.16	0.76	1.92
Subtotal Technology Generation, Dissemination and Adoption	6.30	0.82	7.12
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	1.61	0.06	1.67
Project Monitoring and Evaluation	0.50	0.00	0.50
Subtotal Project Management, Monitoring and Evaluation	2.11	0.06	2.17
Total BASELINE COSTS	**18.22**	**2.35**	**20.57**
Physical Contingencies	0.28	0.02	0.30
Price Contingencies	2.36	0.07	2.43
Total PROJECT COST	**20.86**	**2.44**	**23.30**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt	IDA	JPHRD	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies				
Harmonizing national regulations at the ECOWAS level	0.12	0.65	0	0.00
Establishing a national framework for technology generation and dissemination	-	0.33	0	0.00

Knowledge management, information and communication	0.17	0.24	0	0.00
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.29	1.22	0	0.00
Component 2: National Center of Specialization/Strengthening of the Research System				
Upgrading core facilities and equipment	0.18	3.96	2.46	0.00
Upgrading the capacity of researchers and development workers	0.00	0.60	1.66	0.00
Support to priority research programs	0.00	1.57	0.76	0.00
Subtotal National Center of Specialization	0.18	6.13	4.88	0.00
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption				
Competitive agricultural research grant scheme	0.10	1.50	2.00	0.30
Support to technology transfer	0.31	0.63	1.16	0.00
Promotion of sustainable seed systems		1.04	1.07	0.00
Subtotal Technology Generation, Dissemination and Adoption	0.41	3.17	4.23	0.00
Component 4: Project Coordination, Management and Monitoring and Evaluation				
Project Management and Coordination	0.12	1.16	0.64	0.00
Project Monitoring and Evaluation	-	0.32	0.25	0.00
Subtotal Project Management, Monitoring and Evaluation	0.12	1.48	0.89	0.30
Total PROJECT COSTS	**1.00**	**12.00**	**10.00**	**0.30**

TOGO - COST
Project Costs Summary by Component and/or activity (000 US$)

	Local	Foreign	Total
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level	1.49	-	1.49
Establishing a national framework for technology generation and dissemination	-		-
Knowledge management, information and communication	0.23		0.23
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	1.72		1.72
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	1.31	0.62	1.93
Upgrading the capacity of researchers and development workers	1.96	-	1.96
Support to priority research programs	0.73	-	0.73
Subtotal National Center of Specialization	4.00	0.62	4.62
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	2.89	-	2.89
Support to technology transfer			
Promotion of sustainable seed systems	2.15	0.33	2.48
Subtotal Technology Generation, Dissemination and Adoption	5.04	0.33	5.37
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	4.07	0.53	4.60
Project Monitoring and Evaluation	0.26	-	0.26
Subtotal Project Management, Monitoring and Evaluation	4.33	0.53	4.86
Total BASELINE COSTS	**15.09**	**1.48**	**16.57**
Physical Contingencies	0.01	0.00	0.01
Price Contingencies	0.56	0.03	0.59
Total PROJECT COST	**15.66**	**1.51**	**17.17**

Project Costs Summary - Components by Financiers (000 US$)

	Gvt	IDA	Benef
Compontnet 1: Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies			
Harmonizing national regulations at the ECOWAS level		1.53	
Establishing a national framework for technology generation and dissemination			
Knowledge management, information and communication	0.06	0.18	
Subtotal Enabling Conditions for Regional Cooperation and Market Integration	0.06	1.71	
Component 2: National Center of Specialization/Strengthening of the Research System			
Upgrading core facilities and equipment	0.61	1.36	
Upgrading the capacity of researchers and development workers		2.03	
Support to priority research programs		0.75	
Subtotal National Center of Specialization	0.61	4.14	
Component 3: Support to Demand-driven Technology Generation, Dissemination and Adoption			
Competitive agricultural research grant scheme	0.84	1.49	0.70
Support to technology transfer			
Promotion of sustainable seed systems	0.28	2.06	0.22
Subtotal Technology Generation, Dissemination and Adoption	1.12	3.55	
Component 4: Project Coordination, Management and Monitoring and Evaluation			
Project Management and Coordination	2.46	2.33	
Project Monitoring and Evaluation		0.27	
Subtotal Project Management, Monitoring and Evaluation	2.46	2.60	
Total PROJECT COSTS	**4.25**	**12.00**	**0.92**

Annex 3: Implementation Arrangements

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

1. Project institutional and implementation arrangements

i. Project administration mechanisms

1. The proposed Project is the third series of the first phase of the WAAPP which is an initiation phase that sets up the program's framework in terms of mechanisms for sharing technology, establishing NCOS, and funding technology generation and adoption. The Board already approved two series (WAAPP-1A for Mali, Senegal, and Ghana and WAAPP-1B for Burkina Faso, Cote d'Ivoire, and Nigeria). WAAPP-1C includes an IDA financing to Togo, Benin, Niger, Liberia, The Gambia and Sierra Leone, a Japan PHRD Grant to two MRU countries (Liberia and Sierra Leone) for the development of the rice value chain, and a GFRP financing for The Gambia.

(a) Regional implementation mechanisms

2. WAAPP-1C is an ECOWAS Program. ECOWAS has mandated CORAF to coordinate the Program at Regional level. ECOWAS therefore chairs the Regional Oversight Committee that meets twice yearly to review the AW&B and implementation progress. CORAF has already demonstrated strong capacity to coordinate project implementation at the regional level through its implementation of WAAPP-1A and preparation of WAAPP-1B. WAAPP-1C will continue to adapt and strengthen CORAF/WECARD's implementation arrangements in the key areas of communications, FM, procurement, and M&E to remain in compliance with the Bank's fiduciary and reporting requirements. At least one-fifteenth ($1/15^{th}$) of the proceeds of the IDA financing will be made available to CORAF.

3. CORAF will monitor the overall implementation of the Project. It will report on progress related to the effectiveness of the dissemination mechanisms and the increase in agricultural productivity and competitiveness in WAAPP's area of interest. More specifically, CORAF will manage: (i) the sub-components on Establishment of Sustainable Funding Mechanism and Mainstreaming Climate Change and Gender Considerations; (ii) WAAPP's regional window of the competitive grant scheme (CARGS); and (iii) the collating and synthesizing of information generated by the M&E systems of the participating countries. Table 3.1 summarizes the activities and responsibilities of CORAF.

4. Each country will conclude a subsidiary grant agreement with CORAF, detailing the nature of technical support and coordination expected from CORAF and the level of financial support to be provided to CORAF by each participating country.

5. CORAF will also sign a project agreement with the MRU Secretariat to implement specific activities related to advocacy and policy dialogue, regional rice market integration, as well as regional planning and monitoring.

Table 3.1: CORAF's activities and responsibilities

Component	Activities and Responsibilities
Component 1	(i) Provide specialized technical backstopping for implementation of Sub-components 1.1 and 1.2; (ii) Organize regional knowledge management and dissemination through its regional web-site, and provide support to establish national knowledge management systems and link them with the regional systems;
Component 2	(i) Organize bi-annual regional planning workshops to plan and assess progress with implementation of Components 2 and 3 and ensure WAAPP's regional character; (ii) Function as an advisory body for the NCOS; (iii) Facilitate identification of regional research priorities (update regional reference survey; act as advisory body for the national supply chain and benchmark studies); (iv) Facilitate regional exchanges of researchers, as well as access to medium and long-term training programs in the region; (v) Mobilize specialized technical assistance;
Component 3	(i) Function as an advisory body for identifying regional priorities (see also Component 2) (ii) Manage the regional window of the CARGS in collaboration with the participating countries; (iii) Assist countries with the establishment of their national CARGS and function as advisory body; (iv) Assist with the design of an M&E system for CARGS;
Component 4	(i) Assist countries with preparation of procedures and manuals; (ii) Make available annual reports, audit reports, M&E reviews; (iii) Monitor the overall implementation of the Project, and collate and synthesize information generated by the M&E system of the Project in each of the participating country; (iv) Organize annual regional planning and M&E workshops (in partnership with MRU Secretariat); (v) Report on progress related to the effectiveness of the dissemination mechanisms and the increase in agricultural productivity and competitiveness of rice.

6. ECOWAS has also the responsibility, under Component 1 of the Project, to prepare the common policies and regulations to facilitate regional cooperation, adopt them and follow up on their implementation by the countries. ECOWAS also monitors the implementation of other CAADP processes including regional and national investment plans.

7. The MRU Secretariat[8], , will receive special support under WAAPP-1C to develop the rice sector. Mainly a political organization, the MRU Secretariat, will have the responsibility for conducting feasibility studies for establishing a Food Security Hub in the MRU countries and setting it up. The MRU Secretariat would participate in supervision missions and Regional steering committee meetings to follow up on Project's implementation. It will also be responsible for informing the heads of states of MRU member countries on policy information generated by the Hub and the progress in implementing WAAPP; furthermore, it will ensure that adequate decisions are taken by the head of states and ministries in charge of agriculture, and disseminated to stakeholders.

(b) National implementation arrangements

8. At the national level, WAAPP-1C will be implemented through existing institutions. Each participating country prepared and adopted a PIM that the Bank reviewed prior to negotiations. The PIM provides detailed information on institutional and implementation arrangements including priority setting for research and extension activities and M&E for project outcomes and outputs.

[8] MRU Membership includes four ECOWAS countries: Côte d'Ivoire, Guinea, Sierra Leone and Liberia.

9. The detailed description of implementation arrangements for each country are as follows:

Benin

10. At the national level the Ministry of Agriculture, Livestock and Fisheries will be responsible for the oversight of the Project. The Coordination of the Project will be entrusted to the *Unité de Gestion du Programme* (UGP, Program Management Unit) of the Emergency Food Security Project (PUASA) established by the *Ministère de l'Agriculture, de l'Elevage et de la Pêche* (MAEP) and which has been implementing the IDA-Financed EFSSP.

11. **The specific implementation arrangements are:**

(i) The National Steering Committee of WAAPP will be established within at least three months of Project effectiveness and will operate throughout the life of the Project. It will provide political guidance and orientation to the national coordination and implementation units of the Project.

(ii) The Steering Committee will be chaired by the Secretary General of MAEP (or designee) with the Coordinator of the Program Management Unit serving as secretary. The Steering Committee will consist of representatives from the government and the other actors, including producers, the private sector, and the technical and financial partners. It will meet at least two times during the Fiscal Year to review and approve the draft AWP&B for the year, approve the annual report (prepared by the Coordinator before every October 31st), and assess execution of the current AWP&B of the previous year.

(iii) The Coordinator of the Program Management Unit, also coordinator of WAAPP, will be assisted by staff consisting of one (1) Assistant to the Project Manager, one (1) Procurement Assistant, one (1) additional Accountant to handle Project activities, one (1) M&E Assistant, and one (1) Communications Officer.

(iv) The WAAPP Coordinator will prepare result-based MOUs with all relevant Directorates of the MAEP responsible for the implementation of the Project's activities under Component 1.

(v) The PCU will be responsible for the management of the national agricultural research competitive funds under Sub-component 3.1 until the CARGS scheme is established.

(vi) The WAAPP Coordinator will enter into MOUs or contract agreements with relevant public and private service providers, including producers' organizations for the implementation of Sub-components 3.2 and 3.3.

Niger

12. The Ministry of Agriculture and Livestock will be responsible for the overall coordination of WAAPP-1C. WAAPP-1C comes within the scope of Program 6 of the *Stratégie de Développement Rural* (SDR, Rural Development Strategy).

13. **The specific implementation arrangements are:**

(i) The Steering Committee for Program 6 of SDR was created by the Arrêté no. 110/MDA of 27/06/2008. It is chaired by the Secretary General of the Ministry of Agriculture and Livestock and is responsible for the Program's policy guidance.

To maintain the coherence with the SDR, this Steering Committee will also be the Steering Committee for WAAPP-1C Niger.

(ii) The *Programme d'Actions Communautaires* (PAC-2, Community Action Program 2) will be responsible for the implementation of WAAPP-1C until the establishment of the Executive Secretariat of CNRA (SE/CNRA). The PAC-2 will appoint additional key staff consisting of a Deputy Coordinator for WAAPP-1C Coordinator, a Procurement Specialist, an Accountant, and a Communication Specialist.

(iii) The *Institut National de Recherche Agronomique du Niger* (INRAN) will be responsible for the implementation of Component 2 which concerns the NCOS for livestock.

(iv) The PAC-2 will be responsible for the implementation of Sub-component 3.1 for the management and the M&E of the CARGS. The PAC-2 will transfer the management of Component 3.1 to the SE/CNRA once the latter will be operational. For the implementation of Sub-components 3.2 and 3.3 the PAC-2 will sign contracts with public and private service providers.

Liberia

14. The Ministry of Agriculture (MOA) is responsible for the overall coordination of WAAPP-1C in Liberia. MOA has set up a common Project Coordination Unit (PCU) under the CAADP process to manage the implementation of the National Agricultural Investment Plan. The role of the PCU is to coordinate the preparation, management and oversight of agricultural development projects, within the overall Liberia Agriculture Sector Investment Program (LASIP). The MOA has a number of proposed projects in the pipeline in addition to those it already implements under financing from the International Fund for Agricultural Development (IFAD) and the African Development Bank (AfDB), each of which maintain sub-teams within the PCU. Since the PCU currently manages financing from AfDB but lacks specific experience in managing Bank projects a first assessment by the Bank identified the need to strengthen this PCU with additional staff to implement WAAPP-1C including a Deputy Project Coordinator, a Procurement Specialist, an M&E Specialist, a FM Specialist, and a Communication Officer. The WAAPP-1C team will be responsible for the day-to-day coordination and management, procurement, M&E, reporting, assessment of impacts, and systematic analysis of lessons learned from the Project.

15. **The specific implementation arrangements are:**

(i) The MOA will be responsible for the overall coordination of the WAAPP-1C in Liberia. It will ensure the coordination of the Project through its PCU. The PCU will be strengthened with additional staff including a Deputy Project Coordinator, two (2) Procurement Specialists, one (1) Accountant, one (1) M&E Specialist, and one (1) Communication Officer. A national WAAPP Steering Committee will be established not later than three months after the effectiveness date and maintained throughout the Projet's implementation to provide policy guidance and oversight to the PCU.

(ii) The WAAPP Steering Committee will be chaired by the Minister of Agriculture (or designee), with the Head of the PCU serving as Secretary.

(iii) The WAAPP Steering Committee shall be composed of representatives from the government and stakeholders (including farmers and the private sector). The WAAPP Steering Committee shall meet at least twice each Fiscal Year to undertake, inter alia, the review and approval of the draft AW&B and the approval of the annual report (to be prepared by the Project Coordinator not later than each October 31) and assess the progress in executing the current AWP&B.

(iv) The PCU shall conclude with each concerned Department of the MOA and other relevant organizations (the private sector, CGIAR Centers, and NGOs) a results-based MOU entrusting responsibility for implementation of Components 1, 2 and 3 of the Project and setting forth the implementation details and the organizations' undertaking to assure the efficient carrying out of such parts of the Project.

(v) The PCU shall be specifically responsible for the management of Sub-component 3.1 the commissioned research activities.

Sierra Leone

16. The Ministry of Agriculture Forestry and Food Security (MAFFS) will have oversight responsibility for the Project. The overall coordination of Project implementation will be entrusted to the PCU of the existing Bank-funded Rural and Private Sector Project (RPSDP), which will be responsible for the coordination and management of the Project funds, procurement, M&E, reporting, the assessment of impacts, and systematic analysis of lessons learned.

17. **The specific implementation arrangements are:**

(i) Overall coordination of Project implementation is entrusted to the PCU of the RPSDP.

(ii) RPSDP will be strengthened with additional staff including a Deputy Project Coordinator, one (1) Procurement Specialist, one (1) Accountant, one (1) M&E Officer, one (1) Communications Officer and one (1) Operations Officer.

(iii) The national Steering committee of RPSDP will provide policy guidance and oversight to the National WAAPP Coordinator and implementing units.

(iv) The WAAPP Steering Committee composition includes representatives from the government and stakeholders, both farmers and the private sector. The Steering Committee meets at least twice each Fiscal Year to undertake, among other things, the review and approval of the draft AWP&B; approval of the annual report (to be prepared by the Project Coordinator not later than each October 31); and follow and assess progress in carrying out the AWP&B.

(v) The PCU shall conclude with each concerned Directorate of the MAFFS and each other implementing partner a results-based MOU entrusting responsibility for implementation of Component 1 of the Project to the relevant department or partner and setting forth the implementation details and the department's or partner's undertaking to assure the efficient carrying out of such parts of the Project.

(vi) The PCU will entrust to the RARC and NARC its implementation responsibilities under Component 2 of the Project within the framework of the AWP&B and in accordance with the PIM.

18. The PCU will sign conventions and contracts with institutions and service providers on competitive basis for the implementation of Component 3. It will implement Sub-component 3.1 until CARGS is established and operational. For Sub-components 3.2 and 3.3 the PCU will sub-contract activities to relevant service providers.

The Gambia

19. The Ministry of Agriculture (MOA) will have the overall responsibility for implementation of the project. MOA will ensure the coordination of the project through the existing Project Coordination Unit (PCU) of the Gambia Emergency Agricultural Production Project (GEAPP).

20. **The specific implementation arrangements are:**

(i) The overall coordination of Project implementation is entrusted to the PCU of GEAPP;

(ii) A Project Steering Committee (PSC) will be established and maintained throughout the implementation period of the project to provide policy guidance and oversight to the Project Coordinator of WAAPP and implementing partners; The PSC will also approve the Program's AWP&B and the six-month and annual technical and financial reports.

(iii) The PSC will be chaired by the Permanent Secretary of the Ministry of Agriculture with the Project Coordinator serving as Secretary;

(iv) The PSC shall comprise representatives from the relevant government institutions and other stakeholders, including farmers and the private sector. The PSC shall meet at least twice each Fiscal Year to undertake, inter alia, the review and approval of the draft AWP&B, the six-month progress report and the annual report (to be prepared by the Project Coordinator not later than October 31), and to assess progress in executing the current AWP&B;

(v) The PCU shall appoint key additional staff including two (2) M&E and one (1) Procurement Assistant;

(vi) The PCU will establish with each concerned Directorate of the MOA and other implementing partners a result-based MOU, delegating responsibility for implementation of Component 1 of the Project to the relevant partner and setting forth the implementation details and the partner's undertaking to assure the efficient implementation of such parts of the Project;

(vii) The PCU will entrust to NARI the implementation responsibilities for the Component 2 (NCOS) within the frame of the AWP&B in accordance with the PIM;

(viii) The PCU will be responsible for the management of Sub-component 3.1 until The Gambia establishes its CARGS. The PCU will enter into MOUs or contract agreements with relevant public and private service providers, including producers' organizations for the implementation of Sub-components 3.2 and 3.3.

Togo

21. In view of the sectoral approach, Togo has set up supervision and management bodies for all projects within PNIASA in accordance with the partnership framework signed between the stakeholders for the implementation of this program. These bodies include: i) an Inter-Ministerial Strategic Steering Committee (ISSC) chaired by the Minister of Agriculture and responsible for providing strategic guidance to the Project and ensuring the coherence of the Project strategy with the other development projects; ii) a Technical Steering Committee (TSC) chaired by the *Secrétaire Général (SG)* and responsible, *inter alia*, for the approval of the draft AWP&B and the approval of the annual report.

22. **The specific implementation arrangements are:**

(i) With regard to WAAPP-1C management, the *Secrétariat Général* (SG) of the MAEP will be responsible for coordination of the project implementation. The SG will be strengthened with additional staff including an Operational Deputy Coordinator, an Internal Auditor, an Assistant Procurement Specialist, and an M&E Specialist.

(ii) An international consulting firm will be contracted to reinforce the MAEP fiduciary management capacities.

(iii) WAAPP-1C will have two oversight bodies: (i) the ISSC chaired by the Minister responsible for agriculture and comprising representatives of the Government, Technical and Financial Partners, signatories of the Partnership Framework. It meets at least twice a year to proceed with the adoption of reports and to ensure compliance with the Project's strategy; and (ii) the TSC chaired by the Secretary General comprising the technical services of the department for Agriculture, representative from other ministerial departments and producers; it meet at least twice a year to approve the AWP&B, and review progress reports.

(iv) The SG of the MAEP will sign result-based MOU with relevant Directorates of MAEP responsible for the implementation of the Project's activities under Component 1.

(v) The SG will entrust to ICAT and ITRA, through the AWP&B, the implementation responsibilities for Component 2.

(vi) The *Fonds National d'Appui Institutionnel Agricole* (FNAIA) created by MAEP (Decree no. 2001-010 of 22 November 2001) will be responsible for the management of Sub-component 3.1b on the national agricultural research competitive funds.

(vii) The SG will be responsible for the management of Sub-components 3.2 and 3.3 through the contracting or result-based MOUs with relevant public and private service providers.

ii. Financial Management, Disbursements and Procurement

(a) Financial Management

Project FM arrangements

23. In all the participating countries except Togo and Liberia, WAAPP-1C will rely on existing FM arrangements enforced at the implementing entities that have adequate track record in managing Bank-financed projects. Where needed, mitigations measures have been proposed to address the risks identified as well as the work load created by this additional project (see Table 3.2 for details).

Table 3.2: Action Plan to address weaknesses and list of conditionalities

Country	Actions	Date Due	Responsible Entity
Benin	• Recruit an additional qualified and experienced Accountant to handle the new project activities.	• 3 months after effectiveness	• PUASA
	• Develop a procedures manual (i) describing the roles and the duties of each implementing entity; (ii) covering the chart of accounts and segregation of duties; and (iii) detailing arrangements for the competitive grant system.	• Developed and submitted	• PUASA/ IDA
	• Agree on appropriate Interim Financial Report (IFR) format	• At negotiations (done)	• PUASA/ IDA
	• Amend the TOR of the existing External Auditor to include the Project activities.	• At negotiations (done)	• PUASA
Togo	• Develop project procedures manual with specific fiduciary procedures relevant to WAAPP- 1C.	• By negotiations (done)	• Secretariat General of Ministry of Agriculture
	• Amend the TOR of the existing External Auditor to include the Project activities.	• Prior or at negotiations (done)	• SG
	• Agree on appropriate IFR format	• Prior or at negotiations (done)	• SG
Sierra Leone	• Recruit an experienced and qualified additional accountant support FM at the project level.	• Within 3 months of Project's effectiveness	• RPSDP Coordination Unit
	• Develop and implement a PIM (including FM procedures).	• Prior or at negotiations (done)	• RPSDP Coordination Unit
	• Agree on appropriate IFR format	• Done	• RPSDP Coordination

			Unit/IDA
Liberia	• Reinforce FM capacity by recruiting one Accountant • Finalize the ongoing procurement of the accounting software • Amend the TOR of the External Auditor whose recruitment is under underway • Set-up an internal audit unit headed by a qualified Internal Auditor	• 3 months after effectiveness • By negotiations (done) • By negotiations (done) • 3 months after effectiveness	• PMU • PMU • PMU • PMU
Niger	• Amend the consultant contract between the MAL and the external auditor retained for the NCU to expand the scope of the consultancy so as to include a similar assignment under the Project and recruit an Accountant	• Prior or at negotiations (done)	• CAP 2
The Gambia	• Amend the TOR of the External Auditor	• Prior or at negotiations (done)	• GEAPP
CORAF	• Amend the TOR of the External Auditor	• Prior or at negotiations (done)	• CORAF

Supervision and monitoring of FM plans

24. The FM implementation support plan will be consistent with a risk-based approach, and involve a collaborative approach with the entire Task Team (including procurement). The first FM review will be carried out within nine months of project effectiveness. Since all implementing entities are active Bank-financed projects, the implementation support mission for WAAPP-1C will as much as possible be combined with the related missions of these projects for the sake of synergy. This detailed review will cover all aspects of FM, internal control systems, overall fiduciary control environment, and the tracing of transactions from the bidding process to disbursements. Thereafter, the intensity of on-site supervision will be based on risk, initially on the appraisal document risk rating and subsequently on the updated FM risk rating during implementation. Given a residual risk rating of low at project appraisal, the FM Specialist on-site visit will be once-a-year. Additional supervision activities will include desk review of semi-annual IFRs, internal audit report, audited Annual Financial Statements and management letters as well as timely follow up of issues arising, and updating the FM rating in the Implementation Status Report (ISR) and the Portfolio and Risk Management System.

(b) Disbursements

Table 3.3: Disbursement arrangements

Country	Accounts	Flow of funds
Benin	One Designated Account (DA) located at the Central Bank of West African States (BCEAO) and one Project account established in a commercial bank will be managed by the PUASA coordination unit. The DA will be managed by the Ministry of Finance represented by the *Caisse Autonome d'Amortissement*. The Project account will be managed based on joint signatures of the PUASA Coordinator and the FM Specialist, or their representatives.	Upon grant effectiveness and request from the Project, the Bank will deposit the amounts of CFAF 600,000,000 in the DA.
Togo	A DA will be opened at an acceptable commercial bank in Togo. The DA will be managed based on the same arrangement as for the PASA project (joint signatures of the Coordinator and the FM Specialist, or their representatives).	Upon grant effectiveness and request from the project, the Bank will deposit the amounts of CFAF 400,000,000 in the DA.
Sierra Leone	Proceeds of the grant will be disbursed into the DA of the Project after submission of approved withdrawal applications.	Upon grant effectiveness and request from the Project, the Bank will deposit the amounts of US$2 million in the DA.
Liberia	Under the credit, the PCU will establish a DA with a Commercial Bank acceptable to the World Bank.	Upon credit effectiveness and request from the project, the Bank will deposit the amounts of US$1 million in the DA.
The Gambia	A DA will be opened in a commercial bank and managed by the PIU.	Upon grant effectiveness and request from the Project, the Bank will deposit the amounts of US$300,000 in the DA.
Niger	A DA will be opened in a commercial bank and managed by the PIU.	Upon credit effectiveness and request from the project, the Bank will deposit the amounts of CFAF 1,000,000,000 in the DA.

Designated account

25. For all countries the minimum value of applications for reimbursement, direct payment and special commitment is 20 percent of the outstanding advance made to the Designated Accounts (DAs). For the first 18 months, in all countries the Project will use transaction-based disbursement. Following a review of the first IFRs and a risk assessment, the Project might shift to report-based disbursement.

Categories of expenditure

26. Tables 3.4, 3.5 and 3.6 below sets out the expenditure categories and percentages to be financed out of the grants and credits proceeds. Given that all countries are eligible under their financing parameters. IDA fund will finance all expenditures at 100 percent including taxes.

Use of Statement of Expenditures (SOEs)

27. The use of SOEs will be in line with procurement thresholds.

Table 3.4: Categories of Expenditures for IDA

		Togo		Benin		Liberia		Sierra Leone		The Gambia		Niger	
		Amount allocated		Amount allocated		Amount allocated		Amount allocated		Amount allocated		Amount allocated	
N°	**Category**	**SDR**	**US$**	**SDR**	**US$**	**SDR**	**US$**	**SDR**	**US$**	**SDR**	**US$**	**SDR**	**US$**
1	Works under Sub-components 2.3 and 3.3 of the Project	990,000	1.5	1,000,000	1.5	640,000	1.0	950,000	1.5	530,000	0.8	3,250,000	5.0
2	Goods, consultants services, training, and operational costs under the Project												
	a) CORAF	190,000	0.3	250,000	0.37	130,000	0.2	200,000	0.3	320,000	0.5	460,000	0.7
	b) Country	5,000,000	7.7	6,500,000	10.0	2,700,000	4.1	4,350,000	6.7	1,000,000	1.5	8,950,000	13.8
	c)									1,750,000	2.7		
3	Small grants under Sub-component 2.1 and Grants under Sub-component 3.1 (b)	1,300,000	2.0	2,750,000	4.18	300,000	0.5	2,000,000	3.0	1,000,000	1.5	4,550,000	7.0
4	CORAF regional window grants under Sub-component 3.1 (a)	320,000	0.5	500,000	0.75	130,000	0.2	300,000	0.5	0	0	850,000	1.3
5	Project Preparation Advance											150,000	0.2
6	Non allocated											**1,290,000**	2.0
	Total Amount	**7,800,000**	**12.0**	**11,000,000**	**16.8**	**3,900,000**	**6.0**	**7.800,000**	**12.0**	**4,600,000**	**7.0**	**19,500,000**	**30**

Table 3.5: Categories of Expenditures for the JAPAN PHRD Trust Fund

C1. Grant Financing by Expenditure Categories, by country (in US$):			
Expenditure Category	**Sierra Leone**	**Liberia**	**Total**
1. Works	1.0	1.5	2.5
2. Goods, training, and operating costs	5.9	4.5	10.4
3. Sub grants	3.1	2.0	5.1
Total Grant Amount	10.0	8.0	18.0

Table 3.6: Categories of Expenditure for GFRP

		The Gambia	**Totoal**
		Amount allocated US$	**Amount allocated US$**
N°	**Category**		
2	Goods, consultants services, training, and operational costs under the project	**5.0**	**5.0**

Retroactive financing

28. A retroactive financing clause is included into the IDA financing agreements for expenditures incurred on or after September 1, 2010. The retroactive financing was needed to cover expenses incurred by countries for Project preparation and to permit Project activities to begin quickly, as none of the countries (except Niger) was provided with a Project Preparation Facility.

(c) Procurement

Procurement arrangements

29. Procurement for the proposed Project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" (May 2004, revised October 2006 and May 2010), "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" (May 2004, revised October 2006 and May 2010), and the provisions stipulated in the Financing Agreements with the countries participating in the Project.

30. Each participating country has prepared a Procurement Plan for at least the first eighteen months, but for Sierra Leone and Liberia two Procurement Plans have been prepared since there are two sources of financing with different disbursement categories (i.e. IDA Grant and Japan PHRD Grant). Each Procurement Plan will be updated at least twice a year after each supervision

mission or as required to reflect the actual project implementation needs and improvements in institutional capacity. The various items under different expenditure categories are described in the Procurement Plan. For each contract to be financed by the Grants and the Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between each recipient and the Association in the Procurement Plan.

31. For each participating country a General Procurement Notice (GPN) will be prepared and published in United Nations Development Business (UNDB), in Development Gateway (dgMarket) and in at least one national newspaper after the project is approved by the Bank Board, and/or before Project effectiveness. Since this is a regional Project, advertisements for GPN will be published in a major newspaper of each country participating in the Project. Specific Procurement Notices for all goods and works to be procured under International Competitive Bidding (ICB) and Expressions of Interest for all consulting services to cost the equivalent of US$200,000 and above would also be published in the United Nations Development Business (UNDB), dgMarket, and the national press of the participating countries and Senegal (the seat of CORAF). For works and goods using NCB, the Specific Procurement Notice (SPN) will be published only in the country that is procuring such works and goods.

Table 3.7: Thresholds for Procurement Methods and Prior Review

Expenditure Category	Threshold for Method (US$)	Procurement Method	Contracts Subject to Prior Review
Works	>=3,000,000	ICB	All
Liberia Sierra Leone	< 3,000,000	NCB	First 2 contracts
The Gambia Benin Togo Niger	<70,000	Shopping	First contract
		Direct Contracting	$10,000 and above; procedures for below $10,000 are specified in the PIM
Goods and non-consulting services.	>=500,000 <500,000	ICB NCB	All First 2 contracts
Liberia Sierra Leone	<50,000	Shopping	First contract
		Direct Contracting	$10,000 and above; procedures for below $10,000 are specified in the PIM
Goods and non-consulting services.	>=300,000 <300,000	ICB NCB	All First 2 contracts
The Gambia Benin Togo Niger	<50,000	Shopping	First contract
		Direct Contracting	$10,000 and above; procedures for below $10,000 are specified in the PIM

Consulting services from firms & NGOs All countries	>=200,000 <200,000	QCBS QCBS, CQS, LCS, FBA, QS Single Source	All contracts of $200,000 and above and the two first contracts under $200,000 All single source
Individual consultants		IC	All contracts of $50,000 and above Note: All Term of reference regardless of the value of the contract are subject to prior technical review

ICB – International Competitive Bidding *QCBS -- Quality and Cost-Based Selection method*
NCB – National Competitive Bidding *CQS – Consultants' Qualification Selection method*
LIB – Limited International Bidding *IC – Individual Selection method*

Procurement mitigation measures

32. This Project will use PCUs within existing Bank-financed Projects in Benin, Niger, The Gambia and Sierra Leone. These PCUs have experienced Procurement Officers and strong procurement performance, but to accommodate the additional workloads imposed by WAAPP-1C, additional staff will be recruited as a mitigation measure. In Togo and Liberia the project will use the ministries' in charge of agriculture to coordinate the Project. A procurement assessment was conducted in those two countries, and more detailed mitigation measures were identified to minimize procurement risks (See table 3.8).

Table 3.8: Procurement Mitigation Measures

Country	Implementing Agency	Procurement capacity evaluation	Procurement mitigation measures	Procurement Risk for ORAF at implementing Level
Regional	CORAF	Existing institution with an experienced Procurement Specialist. Latest capacity review in May 2010. Good procurement capacity. Financial and Procurement Procedures Manual already prepared.	CORAF Procurement Specialist will: i) coordinate network of Procurement Specialists of participating countries; ii) a formal meeting of the procurement network will be organized twice year ; iii) when required the Procurement Specialist will visit countries to provide additional procurement assistance. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year.	**Medium-L**

Togo	Secretariat General of the ministry in charge of agriculture	Existing institution with weak procurement capacity. Latest capacity review in November 2010.	A Procurement Consultant is being hired for one year by the ministry under PASA Project Preparation Advance. A series of measures to strengthen the Ministry of Agriculture's procurement capacity will be undertaken by the Project: i) the Ministry procurement unit will have one additional Procurement Assistant appointed; and ii) an international firm will be hired for two years to provide specialized procurement training and on-the job coaching. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year	**High**
Benin	PCU of the Emergency Support to Enhance Food Security Project	Existing institution with an experienced Procurement Specialist. Latest capacity assessment done in November 2010. Financial and Procurement Procedures Manual already prepared.	The PCU Procurement unit will be strengthened by hiring an additional Procurement Assistant. The existing and new staff will be sponsored to take appropriate trainings. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year.	**Medium-I**
Niger	PCU of the *Programme d'Actions Communautaires* (PAC-2).	Existing institution with an experienced Procurement Specialist. Latest capacity assessment done in November 2010. Financial and Procurement Procedures Manual already prepared.	The PCU Procurement unit will be strengthened by hiring an additional Procurement Assistant. The existing and new staff will be sponsored to take appropriate trainings. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year	**Medium-I**

Liberia	PCU of the Liberia Agriculture Sector Investment Program (LASIP)	Existing institution with weak procurement capacity. Latest capacity assessment done in November 2010. Financial and Procurement Procedures Manual already prepared.	Two Procurement Officers with regional or international experience will be hired to strengthen the existing procurement unit. The existing and new staff will be sponsored to undertake specialized procurement trainings. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year.	**High**
Sierra Leone	PCU of the Rural and Private Sector Project (RPSDP).	Existing institution with an experienced Procurement Specialist. Latest capacity assessment done in November 2010. Financial and Procurement Procedures Manual already prepared.	The Procurement unit will be strengthened with the hiring of one Procurement Specialist. In addition the existing staff at the Ministry of Agriculture procurement unit and the new Procurement Specialist will be sponsored to take appropriate trainings. Bank Procurement Specialist will undertake regular supervision and a post procurement review at least once a year.	**Medium-I**
The Gambia	Gambia Emergency Agricultural Production Project (GEAPP)	Existing institution with an experienced Procurement Specialist. Latest capacity assessment done in November 2010. Financial and Procurement Procedures Manual already prepared.	The Procurement unit will be strengthened with the hiring of one additional Procurement Assistant. The existing and new staff will be sponsored to take appropriate trainings. Bank Procurement Specialist will undertake regular supervisions and a post procurement review at least once a year.	**Medium-I**

Implementation Support for Procurement

33. Bank Procurement Specialists will participate regularly in implementation support to assist in monitoring of procurement procedures and Procurement Plans. During regular implementation support missions for each country the Procurement Plans will be updated at

minimum once each year and similarly post procurement reviews will be carried out at minimum once a year.

Exceptions to National Competitive Bidding Procedures

34. For National Competitive Bidding (NCB) for goods and works, the Recipients may follow their own national procedures that are governed by their respective national public procurement acts and/or laws, with the following exceptions noted below:

(i) Procuring entities shall use appropriate standard bidding documents acceptable to the Association.

(ii) The eligibility of bidders shall be as defined under Section I of the Guidelines Procurement under IBRD Loans and IDA Credits (the "Procurement Guidelines"); accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Association for reasons other than those provided in Section I of the Procurement Guidelines.

(iii) Foreign bidders shall be allowed to participate in National Competitive Bidding procedures.

(iv) No domestic preference shall be given for domestic bidders and/or for domestically manufactured goods.

(v) Bidding shall not be restricted to pre-registered firms, and foreign bidders shall not be required to be registered with local authorities as a prerequisite for submitting bids.

(vi) Government-owned enterprises shall be eligible to participate in bidding only if they can establish that they are legally and financially autonomous, operate under commercial law and are not dependent agencies of the Borrower or Sub-Borrower. Such enterprises shall be subject to the same bid and performance security requirements as other bidders.

(vii) Bidders shall be given at least thirty (30) days from the date of the invitation to bid or the date of availability of bidding documents, whichever is later, to prepare and submit bids.

(viii) Bids shall be submitted in a single envelope.

(ix) Qualification criteria shall be applied on a pass or fail basis.

(x) Each bidding document and contract financed out of the proceeds of the Financing shall include provisions on matters pertaining to fraud and corruption as defined in paragraph 1.14(a) of the Procurement Guidelines. The Association will sanction a firm or an individual, at any time, in accordance with prevailing Association sanctions procedures, including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (a) to be awarded an Association-financed contract; and (b) to be a nominated sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded an Association-financed contract.

(xi) In accordance with paragraph 1.14(e) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the Financing shall provide that: (a) the bidders, suppliers, contractors and subcontractors shall permit the Association, at its request, to inspect their accounts and records relating to the bid submission and

performance of the contract, and to have said accounts and records audited by auditors appointed by the Association; and (b) the deliberate and material violation by the bidder, supplier, contractor or subcontractor of such provision may amount to an obstructive practice as defined in paragraph 1.14(a)(v) of the Procurement Guidelines.

(xii) The Association may recognize, if requested by the Recipient, exclusion from participation as a result of debarment under the national system, provided that the debarment is for offenses involving fraud, corruption or similar misconduct, and further provided that the Association confirms that the particular debarment procedure afforded due process and the debarment decision is final.

iii. Environmental and Social (including safeguards)

35. WAAPP-1C is a Category B Project. In other words, the environmental and social impacts of the Project, for the most part, are expected to be minimal, site specific, and manageable to an accepted level. Four Bank safeguard policies apply to the Project: Environmental and Social Assessment (OP 4.01), Pest Management (OP 4.09), Involuntary Resettlement Policy (OP 4.12) and Natural Habitat (4.04). The triggering of the Natural Habitats Policy applies specifically to the Sierra Leone, where field research at Rokupr Research Center occurs in mangroves areas. Guidelines on mitigation measures designed to minimize impacts on natural habitats are discussed in the ESMF.

36. When the environmental and social assessment of the Project was done, the range, scale, locations and number of technology generation and transfer sub-projects that will be undertaken under the WAAPP initiatives were unknown. The difficulty inherent in defining what the real environmental and social impacts of such sub-projects might be of determining what mitigation measures to put in place made it essential to develop a regional ESMF. The Project triggered the Pest Management Policy (OP 4.09) because its envisioned activities are assumed to lead to agricultural diversification and intensification, and thus it was necessary to develop a regional PMP. Site visits for the pre-appraisal mission covered all participating countries and identified issues related to land acquisition or to the loss of economic activity among individuals or groups of individuals, mainly for some research centers in Togo. For that reason, a RAP was prepared for Togo and a regional RPF was prepared for the remaining countries.

Potential Impacts

37. The Project's potential environmental, social and health impacts include, but are not limited to:

- Soil erosion and loss of biodiversity (fauna and flora), owing partly to Project activities and partly to poaching and land conversion in natural resource areas to which there is access near Project sites.
- Extensive agriculture leading to deforestation of ecosystems.
- Pesticide/inorganic fertilizer residues resulting from agricultural intensification and diversification.
- Sedimentation of water bodies due to land clearing and poor rehabilitation of borrow pits.
- Improper waste management.

- Elimination of the natural enemies of crop pests and consequent alteration of biological pest control methods.
- Development of resistance to pesticides, encouraging increases in and reliance on chemical pesticides.
- Contamination of soil and water bodies.
- Uncontrolled import, sale, and distribution of pesticides.
- Weak institutional capacity for pesticide management.
- No integrated approach to limiting crop pests.
- Significant destruction of natural habitat.
- Soil salinization, alkalization, and acidification.
- Groundwater pollution (fertilizers, pesticides, and other contaminants).
- Cattle health issues (from pesticide dips)
- Unsafe management of pesticide containers.
- Non targeted species destruction (by pesticides).
- Increase of waterborne diseases.
- Soil trampling and compaction by cattle.
- Selective browsing (by cattle) harming plants and ecosystems.
- Well and water point pollution (by cattle).
- Risks related to capacity deficiencies in biotechnology and biosafety.

38. As noted, the regional ESMF and PMP were prepared by CORAF and discussed during a sub-regional workshop in Dakar in August 2010. The ESMF formulates standard methods and procedures specifying how technological research proposals whose location, number, and scale are currently unknown will systematically address environmental and social issues in the screening, categorization, siting, design, implementation, and monitoring phases. The ESMF includes: (i) systematization of assessment of environmental and social impacts for all identified subprojects before investment and (ii) procedures for conducting subproject-specific environmental and social impact assessments, be they Limited ESIA.

39. The proposed PMP, on the other hand, addresses concerns relating to the risks associated with potential increases in the use of pesticides for agricultural production, intensification, and diversification and potential increases in disease vector populations owing to irrigation schemes. The plan makes proposals to strengthen national capacities to implement mitigation measures designed to minimize such risks. The PMP, as part of the implementation arrangements, also identifies national agencies and other partners that could play a vital role in the success of the Project's social and environmental safeguards.

40. Both the ESMF and PMP include institutional arrangements, outlining the roles and responsibilities for the various stakeholder groups involved in each participating country, at the national and regional level, for screening, reviewing, and approving subprojects, as well as implementing and monitoring of mitigation measures for those subprojects. In view of the somewhat limited institutional capacity to address Project safeguards adequately, the two safeguard instruments include provisions to strengthen the capacity of the various institutions and actors involved and to promote coordination and synergies among the various sectors in attending to potential social and environmental impacts. Together these safeguard instruments

are considered as a planning tool and a means for harmoniously integrating the Project with its biophysical and social environment to maximize its positive effects in the sub-region.

41. All safeguard documents (ESMF, PMP, RPF, and RAP for Togo) were consulted upon, submitted to the Africa Safeguard Policy Enhancement (ASPEN), the regional Safeguard Unit, and cleared for disclosure regionally by CORAF and at the Bank InfoShop on December 13, 2010 and January 20,2011 respectively. Since The Gambia joined the project at a later stage the regional ESMF and PMP have been updated to include The Gambia and disclosed on January 20, 2011.

Public Consultation and Disclosure

42. The ESMF, PMP, RAP for Togo, and RPF were prepared in compliance with Bank and national safeguard policies, following broad consultation with all relevant stakeholder groups, consistent with the approach adopted at Project inception. This participatory approach will continue throughout Project implementation, supervision, and evaluation.

43. Prior to disclosure, in-country and at the Bank's InfoShop, CORAF organized a stakeholder workshop for Project stakeholder groups from public agencies in the participating countries (Togo, Benin, Niger, Liberia, Sierra Leone and The Gambia), including representatives of national research and extension services, national environmental protection agencies, professional organizations, farmers' organizations, civil society, and NGOs. This approach was used to present the results of the studies, foster ownership, and garner input from these stakeholders to improve the quality and soundness of the instruments. Recommendations from both ASPEN and stakeholders' were reflected in the final safeguard reports prior to disclosure. These recommendations and relevant provisions from the two sets of safeguard instruments will be reflected in the PIM.

Monitoring and Supervision of Safeguard Performance

44. Successful implementation of Project safeguard requirements and performance measurement requires regular M&E of Project activities to assess compliance with national and Bank safeguard policies. This M&E will also help ensure that Project safeguard measures are systematically implemented throughout the life of the Project.

45. To this end the following indicators need to be measured, as part of the Project's global monitoring plan:

- Number of subprojects screened on environmental and social safeguard grounds.
- Number of subproject needing specific ESIAs.
- Number of Environmental Impact Assessments (EIAs) conducted.
- Number of subprojects with EMPs or EIAs and/or RAPs.
- Number of EMPs or ESIAs and/or RAPs implemented according to schedule.
- Number/frequency of safeguard supervision and annual Project reviews undertaken.
- Number of training programs carried out for safeguard capacity strengthening.
- Number of institutions/organizations trained according to measures identified and specified in the instruments.

46. In addition, as part of the Project's global monitoring system, biophysical and social changes (negative and positive) from the baseline in the natural environment in the Project's intervention area—such as changes in the quality of ground and surface water, changes in diversity of flora and fauna, land resource management, and improvements in agricultural activities—should be measured.

Safeguards Requirements in Project Legal Documents

47. As set forth in the Financing, Grant and Project Agreements, each country and CORAF shall carry out Components 2 and 3 of the Project pursuant to the provisions of the PMP in a timely manner, ensuring that: (i) mitigation and monitoring measures acceptable to the Association are designed and implemented with due diligence and employing appropriate environmental expertise and (ii) adequate information on the implementation of the measures contained in the PMP is appropriately included in the progress reports to be prepared under the Project.

48. In addition, each countries and CORAF shall take all measures required so that each country's entity in charge of the component or CORAF: (i) screen, under Parts 2.1 and 3.1 (b) of the Project, the activities under the Research Proposals and Grants proposals submitted for financing out of the proceeds of the grants or credits; (ii) ensure that each Beneficiary: (A) carry out an appropriate site-specific Environmental and Social Impact Assessment (ESIA) or Environment and Social Management Plan (ESMP), as the case may be, and a Resettlement Action Plan, if there is Resettlement, for each such activities in accordance with the provisions of the ESMF and RPF, as the case may be, and in form and substance satisfactory to the Association; and (B) consult upon and disclose the site-specific ESIA or ESMP, as the case may be, and the RAP (or Resettlement and Rehabilitation Plan, in the case of Togo), as approved by the Association; (iii) verify (through its own staff, outside experts, or existing environmental/social institutions) before approving the Research Proposal or Grant proposal that the activities meet the environmental and social requirements of appropriate national and local authorities and that they are consistent with the Association's applicable environmental and social assessment and safeguard policies and comply with the environmental and social review procedures set forth in the relevant manual; and (iv) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and RAP, if there is one,(or Resettlement and Rehabilitation Plan for Togo)are appropriately implemented.

49. Furthermore, prior to the award of each contract for works under Sub-components 2.3 or 3.3 of the Project, each country shall: (i) furnish to the Association a written attestation for the specific site where the works will be undertaken that the works shall not cause or result in Resettlement or submit to the Association for its review and approval the related site-specific Resettlement Action Plan (RAP) in accordance with the provisions of the Resettlement Policy Framework (RPF) and in form and substance satisfactory to the Association; (ii) submit to the Association for its review and approval the related site-specific Environmental and Social Impact Assessment (ESIA) or Environment and Social Management Plan (ESMP), as the case may be, in accordance with the provisions of the ESMF and in form and substance satisfactory to the Association; (iii) consult upon and disclose the site-specific ESIA or ESMP and RAP (or Resettlement and Rehabilitation Plan (RRP) in the case of Togo, if applicable to the site,), as approved by the Association; and (iv) thereafter, ensure that the relevant mitigation and monitoring provisions of the ESIA or ESMP, as the case may be, and RAP (RRP for Togo), if

applicable, are appropriately included in the works contract concluded for the site and that they are implemented in the carrying out of Parts 2.3 and 3.3(ii) of the Project.

50. Lastly, each Recipient and CORAF shall carry out its respective Parts of the Project pursuant to the obligations under, and in accordance with environmental safeguards and international good practice and standards consistent with those of, the Cartagena Protocol on Biosafety.

Arrangements for Safeguards Supervision

51. The supervision of safeguards implementation for the Project will be done by CORAF as part of the overall project implementation in conjunction with the Social and Environmental Focal Points in each of the participating country's National Coordination Unit, and relevant experts involved in environmental and social mitigation. World Bank supervision teams will also include environmental and social safeguards experts on the team. To ensure effective Bank supervision, CORAF in conjunction with each country's implementation entity, will prepare and update detailed reports on the implementation of the ESMF, and subsequent ESIAs/EMPs and/or RAPs, as applicable, and the PMP, before Bank supervision missions. Appropriate budget for Project supervision will be included in the Project financial evaluation.

Safeguard Policies Triggered

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[x]	[ ]
Natural Habitats (OP/BP 4.04)	[x]	[ ]
Pest Management (OP 4.09)	[x]	[ ]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[x]
Involuntary Resettlement (OP/BP 4.12)	[x]	[ ]
Indigenous Peoples (OP 4.10)	[ ]	[x]
Forests (OP/BP 4.36)	[ ]	[x]
Safety of Dams (OP/BP 4.37)	[ ]	[x]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[ ]	[x]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[x]

iv. Monitoring and Evaluation

52. The M&E system will be designed to document Project outcomes and intermediate results. CORAF will have the primary responsibility for the Project's M&E. In this capacity, CORAF has already defined under WAAPP-1A a standard methodology for collecting and processing data, as well as for measuring impacts at national and regional levels to allow comparability across countries. CORAF has issued a regional M&E manual that is being used by WAAPP-1A and adapted for WAAPP-1B countries. The manual and standard methodology will be extended to WAAPP-1C countries

Measurement and reporting of Project outcomes and impact

53. At the regional level, CORAF will subcontract with appropriate regional and international agencies to update studies on the region's agricultural productivity every other year, based on the study done with International Food Policy Research Institute (IFPRI) support in 2006, which has also served as a baseline for monitoring progress in agricultural productivity in the region. These studies are not related to participating countries only but will report on agricultural productivity in the entire ECOWAS region, and they will be carried out twice over the life of the Project: before the Mid-Term Review (Year 3 following effectiveness) and by the closing date (for the Implementation and Completion Report).

54. At the country level, the PCU will be responsible for the overall M&E of Project indicators and outcomes. The NCOS in participating countries will be responsible for measuring the impact of technology released and transferred under Component 2. To this end, the PCU and NCOS will carry out farm surveys to measure the indicators on productivity improvement and technology adoption. Such panel surveys will be conducted over the Project's life cycle and will include both a control group and adopters of released technologies. They will also perform supply chain analysis and benchmarking to identify on a regular basis any knowledge gaps and key areas for future research programs, as well as to provide an update on country progress and performance along the chains of commodities in their particular areas of specialization. The M&E units of the PCUs will be strengthened with additional staff members solely dedicated to WAAPP activities.

Monitoring of Project implementation progress and intermediate achievements

55. CORAF and the national research grant agencies will be responsible for maintaining web-based databases on grant administration and results. Such databases will be accessible to the public and will disclose information on the following: requests for proposals, the selection process and procedures, grantees, and results. In addition, CORAF will develop and maintain an agricultural research resource database in terms of publications and research skills available in the region. An independent evaluation of completed subprojects funded under the regional and national windows will be performed annually starting at the end of Year-2 following Project effectiveness. This evaluation will capture, through a score-card approach, all relevant dimensions of subprojects, including alignment with the region's top priorities, participation and intake of beneficiaries, quality of FM, compliance with Bank safeguard policies, scientific achievements and efficacy for transfer to end-users, quality of documenting results and communicating to the public, and so forth.

56. Based on the M&E system, each participating country will produce semi-annual reports along with notes synthesizing information on the national priority sector and information on research grants and results. CORAF will produce an annual consolidated report based on the countries' reports and their specific studies, to be shared with all ECOWAS countries. CORAF will also inform participating countries on a yearly basis on progress in implementing activities and the use of funds transferred from country proceeds, with all relevant documents (including financial statements, financial audit, and implementation progress reports) as approved by its Oversight Committee.

57. Once it is established, the Food security hub operating under the aegis of the MRU Secretariat will conduct studies and generate information on the rice sector (production, inputs,

trade issues, and so forth) that will be made available to heads of states and ministers in MRU countries to enable them to take strategic decisions and adjust and integrate their policies.

58. The anchor projects in the participating countries have developed M&E systems that will serve CORAF's regional M&E system. In addition, CORAF is also developing a web-based information system on agricultural technology. The basic structure of the M&E for the Project is thus in place. This system will be strengthened and improved both at the national and regional levels, as reflected in the cost tables.

v. Role of Partners

59. The Government of Japan through its PHRD Grant will provide US$35 million to finance rice value chain development activities in the MRU countries. An allocation of US$18 million will be provided to Liberia and Sierra Leone under the project. The Japan PHRD Grant is to support the implementation in these countries of national rice development policies prepared as part of the CARD initiative supported by Japan.

60. The GFRP will provide US$5 million to The Gambia to complement IDA resources to support, scale up, and speed adoption of released technologies. Increased adoption of such technologies is the key to achieving the target of 30 percent increase in farmers' yields under the Project.

Annex 4. Operational Risk Assessment Framework (ORAF)

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

Project Development Objective(s)	
The development objective of WAAPP-1C is to generate and accelerate the 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	
PDO Level Results Indicators:	1. *Percentage average yield increases in key commodities supported under the project (%)*
	2. *Number of direct project beneficiaries (male and female in %)*
	3. *Rate of increase in adoption of new technologies (production, handling and processing methods) disseminated under the project (% of actors)*
	4. *Increase in land area under improved technologies (ha)*

Risk Category	Risk Rating	Risk Description	Proposed Mitigation Measures
Project Stakeholder Risks	M-L	Weak capacity of national agricultural research and extension systems in Sierra Leone, Liberia and Togo due to long wars and political instability.	The project will develop specific tools (innovation platforms, competitive research grant schemes, and so forth) that will empower stakeholders to direct R&D agenda towards their needs FARA has assisted countries to conduct capacity assessment of research systems. The Poject will support countries to implement capacity building plans including training for young researchers. It will also promote a researcher exchange program to reinforce capacity in weaker countries. Specific capacity building plans (short- and medium-term assistance programs) have been developed for both Liberia and Sierra Leone,

			including backstopping from CGIAR Centers (Africa Rice and IITA).
Implementing Agency Risks	M-L	**Limited national level coordination capacity and regional coordination challenge;** **Delays in Procurement activities;** **Poor financial management of Project activities involving several entities and institutions**	Project coordination will be done by existing Bank-financed projects in Niger, Sierra Leone, Benin and The Gambia which have already acquired strong experience in Bank operations and fiduciary management. In Togo and Liberia, the Bank and other donors are supporting capacity building in the ministries in charge of agriculture to coordinate donor projects. In each of these countries the Project will finance additional technical and fiduciary staff and their trainings. WAAPP-1C will support CORAF by appointing a Desk Officer who will be fully dedicated to following up implementation of WAAPP. Adequate FM will be put in place before implementation starts, including recruitment of additional FM staffs, fund flow arrangements, and auditing and reporting requirement will be made clear. Training will be given to staff on bank procedures and IFR preparation
Project Risks			
• Design	M-I	**Complexity of Project design** Non conformance with linkage conditionality (cross-effectiveness conditions and cross-	Experience under WAAPP-1A and 1B has demonstrated that closer supervision by CORAF and the Bank team including a regional Task Team Leader (TTL) and country office based Co-TTL improved project management efficiency. Also regional wrap-up meetings organized twice a year after the supervision missions and peer country performance rating enhanced sharing of experiences and stimulated competition among countries. These mechanisms will be strengthened under WAAPP-1C. If a financing agreement never enters into effect or if disbursements under a given financing

		suspension remedies) for regional operations.	agreement are suspended, this would only reduce the scope but not affect the overall implementation of regional activities, and the national activities can be still be implemented despite lack of progress in the overall regional dimension of the project. Furthermore, disbursements for the regional component are conditioned to the declaration of effectiveness of the financing agreements with at least three countries.
• Social and Environmental	M-L	**Weak institutional capacity for implementing safeguard policies**	Building upon the experience of WAAPP-1A and -1B and ongoing Bank funded operations, targeted client countries will be supported by the Project to develop acceptable safeguard knowledge/skills to properly deal with Bank safeguard policies. CORAF and each participating country have appointed focal points for environmental and social safeguards. The focal points have already formed a regional network that will meet once a year to review safeguard issues. An ESMF, PMP, RAP (for Togo) and RPF has been prepared, consulted upon, reviewed by the Bank, and disclosed in-country at the InfoShop before appraisal. A Comprehensive Safeguard Clinic for the focal points and all stakeholders will be organized in Senegal (Dakar, March 7-11, 2011). This meeting will assemble all key stakeholders in the implementation of WAAPP operations. In addition, the Project Safeguard Team will ensure proper supervision of the Program.
• Program and Donor	M-L	**Limited harmonization of sector support programs**	There is increasing drive towards donor coordination and harmonization of development interventions in the agricultural sector following the development of national agricultural investment plans and the signing of compacts within the CAADP framework. Also countries are setting up common sector program coordination units to harmonize donor interventions.

			During Project preparation an agreement was reached with local JICA offices to build synergies between WAAPP-1C and their on-going/future operations. Therefore, for MRU countries the Bank will work closely with JICA local offices in the implementation of the Rice program.
• Delivery Quality	M-L	**Poor quality of delivered technologies and services**	The Project will support capacity strengthening of national R&D teams in line with identified capacity gaps through specific support from stronger countries, NCOS, and CGIAR Centers.

Overall Risk Rating at Preparation	**Overall Risk Rating During Implementation**	**Comments**
Medium -L	Medium-L	

Annex 5: Implementation Support Plan

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

Strategy and Approach for the Implementation Support Plan (ISP)

1. The ISP is built on the premise that: (i) the Project is a continuation of the WAAPP Program in which six countries are already involved. WAAPP-1C will extend the coverage of the Program to include Togo, Benin, Niger Sierra Leone, Liberia, and The Gambia; (ii) the implementation strategy will build on experiences gained under the implementation of WAAPP-1A and preparation of WAAPP-1B for which effectiveness conditions are being met; (iii) CORAF which is coordinating the Project at the regional level has gained considerable experience in implementing the WAAPP and organizing good-quality sub-regional workshops and training; and (iv) CORAF has an experienced financial team. With its full roster of strong translation service providers, CORAF is also well equipped to overcome language barriers (as WAAPP involves both English- and French-speaking countries. In view of the new challenges imposed by WAAPP's expansion to seven new countries, however, CORAF has decided to appoint a Technical Assistant to its Program Director. The role of the Assistant, who will be fully dedicated to WAAPP, is to: ensure the day-to-day interaction with beneficiary countries, the TTL, and Co-TTLs; follow up internally to ensure that CORAF personnel are responsive to demands from partners and implement WAAPP activities in a timely way; interact with consultants and coordinate preparation of the AWP&B and biannual progress reports. As public awareness is a key issue for the Project, CORAF will contract a communications firm to implement the communications strategy.

2. For each participating country, except Togo and Liberia, Project coordination is entrusted to current World Bank projects with experienced fiduciary staff. In Togo and Liberia, the Project is being coordinated by the ministries in charge of agriculture, where the Bank will strengthen FM capacity. Sufficient capacity building and additional staffing are included under the provisions of WAAPP-1C to further strengthen these Project coordination entities. In each country, the Project will use existing institutions in government and the private sector to implement the various components. These institutions include research institutes, which in most countries are experienced in managing Bank projects.

3. During the implementation of WAAPP-1A and preparation of WAAPP-1B, two tools have proven very effective in raising the quality of implementation and progress towards the PDO. First, during the regional wrap-up meetings after each supervision mission (twice a year), each country was rated. The rating stimulated competition; for example, Mali was rated MS in 2009 but worked hard to increase its performance, and all countries agreed that it should be rated S in April 2010. Second, the technical networks appear to be effective in improving the capacity of technical staff and harmonizing procedures. Four technical networks are in place: the M&E network, fiduciary network, social and environmental focal points network, and the network of NCOS coordinators. Each has already met regionally at least once and has internet-based regular communication.

4. WAAPP will continue to develop and strengthen these tools. The technical networks will be expanded to cover communications specialists in addition to researchers organized by NCOS. The Project is collaborating with the World Bank Institute to develop distance learning courses

and workshops for the networks. The first series of courses will be for NCOS researchers' networks.

5. The project has significant level complexity as it involves an additional seven countries that will convert the WAAPP into a regional Project with thirteen countries. Thus the networks need to be strengthened (and will meet more regularly in both large meetings involving many countries and smaller focused meetings) under WAAPP-1C, to ensure effective implementation for attainment of the regional development objectives, and to prepare for the Phase 2 of WAAPP. Also upon the request of participating countries, CORAF could organize teams of experts to assist with new issues that arise during implementation. All these tools would help to transfer knowledge and lessons learned in this complex project.

6. Witht respect to Bank supervision, current supervision arrangements including a regional TTL and country-based co-TTLs, will be maintained and strengthened. The regional TTL will be seconded by a full-time Operation Officer based in the field. This arrangement will speed interaction with the countries and monitoring of Project progress. Enough FAO CP budget (15 to 20 Staff Weeks per year) should be allocated to WAAPP to complement the Bank Budget for FAO support to Project supervision, as FAO was a key partner in the preparation.

7. Each country has already prepared an implementation manual and a financial and Administrative management manual that has been reviewed by the Bank. Management and fiduciary capacities are in place to initiate Project activities as WAAPP-1C will use existing PCUs in most cases. Key additional staff, technical assistance and equipment will be added soon after Board approval. Supervision will also start immediately after Board approval and a project launching workshop will be organized at regional level and in each country. The frequency of supervision is expected to be two missions per year, as noted, and will include one full supervision (involving fiduciary, safeguard, communications and technical Bank specialists and consultants) and one light supervision (TTL, Co-TTL, and fiduciary team) owing to budget constraints.

Implementation Support Plan

8. **Technical Support.** Most investments contemplated under the Project are relatively complex from a technical standpoint, especially in terms of ensuring that the activities to be funded actually result in the expected efficiency improvements. A number of consultants will provide technical assistance to implementing agencies in the form of hands on-training and mentoring.

9. **Fiduciary Support.** Despite the fact that the PCUs have FM experience and will be strengthened to improve their capacity, the country-based fiduciary teams (Procurement and Financial Specialist) will closely supervise the Project's fiduciary management. They will participate in the twice-yearly supervision missions, participate in capacity building of fiduciary staff and at least once a year the Procurement Specialists will organize a post review of procurement activities.

10. **Safeguards Support**. The Specialists in Social and Environmental Safeguards based in Washington will continue to have responsibility for supervising safeguard activities. Each year they will conduct a comprehensive supervision of safeguard activities of the Project, participate in the regional wrap-up meeting to discuss findings, and draft an action plan to improve implementation.

11. **Main focus of implementation.** Table 5.1 summarizes the main focus of implementation during the life of the Project:

Table 5.1 Main focus of implementation

Time	Focus	Skills	Resource Estimate	Partner Role
First 12 months	Project start up, appointment of remaining additional staff regional and national orientation, workshops for all implementing agencies, procurement of all TAs, and equipment, processing of procurement of works, and regional training organized by ASPEN for safeguard focal points. Organization of at least 6 Distance Learning Courses (DLC)	TTL + Operation Officer + Co-TTLs Procurement Specialists for each country FM Specialists for each country Social Safeguards Specialists Environmental Safeguards Specialists Training and DLC specialist Communications Specialist M&E Specialist Technical experts from CGIAR centers	Bank and Trust Fund Supervision Budgets plus FAO/CP	Provide additional skills required and participate in ensuring that Project start-up activities are implemented as planned and technical networks are functioning
12 – 48 months	Ensuring that Project implementation is rated Satisfactory towards achieving PDO. Organizing the MTR to draw lessons from Project implementation	TTL + Operation Officer + Co-TTLs Procurement Specialists for each country FM Specialist. for each country Social Safeguards Specialists Environmental Safeguards Specialists Training and DLC Specialist (from World Bank Institute) Communication Specialist based in the countries M&E Specialist Technical experts from CGIAR centers Communication Specialists	Bank and Trust Fund Supervision Budgets plus FAO/CP	Provide additional skills required and participate in review of implementation progress and ensuring that the Project is implemented as planned
48 – 60 months	Ensuring that lessons learned from MTR are implemented through an action plan and that Project continues to be rated Satisfactory towards	TTL + Operation Officer + Co-TTls Procurement Specialists for	Bank and Trust Fund Supervision Budgets plus FAO/CP	Provide additional skills required; participate in review of implementation progress; and ensure that the Project

	achieving PDO	each country FM Specialists. for each country Social Safeguards Specialists Environmental Safeguards Specialists Training and DLC Specialist Communication specialist M&E Specialist Technical experts from CGIAR Centers		implemented as planned

Skills Mix Required

12. Table 5.2 summarizes the proposed skill-mix and number of staff weeks during the initial phase of Project implementation. It is expected that demand will increase and change with time.

Table 5.2 Proposed skill mix

Skills Needed	**No of Staff Weeks per Fiscal Year**	**No of Trips per Fiscal Year**	**Comments**
TTL	12	4	Field office based
Operations Officer	12	4	Washington based
Co- TTLs	7 x 6 SW= 42	7 x 3=18	Country office based
Training and DLC Specialists	3	1	Washington based
Local Communication Specialists	7 x 2SW= 14	1	Country office based
Senior Communication Officer	3	1	Washington based
Environmental & Safeguard Specialist	3	1	Washington based
Social Safeguards Specialist	3	1	Washington based
Procurement Specialists	7 x 2SW= 14	7 x 1SW = 7	Country Office based
Financial Management Specialists	6 x4SW= 24	6*2= 12	Country office based
Monitoring and Evaluation Specialist	4 SW	2	FAO Rome based

Role of Other Partners

13. The role of Partners and their expected input are summarized in Table 5.3 below.

Table 5.3 Role of Other Partners

Name	Institution	Role
Executive Director of CORAF Regional Wrap Up Meetings coordinated by CORAF Technical Network meetings coordinated by CORAF – M&E network, Fiduciary network, Social and Environmental focal points network and the network of NCO coordinators.	CORAF	Project Coordination at Regional Level Ensure achievement of PDO
Project coordinators	Each participating country	Project Coordination at National Levels Ensure achievement of PDO at country level
Director of CGIAR centres	IITA- AFRICA RICE-IRRI-ILRI	Backstopping of national research institutions Provision of breeder seed to NARS Provide Capacity Building to NARS
Country representatives Director of the Investment center	FAO	Project supervision Ensure provision of mixed skills to support quality of project implementation
JICA	Japan	Partnership and parallel financing
Regional Director based in Accra	AGRA	Partnerships in the development of the seed sector
Coordinators of Bank and other development partners agricultural development Projects in the participating countries Project TTls/CPM	Mainly World Bank- IFAD-AfDB-USAID	Synergy and complementarities Ensuring in each participating country that agricultural projects will collaborate to implement an action plan for mass adoption.

Annex 6: Team Composition

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

World Bank staff and consultants who worked on the project:

Name	Title	Unit
Abdoulaye Toure	Task Team Leader/Sr. Rural Development Specialist	AFTAR
Kofi Nouve	Agricultural Economist	AFTAR
Yao Alexis Haccandy	Co-TTL Cote d'Ivoire/Agricultural Economist	AFTAR
Osman Kadir	Co-TTL Ghana/Agricultural Economist	AFTAR
Oliver Braedt	Co-TTL Liberia/Sr. Natural Resources Mgmt. Specialist	AFTAR
Charles Annor-Frempong	Co-TTL Sierra Leone/Sr. Rural Development Specialist	AFTAR
Jane C. Hopkins	Co-TTL Guinea/Sr. Agricultural Economist	AFTAR
Ayi Adamah Klouvi	Co-TTL Togo/Agricultural Economist	AFTAR
Ibrahim B. Nebie	Co-TTL Burkina Faso/Sr. Agric. Extension Specialist	AFTAR
Agadiou Dama	Co-TTL Mali/Sr. Agricultural Specialist	AFTAR
Amadou Alassane	Co-TTL Niger/Sr. Agricultural Specialist	AFTAR
Eric Herman Abiassi	Co-TTL Benin/Agricultural Economist	AFTAR
Lucas Kolawole Akapa	Co-TTL Nigeria/Sr. Operations Officer	AFTAR
Claudia M. Pardiñas Ocaña	Senior Counsel	LEGAF
Wolfgang M. T. Chadab	Senior Finance Officer	CTRFC
Luis M. Schwarz	Senior Finance Officer	CTRFC
Sossena Tassew	Operation Analyst	AFTAR
Marie-Claudine Fundi	Program Assistant	AFTAR
Akpo Leissan	Program Assistant	AFMBJ
Yassin Saine Njie	Program Assistant	AFMGM
Fatu Karim Ture	Program Assistant	AFMSL
Esinam Hlomador	Program Assistant	AFMTG
Hadidia djimba	Program Assistant	AFMNE
Anta Tall Diallo	Program Assistant	AFMSN
Rose Abena Ampadu	Program Assistant	AFCW1
Helen Taddesse	Program Assistant	AFTAR
Amadou Konare	Environmental Safeguard Specialist	AFTEN
Cheickh Sagna	Social Safeguard Specialist	AFTCS
Ousmane Kolie Diop Saidou Maimouna Fam Maxwell Dapaah Alain Hinkati	Financial Management Specialist Financial Management Specialist Financial Management Specialist Financial Management Specialist Financial Management Specialist	AFTFM AFTFM AFTFM AFTFM AFTFM

Allan Rotman Ibrah Sanoussi Anthony Mensah Bonsu Ferdinand Tsri Apronti Mathias Gogohounga Sidy Diop	Procurement Coordinator Procurement Specialist Procurement Specialist Procurement Specialist Procurement Specialist	AFTPC AFTPC AFTPC AFTPC AFTPC AFTPC
Franz Goosens	FAO CP Agro Economist	
Alain Onibon	FAO CP- Institutional Analyst	
Hermann Pfeiffer	FAO CP Agronome - Seed Production and Agricultural Technology Specialist	
Nguala Luzetoso	FAO CP Financial and COSTAB Specialist	
Desiree Coquillat	FAO CP Financial and COSTAB Specialist	
Rene Bessin	Livestock Specialist	
Julien Vallet	Agricultural Economist	

Annex 7: Economic and Financial Analysis

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

A. Overview

1. This annex presents the results of the economic and financial analysis for WAAPP-1C for a third series of ECOWAS countries, namely Togo, Benin, Niger, Liberia, Sierra-Leone and The Gambia[9][10].

2. 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, (ii) enhanced technology spillovers between ECOWAS countries arising from an integrated policy environment with regard to agricultural cooperation; and (iii) sound communications and dissemination approaches to enhance the Project's visibility, transparency, and effectiveness. The Project also creates a number of positive externalities[11] under Component 1 ("Enabling Conditions for Subregional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies") and Component 4 ("Project Coordination, Management, Monitoring, and Evaluation") which have not been directly assessed in this analysis because of the difficulty of quantifying the effects of institutional strengthening and capacity building.

3. In view of the need to harmonize the methodologies used to assess prospective returns to WAAPP-1A and -1B, this ex ante economic and financial analysis for the WAAPP-1C uses the same framework and methodology as the analysis in the Project Appraisal Document for WAAPP-1B. More specifically, this annex presents: (i) a summary of general issues for economic analysis of agricultural research and extension (R&E) projects; (ii) a review of returns to past investments in agricultural R&E projects in West Africa; (iii) a discussion on spillovers in West Africa; (iv) an overview of the economic importance of the main commodities supported by WAAPP-1C; (v) a presentation of the methodology and the basic assumptions supporting it; and (vi) the outcomes of the analysis (baseline results and sensitivity analysis).

4. In view to harmonize methodologies between the different "series" of the first phase of the WAAPP program, this ex-ante economic and financial analysis for the WAAPP-1C utilizes the same framework and methodology as the analysis in the Project Appraisal Document (PAD) of the WAAPP-1B. More specifically, this annex presents: (i) a summary of general issues for

[9] Sierra Leone, Liberia and Guinea are also known as the "Mano River Union Countries" (MRU). This acronym will be used later in the analysis.

[10] Given the large number of countries involved in WAAPP-1C, the economic and financial analysis for the MRU countries was done by an independent consultant with the same methodology as the analysis for Benin, Niger and Togo. This document reports on the aggregated results.

[11] One striking feature of WAAPP-1C is the "programmatic approach" that has been put in place. This approach is expected to yield positive externalities such as better efficiency in resource management and foreign aid use. More specifically, WAAPP-1C made particular efforts to develop synergies with other donors and other Bank projects, such as common institutional arrangements between projects and complementary activities between projects. For example in Benin, ProCADA (formerly PUASA) is coordinating both WAAPP-1C and the forthcoming Benin Agricultural Productivity and Diversification Project.

economic analysis of agricultural research and extension (R&E) projects, (ii) a review of returns to past investments in agricultural R&E projects in West Africa, (iii) a discussion on spillovers in West Africa, (iv) an overview of the economic importance of the main commodities supported by the WAAPP-1C, (v) a presentation of the methodology and the basic assumptions supporting it, and (vi) the outcomes of the analysis (baseline results and sensitivity analysis).

5. Under different sets of assumptions, the results show that WAAPP-1C is an economically desirable Project. If spillovers between the innovating countries and the other countries of ECOWAS occur, the minimal annual growth rates to break even (12 percent IRR) are modest and attainable in each country. The economic and financial analysis also tests the robustness of returns through a basic sensitivity analysis that alters the values of key variables affecting agricultural productivity (magnitude of spillovers, production costs, and output prices). Overall results are summarized in table 2 in the last section of this annex.

B. Economic and Financial Analysis of Agricultural R&E Projects

6. The methodology for economic analysis of projects for agricultural research and advisory services is discussed in Price Gittinger (1982), World Bank (2000), and Rajalahti, Woelcke, and Pehu (2005).[12]

7. The particular challenges in conducting an economic analysis of agricultural R&E projects include: (i) uncertainty of the effectiveness of investments in research and of technology generation and adoption, as well as the difficulty establishing timetables for technology generation, dissemination, and adoption; (ii) the difficulty of 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 post-conflict countries (in this instance, Sierra Leone and Liberia).

8. 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 investment have a compounding effect on the productivity of commodities supported under WAAPP1-C.

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[12] Price Gittinger, J. (1982), *Economic Analysis of Agricultural Projects,* Washington, DC: World Bank; World Bank (2000), "Ex Ante Economic Analysis in AKIS Projects: Methods and Guidelines for Good Practice," Agricultural Knowledge and Information Systems (AKIS) Good Practice Note, Washington, DC; and Rajalahti, R., J. Woelcke, and E. Pehu (2005), "Monitoring and Evaluation for World Bank Agricultural Research and Extension Projects: A Good Practice Note," Agriculture and Rural Development Discussion Paper 20, Washington, DC: World Bank.

C. Returns to Past Investments in Agricultural Research and Extension Projects

9. Overall, the literature points to very high rates of return on investments in agricultural research in sub-Saharan Africa. Many ex post economic analyses have shown returns to investments in agricultural R&D averaging between 40 percent and 60 percent. The *World Development Report 2008*[13] found that international and national investments in R&D have paid off handsomely, with an average IRR of 43 percent in 700 R&D projects evaluated in developing countries in all regions. The most comprehensive and powerful review of the literature (Alston et al. 2000)[14] examined 292 studies (including advisory services studies) reporting 1,886 estimates of returns on investments in agricultural R&E. The report found that the average rate of return across the remaining 1,367 ex post evaluations was 77.4 percent per year. Returns averaged 79.6 percent on investments in research alone, 80.1 percent on investments in advisory services alone, and 46.6 percent on investments in R&D. The report argues that estimates for R&E might be lower than for research and advisory services alone because the corresponding studies captured more of the total costs of the technology innovation process. However, estimated rates of return tended to be lower in Africa (where returns averaged 50 percent) than in other parts of the world.

10. Alene and Coulibaly (2008)[15] found that the IRR for agricultural R&D in sub-Saharan Africa was around 55 percent. The same study identified a significant effect of agricultural R&D on agricultural productivity growth and poverty reduction. The elasticity of productivity with respect to agricultural research was 0.38, implying that a 1 percent increase in agricultural research expenditure would increase productivity by 0.38 percent. Moreover, the elasticity of GDP per capita with respect to productivity was estimated at 0.95, indicating that an increase in productivity of 1 percent would lead to growth in per capita incomes of nearly 1 percent. The poverty elasticity of per capita GDP was –0.60, implying that growth of 10 percent in per capita income would reduce poverty by as much as 6 percent.

11. The estimated aggregate IRR of 55 percent is generally in agreement with past evidence on the returns to agricultural research and extension in the developing world in general and in sub-Saharan Africa in particular (see World Bank 2007 and Alston et al. 2000). Overall, the evidence points to high rates of return on investments in agricultural R&E in sub-Saharan Africa. As a matter of fact, there is no reason to expect that economic returns in the WAAPP-1C countries would be substantially below the high levels reported consistently in most analyses.

D. Spillovers in West Africa[16]

12. The potential to capture spillovers of technology from outside the region is less in sub-Saharan Africa than in other regions. One reason is that crops grown in sub-Saharan Africa are more diverse and include many so-called "orphan crops" for which little global public or private R&D is done (examples are cassava, millet, and yams). Another reason is that the "agro-

[13] World Bank (2007), *World Development Report 2008: Agriculture for Development,* Washington, DC.
[14] Alston, J.M., C. Chang-Kang, M. Marra, P. Pardey, and T. Wyatt (2000), "A Meta-Analysis of Rates of Return to Agricultural R&D: *Ex Pede Herculem,*" Washington, DC: International Food and Policy Research Institute.
[15] Alene, A., and O. Coulibaly (2008), "The Impact of Agricultural Research on Productivity and Poverty in Sub-Saharan Africa," *Food Policy* 34:198–209.
[16] Spillovers are the transfers of economic benefits between firms in an industry or economy or between countries without compensating payment.

ecological distance" between Africa and other regions can mean that technologies imported from other continents often do not perform well in Africa. Using an index of agro-ecological distance, in which zero represented no potential for spillovers from the high-income countries where most R&D is conducted, and 1 represented perfect spillover potential, Pardey et al. (2007)[17] estimated that the average index for African countries is 0.05, compared with 0.27 for all developing countries. A final reason for sub-Saharan Africa's difficulty in capturing spillovers is that its agricultural research systems are fragmented into nearly 400 distinct research agencies, preventing economies of scale from being realized (World Bank 2007).

13. The present Project proposes two strategic approaches to address this dual problem. The first is a regional approach to agricultural research under which countries are persuaded of the comparative advantage of contributing to the development of a regional center of excellence (the NCOS). The NCOS are expected to help achieve economies of scale and create a new source of spillovers in addition to traditional sources (such as public R&D systems in developed countries and the CGIAR research centers.

14. The second approach is to enhance spillovers by allocating a large share of the resources under WAAPP-1C to create an environment that fosters agricultural cooperation throughout the region. Examples of activities required to create the required national and regional leverage for agricultural spillovers include creating a regional enabling environment for trade and technology dissemination; advocacy and institutional development; regional knowledge management; and national and regional project management at the level of the PCU, NARS, CORAF, and MRU Secretariat.

15. Although evidence of regional spillovers in Africa is limited, Easterly and Levine (1997)[18] found that an increase in the growth rate in one country by 1 percentage point over a decade could result in an increase in the growth rate in a neighboring country by 0.55 percentage points. They contended that these spillover benefits could be strengthened through more focused and coordinated regional development strategies and that countries generating the largest spillovers could serve as important growth poles for their surrounding regions. Additionally, Abdulai, Diao, and Johnson (2005)[19] showed that investments in regional R&D approaches in African agriculture can yield up to three to four times the gain in direct benefits obtained within the innovating countries, in addition to substantial benefits from spillover gains to noninnovating countries in the region.

16. The rationale for WAAPP tends to reflect Easterly and Levine's assumptions, and their findings are used in this analysis to model spillover effects within WAAPP-1C and ECOWAS countries.

E. Economic Importance of Focus Commodities in WAAPP-1C countries and West Africa

[17] Pardey, P.G., J. James, J. Alston, S. Wood, B. Koo, E. Binenbaum, T. Hurley, and P. Glewwe (2007), "Science, Technology, and Skills: Background Paper for the 2008 World Development Report of the World Bank," St. Paul: InSTePP (available at http://www.instepp.umn.edu/publications/newpubs.html).

[18] Easterly, W., and R. Levine (1997), "Africa's Growth Tragedy: Policies and Ethnic Divisions," *Quarterly Journal of Economics* 112(4):1203–50.

[19] Abdulai, A., X. Diao, and M. Johnson (2005), "Achieving Regional Growth Dynamics in African Agriculture," Development Strategy and Governance Division Discussion Paper No. 17, Washington, DC: International Food Policy Research Institute.

17. The analysis focuses on returns arising from enterprises having the highest potential to generate food security, exports, and income in the ECOWAS region (table 1). These enterprises are supported by Component 2 (NCOS) and Component 3 (Funding of Demand-driven Technology Generation and Dissemination). A brief overview of the economic importance of the main value chains supported by the NCOS in each WAAPP-1C country is provided here.

Table 7.1: Value chains supported under the WAAPP-1C auspices

	Niger	Benin	Togo	MRU countries
Value chains supported under the NCO	Red meat Cow milk	Maize	N/A	Rice (NCOS based in Sierra Leone)
Value chains supported by the competitive fund	Cowpeas, onions	Rice	Maize, rice, poultry	Rice

Remarks: Discussions with key informants during a regional workshop in Dakar (Nov. 15–16, 2010) identified the value chains that will be eligible for national and regional competitive funds. With a view to developing synergies between the WAAPP and other Bank or donor projects, the value chains supported under the competitive fund are also supported in forthcoming or current projects, such as rice under the PADA project in Benin and maize, rice, and poultry under the PASA and PADAT projects in Togo. Togo and Liberia do not host any NCOS. Côte d'Ivoire developed one NCOS on banana and plantains under WAAPP-1B, with no specific focus on other crops.

Rice in the MRU countries

18. As of 2009, according to FAO statistics, West Africa was producing about 11.2 million tons of rice, approximately 1.5 percent of world production.[20]

19. In the MRU countries, where the center of specialization on rice will be strengthened (Sierra Leone), rice production averaged 3.4 million tons of paddy (3.15 million hectares with an average yield of 1.08 tons per hectare).[21] Rice is produced in a diverse range of agro-ecologies, including rainfed uplands, mangrove systems, inland valley swamps, plains, and irrigated rice schemes. Upland systems cover around 2.4 million hectares, compared to 750,000 hectares of lowland, plain, and swamp production systems and irrigated schemes. Average upland paddy yields are 0.83 tons per hectare, compared to 1.87 tons per hectare for lowlands. Assuming an average milling yield of 0.64 percent, net production of milled rice production averages 2.15 million tons.

20. Given that total rice consumption amount to 3.45 million tons,[22] net imports of rice into the four MRU countries are about 1.30 million tons, valued at around US$ 850 million per annum (2008 estimates). Considering that the import tariff is around 10 percent, total government receipts are around US$ 80 million per annum. A production increase of 68 percent would be needed to enhance import-substitution effects.

[20] See http://faostat.fao.org/.
[21] Yields are based on National Rice Development Strategies in MRU countries.
[22] Data collected during the pre-appraisal mission (Nov.1-13, 2010) in Liberia and Sierra Leone.

Cattle meat and milk in West Africa and Niger[23]

21. As of 2008, West Africa produced about 1.9 million tons of cattle milk and about 1 million ton of cattle meat (red meat), 1 percent and 0.3 percent of world production, respectively (FAOSTAT).

22. In Niger, where the NCOS for livestock will be strengthened, the livestock sector accounts for 14 percent of national GDP and 50 percent of agricultural GDP, supports the livelihoods of 80 percent of the population, and generates considerable foreign exchange earnings (between 2001 and 2005, export earnings from livestock products reached a cumulative 130 billion CFA francs (CFAF), second only to uranium revenues (CFAF 340 billion) and almost 1.5 times higher than crop revenues (CFAF 82 billion). The Government of Niger's project appraisal document (GoN 2010)[24] estimated the total value of livestock in Niger at CFAF 2,000 billion. Notwithstanding its importance in Niger's current account balance and terms of trade, the livestock subsector is also vital for rural households who rely on pastoral livestock systems as a central source of savings and incomes, through the marketing of their livestock products (mainly hides, skins, and leather), more specifically in Nigeria.

23. Stimulating increased growth of livestock production systems will not be possible unless pastoral systems can be sustainably developed and the livestock value chain can be oriented more toward commercialization. For this to happen, a number of research challenges will be addressed in WAAPP-1C. In the short term, those are: (i) to promote research towards improved livestock breeds (Azawak cows, Maradi goats); (ii) to improve animal husbandry practices (primarily through better access to better-quality fodder); (iii) strengthen veterinary services; and (iv) enhance agro-processing activities. Medium- and long-term research challenges are to enhance marketing transparency and respond to quality and food safety requirements.

Maize in Benin

24. As of 2009, West Africa produced 9.2 million tons of maize, with yields averaging 1.6 tons per hectare, which is 1.7 percent of world production (FAOSTAT). In Benin, where the NCOS on maize will be strengthened, maize is the most common crop found in farming systems. Maize is the first crop in terms of area (about 700,000 hectares), and its production covers nearly 35 percent of the cultivated area in Benin. According to the data reported in the Government of Benin's project appraisal document (GoB 2010),[25] maize production is estimated at more than 1,200,000 tons under the 2009–10 campaign, with yields averaging 1.2 tons per hectare (with 38 percent of farmers using improved maize varieties capable of yielding up to 2.4 tons per hectare). Local demand is estimated at 326,000 tons, and subregional demand (essentially from Nigeria, Togo, and Niger) averages 100,000 tons (WAEMU and ONUDI 2008).[26]

25. According to the government (GoB 2010), the main barriers to growth in the maize subsector include: (i) the low supply of improved inputs (such as good seed); (ii) basic technical advice; (iii) the vulnerability of local maize varieties to mycotoxins such as aflatoxin; (iv)

[23] Data reported in this paragraph were collected during the International Conference on Livestock, held in Niamey, November 1-3, 2010, as part of WAAPP-1C preparation.
[24] Government of Niger (2010), Project Appraisal Document for the West Africa Agricultural Productivity Project, Niamey.
[25] GoB (Government of Benin) (2010), Project Appraisal Document for the West Africa Agricultural Productivity Project, Cotonou: Ministry of Agriculture, Livestock, and Fisheries.
[26] ONUDI and UEMOA (2008), *Etude pour l'identification des filières agro-industrielles prioritaires (Benin).*

substantial post-harvest losses (which can reach 20–40 percent after six months of storage); and (v) the low use of post-harvest technologies, which reduces the economic performance of the value chain.

F. Methodology and main assumptions

Methodology

26. **Internal rate of return.** To ensure that methodologies are consistent and that analytical results can be compared across the WAAPP series, the economic and financial analysis for WAAPP-1C uses the methodology applied in the WAAPP-1B appraisal document. More specifically, the economic analysis uses the "minimum national impact assessment." This method identifies the minimum annual growth rate in net farm income (across the full area cultivated) from increased yields and adoption that would be required to attain an IRR of 12 percent (the breakeven point over a 20-year project lifecycle), assuming a proportional increase in production costs arising from the adoption of more input-intensive technologies. This method is often used to identify the minimum incremental benefit stream that would justify the proposed investments.[27]

27. **Regional spillovers.** The seminal assumption, based on Easterly and Levine (1997), is that half of the yield increases experienced in the innovating country (host of the center of excellence) is the yield increase used to estimate the spillover benefits to other countries. In order to appraise benefits from regional spillovers, three scenarios were considered in the baseline analysis, namely: (i) a conservative scenario, in which technologies benefit only the innovating country; (ii) a wise scenario, in which technologies benefit countries with similar agroclimatic environments and production systems; and (iii) a best-case scenario, in which technologies benefit all countries in West Africa.

28. **Sensitivity analysis.** The sensitivity analysis was done by stressing the values of variables likely to affect the project and the incremental benefits, such as output prices, input prices (by assuming an increase in the cost of production), and the magnitude of spillovers from the innovating country to other countries.

Main assumptions

29. **Farm models.** The incremental returns arising from increased yields were calculated net of farm cost increases. Almost all improvements in productivity come from an increase in on-farm costs, arising from the increase in quantity or quality of purchased inputs (improved seed, more suitable fertilizers) or an increase in labor inputs (soil preparation, handling of incremental outputs). Whenever data on the average total cost of production were scarce, it was assumed in the baseline scenario that the associated increase in cost would be 50 percent of the increase in

[27] The "minimum national assessment impact" methodology also aims to circumvent the problems linked to cause-and-effect attribution of impact. As discussed, the design process of WAAPP-1C made specific efforts to develop synergies with other agricultural projects. One of the synergies was complementary activities between WAAPP and other Bank or donor projects. Typically, WAAPP-1C will generate and produce improved seed, and other projects will propose financing instruments to address funding needs of the WAAPP's main beneficiaries. An integrated approach is hence necessary to meet some of the WAAPP's outcomes (beneficiaries) and the attribution of results at the ex ante level would have been difficult to appraise.

productivity.[28] Percentage increases in yields and farm costs were applied to national total production values and applied across the full area cultivated to derive the incremental returns, similar to the assumption adopted in the economic and financial analysis for WAAPP-1B.

30. **Prices.** The calculations used average price data collected during pre-appraisal missions and FAOSTAT database. Price data were not disaggregated around the agricultural cropping cycle (therefore ignoring the sometimes significant price fluctuations during the cropping cycle). All prices were given in average 2009 prices.

31. **Costs of the Project.** Total annual costs from years 1–5 were extracted from the COSTAB database of each WAAPP-1C country. Almost all WAAPP1-C costs are off-farm costs. Costs from Subcomponent 1.4 (financing civil works and facilities for NARS that are directly related to research generation and dissemination) were incorporated into the analysis as they lead to productivity and income increases for farmers.[29] As in the Project Appraisal Document of WAAPP-1B, the cost to maintain the project after Year 5 (recurrent costs that all the countries will have to face to ensure WAAPP's sustainability) is assumed to be 70 percent of Year 5 expenditure.

32. **Adoption.** As in the Project Appraisal Document of WAAPP-1B, the analysis assumes that the Project will have a gradual effect on the adoption rate. For example, if by the end of the Project (Year 5), 60 percent more beneficiaries are assumed to be adopting new technologies, it will be assumed that the Project has had a gradual effect on individual farmers (20 percent in Year 3, and 20 percent in Year 4). It is assumed several readily deployable technologies are available and that extension service can start in Year 1, but the actual increase in productivity does not occur until Year 3 (Year 4 for the MRU countries, given the fragile environments). It also assumes that the yield increase, starting to accrue in Year 3, will be sustained until Year 20.

[28] This hypothesis was used in WAAPP-1B and other projects, such as Tanzania's National Agricultural Extension Project (Phase 2) and Kenya's Agricultural Productivity and Agribusiness Project. It must be noted, however, that the analysis benefited from the results of the production costs of the economic and financial analysis of PASA. Data collected for the ex ante economic and financial analysis of PASA showed that the associated increase in costs was 55 percent of the increase in productivity.

[29] Some countries, such as Togo, decided to host an NCOS in the second phase of WAAPP. In this case, investments under Component 2 (financing capacity-building activities to lay the groundwork for the future NCOS) were not computed in the analysis.

G. Results

Table 7.2: Summary of overall results, minimum yield increases required to breakeven, cumulative

Scenarios	Year 1	Year 10 (End of WAAPP)
BENIN		
Baseline analysis		
(i) Without spillovers	0.65	5.20
(ii) With spillovers in Togo	0.49	3.92
Benin- sensitivity analysis		
(i) With spillovers in Togo (25% the yield increase experienced in the host country)	0.55	4.40
(ii) With spillovers in West Africa (25% the yield increase experienced in the host country)	0.04	0.37
(iii) With a 10% decrease in output prices (and with spillover in Togo)	0.55	4.40
(iv) With a production cost that is 75% the increase in productivity (spillover in Togo)	0.92	7.36
(v) With a production cost that is 75% the increase in productivity (spillover in West Africa)	0.08	0.68
NIGER		
Baseline analysis		
(i) Without spillovers	4.70	37.60
(ii) With spillovers in Nigeria and Burkina Faso	2.00	16.00
Niger- sensitivity analysis		
(i)With spillovers in Nigeria and BF (25% the yield increase experienced in the host country)	2.90	23.20
(ii) With spillovers in West Africa (25% the yield increase experienced in the host country)	1.15	9.20
(iii) With a 10% decrease in output prices (spillover in Nigeria and BF)	2.20	17.60
(iv) With a production cost that is 75% the increase in productivity (spillover in Nigeria and BF)	3.95	31.60
(v) With a production cost that is 75% the increase in productivity (spillover in West Africa)	1.21	9.68
TOGO		
Baseline analysis		
Without spillover, with spillins from Benin	0.96	7.68
Sensitivity analysis		
(i) With a 10% decrease in output prices	1.80	14.40
(ii) With a production cost which is 75% the increase in productivity	1.70	13.60
MRU COUNTRIES		
Baseline analysis		
(i) With spillovers in Liberia (NCO in Sierra Leone)	0.25	1.75
Sensitivity analysis		
(ii) With a 10% decrease in output prices	0.28	1.96
(iii) With a production cost that is 75% the increase in productivity	0.50	3.50

Niger

33. **No spillover.** To break even (that is, to reaching the 12 percent IRR), yields should have an incremental increase of 4.7 percent every year for each livestock product (red meat and milk) and crop (onions and cowpeas). This would lead to net increases in yields of more than 13.8 percent compared to the baseline (without the Project) over 5 years and 37.6 percent over 10 years (end of the APL). While this increase is possible to achieve at the farm level given the high returns from R&E projects and given the size of the yield gaps that have to be filled in the WAAPP-1C countries, all the efforts targeting regional integration in research would be ignored,

which is quite unlikely to happen. As a matter of fact, this scenario would not be economically desirable from the ECOWAS prospective.

34. **With spillovers in Burkina Faso and Nigeria.** Given that Burkina Faso and Nigeria have some agroclimatic environments similar to those in Niger (farming systems of the Sahelian zone), the analysis considered spillovers towards these countries. To break even, yields should have an incremental increase of 2 percent every year for each livestock product (red meat and milk) and crop (onions and cowpeas). This increase would lead to net increases in yields of more than 6 percent compared to the baseline (without the Project) over 5 years and 16 percent over 10 years. The estimated incremental increase in yields that is required seems attainable, given the low current productivity in this region. Investments to improve subregional cooperation would pay off by favoring spillins from Niger towards other countries of the Sahel.

35. **With spillover in West Africa.** An optimal scenario, assuming the adoption of improved technologies by all ECOWAS countries, was also considered. To break even, yields should have an incremental increase of 0.6 percent every year for each livestock product (red meat and milk) and crop (onions and cowpeas). This increase would lead to net increases in yields of more than 0.6 percent compared to the baseline (without the Project) over five years and 4.8 percent over 10 years. While WAAPP-1C aims to create a framework for scientific cooperation at the "West African" level, technology spillovers can be limited among countries that are technologically distant or have dissimilar agro-ecologies or production patterns. This scenario might be somewhat challenging to materialize.

36. **Sensitivity analysis.** Several scenarios (quite similar to those discussed in the analysis of WAAPP-1B) were considered (see table 2). Results in table 2 show that the Project is quite robust against changes: Yield increases to break even are still achievable (in the order of 1.2–3.9) for all the scenarios considered.

37. **Without spillovers.** To break even, yields should have an incremental increase of 0.65 percent every year for each crop (maize and rice). This increase would lead to net increases in yields of more than 1.95 percent compared to the baseline (without the project) over 5 years period and 5.2 percent over 10 years. As discussed above, this scenario would not be desirable at the ECOWAS level.

38. **With spillovers in Togo.** Spillovers in Togo were considered due to the close agro-ecological similarity between the two neighboring countries. To break even, yields should have an incremental increase of 0.49 percent every year for each crop (maize and rice). This increase would lead to net increases in yields of more than 1.47 percent compared to the baseline (without the Project) over 5 years and 3.92 percent over 10 years.

39. **With spillovers in West Africa.** To break even, yield should have an incremental increase of 0.025 percent every year for each crop (maize and rice). This increase would lead to net increases in yields of more than 0.075 percent compared to the baseline (without the Project) over 5 years and 0.34 percent over 10 years. Because Nigeria is a large producer of maize, spillovers from Benin to Nigeria were considered in this last scenario.

40. **Sensitivity analysis.** Several scenarios were considered (see table 7.2); results in Table 7.2 show that the Project is quite robust against changes: Yield increases to break even are achievable (in the order of 0.046–0.920) for all the scenarios considered.

Togo

41. **Baseline scenario.** No center of specialization will be hosted in Togo during the first phase of the APL. As a matter of fact, no spillover from Togo to neighboring countries or ECOWAS was considered. Only maize spillins from Benin were computed. To break even, yields should have an incremental increase of 0.96 percent every year for each crop (maize and rice) and livestock product (small ruminants). This increase would lead to net increases in yields of more than 2.88 percent compared to the baseline (without the Project) over 5 years and 17.28 percent over 20 years.

42. **Sensitivity analysis.** Two scenarios were considered in the analysis (see Table 7.2) and show that the Project is quite robust against changes: Yield increases to break even are low (in the order of 1.7–1.8) for the scenarios considered.

MRU Countries: Sierra Leone and Liberia

43. **Baseline scenario.**[30] To obtain a breakeven IRR of 12 percent with the proposed investments in the MRU countries, it is sufficient to generate an average national incremental increase in lowland farm yields of 0.5 percent per annum and in upland farm yields of 0.5 percent every year from Year 4 onwards. This increase would lead to net increases in yields of more than 1 percent compared to the baseline (without the Project) over 5 years and 3.5 percent over 10 years. The estimated incremental increase in yields that is required seems attainable, given low current yields and past experiences with the introduction of new technologies. The projected increase in yields is assumed to be induced by growth in total factor productivity generated by WAAPP1-C but will in practice come from the adoption of new varieties as well as fertilizer.

44. **Sensitivity analysis.** Two scenarios were considered in the analysis (see Table 7.2), and they show that the Project is quite robust against changes: Yield increases to break even are low (in the order of 0.28–0.50) for the scenarios considered.

[30] The economic and financial analysis for the MRU countries assumed spillovers between countries in the baseline scenario.

Annex 8: Country Summaries

AFRICA: West Africa Agricultural Productivity Program (WAAPP-1C)

Country: BENIN[31]

Sources of Financing:	IDA: US$16.8 million

Sector background:

The agricultural sector accounts for about 32 percent of GDP and nearly 70 percent of total employment in Benin. Overall agricultural growth is around 3 percent, which is often offset by relatively high population growth (3.2 percent). The agricultural production systems rely mainly on family labor, with limited or no use of improved inputs, production methods, and farm equipment. Of the total economically active population, 48.2 percent are in the agricultural sector, of which about 35 percent are women.

Despite its huge potential, the agricultural sector is characterized by weak productivity. Rural poverty remains significant in Benin. A study by EMICOV reported that about 4 Beninese in 10 live below the poverty line; of these, 39 percent are in rural areas and 35 percent in cities.

Benin's participation in the WAAPP is consistent with the government's vision of agriculture as the main engine for growth and of agricultural productivity as the key means of rapidly achieving food security and growth. This vision for agriculture is clearly reflected in Benin's Rural Development Strategy 2006–2011, its Poverty Reduction Strategy Paper (PRSP), and the *Plan Stratégique pour la Relance du Secteur Agricole* (prepared under ECOWAP/CAADP process and translated into a national investment plan)**.**

Selected value chain and justification for selection:	Maize (Center of Specialization) Rice, Poultry, Cashew, Pineapple

According to MAEP (2009), the most important crops for Benin are :(i) cereals (mainly Maize), which account for 45 percent of cultivated area; (ii) roots and tubers (mainly cassava), which account for 21 percent of the cultivated area; (iii) commercial crop (Benin is more competitive for Cashew and pineapple than other commercial crops), which account for 18 percent of the cultivated area; (iv) leguminous crops (mainly cowpea) which account for 13.5 percent of the cultivated area. Vegetables which account for the remaining 3 percent of the cultivated area. In the livestock sector poultry and small ruminant remain the most important value chains.

Maize is important in Benin's economy. It is cultivated throughout the country, consumed in various forms, and marketed nationally as well as sub-regionally. Annual production is estimated at more than 1,200,000 tons. The selection of maize as the specialty value chain for Benin is justified for a number of reasons, including the presence of appropriate local growing conditions for the crop, the current importance of maize as human food and animal feed (including high

[31] From the Benin Country Document

demand for maize among the urban population), the rising demand for food stimulated by population growth; and the potential rising demand for maize as feed in poultry farming (and the prospects for locally produced poultry to substitute for imports).

PDO Targets:	
Number of beneficiaries	250,000
Released technology by NCOS	5
Area covered by improved technology	240,000 ha
Number of beneficiaries adopting technology	150,000

Project activities by components	
Component 1. Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	

Benin has already adopted ECOWAS' common regulations on genetic materials and pesticides. Benin's national registration committee the *Comité National d'Agrément et de Contrôle* (established through Regulation No. 91004 of 11 February 1991 and Decree No. 92258 of 18 September 1992), is responsible for the control and registration of pesticides and pharmaceutical products.

The Project will therefore support:

(i) DAGRI in: (a) preparing and implementing an action plan to disseminate the ECOWAS' common regulations on genetic materials and pesticides (and the fertilizer recommendation, under preparation) to relevant stakeholders; (b) strengthening/setting up the relevant bodies for their implementation (seed council, registration committees, and so on); and (c) strengthening its seed certification capacities and equipping and strengthening the capacity of the "pesticide control squads."

(ii) Development (on the basis of the regional communications strategy developed by CORAF) and implementation of annual national information and communications plans, as well as the upgrading and interconnection of the website of the agricultural research centers of Niaouli, Savé, and Ina and the website of the University of Benin, and the opening of a Benin WAAPP portal on CORAF's website.

(iii) Development and implementation of: (a) a training program to upgrade skills in ICT/knowledge management and (b) a training program to mainstream climate change and gender in technology generation and adoption processes, based on the regional strategies prepared by CORAF.

Component 2: National Center of Specialization (NCOS)

Benin will host the NCOS on Maize

National agricultural research is carried out in Benin by INRAB. Created by Decree No. 92-182 of 6 July 1992, INRAB has six research centers. The research center of CRA-Sud has been selected as the NCOS for maize.

The Project will therefore support:

(i) Rehabilitating and equipping laboratories, office, cold storage, and guest houses, and building of greenhouse; drying areas; irrigation systems for research and seed multiplication activities for the center of specialization.

(ii) The updating and implementation of annual capacity-building plans, including: (a) on-the-job and academic training for young researchers; (b) exchange programs for visiting researchers; (c) backstopping from IITA and other relevant CGIAR centers; and (e) organization of an annual regional workshop for the maize value chain.

(iii) Maize R&D programs, including: (a) small grants to research teams to develop research programs; (b) studies on the maize value chain; and (c) organization of annual regional stakeholder workshops to discuss activities of the NCOS.

Component 3: Support to demand driven technology dissemination and adoption

Benin is in the process of establishing the *Fonds National de Développement Agricole* (FNDA) which will have a desk responsible for the management of the national competitive grant schemes.

The Project will therefore support:

(i) Study tours and workshops to establish the FNDA

(ii) The operating cost of consultative stakeholder innovation platforms (at county and national level), in addition to the development and implementation of adoption action plans for the adoption of improved technology (production, post-harvest and processing), including development of farmer forums and field schools, demonstration plots, and other extension methods to scale up adoption, training of trainers, and training of producers.

(iii) Strengthening and implementating the national seed multiplication program including production of breeder seed in liaison with IITA, foundation seed by INRAB and commercial seed by producers and seed companies

Component 4. Project Coordination, M&E

Implementation arrangements

At national level by: MAEP will have the overall responsibility of project implementation. It will establish and chair a National Steering Committee of WAAPP.

At project level : the PCU of PUASA (another Bank project) will coordinate all new investments in the agricultural sector, including the Agricultural Productivity and Diversification Project OR PADA (under preparation by the Bank). The WAAPP will strengthen the PCU with additional staff including a Deputy Coordinator for WAAPP, a Communication Officer and an M&E

Officer. Fiduciary: The PCU has good expertise in the Bank's fiduciary practices. The WAAPP will provide additional staff to the PCU, including a Procurement Officer and an Accountant and provide additional training to the current and newly hired staff. Safeguards: An ESMF and PMP have already been disclosed; an RPF (under preparation) will be disclosed before appraisal.. At the component level:	
Component 1	PCU will implement this component through results-based MOUs with all relevant Directorates of MAEP
Component 2	PCU will entrust to INRAB implementation responsibility for this component within the framework of the AWP&B
Component 3	PCU will be responsible for implementation of Sub-component 3.1 until FNDA is established and operational; PCU will implement Sub-components 3.2 and 3.3 through contracts or MOUs with relevant public or private service providers.
Component 4	PCU will implement this component.

Country: LIBERIA[32]

Sources of Financing:	IDA: US$6.0 million; Japan PHRD: US$8.0 million

Sector background:

Liberia's four million inhabitants occupy 111,400 square kilometers; 63 percent of its population lives below the national poverty line. The country's economic, institutional, and human capacity was virtually destroyed by the pervasive conflict that endured from 1989 to 2003. Access to most productive inputs, services, and markets was impossible. Liberia has since returned to democracy: State authority has been reestablished, the rule of law is progressing, and institutions and systems important to consolidating peace and national security are being strengthened.

Agriculture remains Liberia's economic backbone. The sector contributes about 42 percent of GDP and employs close to 70 percent of the population. Rice is the main staple food crop, whereas rubber, oil palm, and cocoa are the dominant export tree crops. Women are major players in agriculture, producing over 60 percent of agricultural products and constituting the majority of smallholder producers and the agricultural labor force. Close to half of the population remains without sufficient food or highly vulnerable to food shortages, partly because agricultural productivity remains low as a result of structural impediments, inadequate policies, and the prolonged conflict.

[32] From the Liberia Country Document

The WAAPP is consistent with two national strategies to remedy these deficiencies: the Liberia Poverty Reduction Strategy, which seeks to revive traditional sources of income, mainly in agriculture, and LASIP, the agricultural investment program that was prepared under the ECOWAP/CADAAP process and presents the strategic choices that Liberia must make to foster agricultural growth and development over the next five years. The strategic approach is to raise agricultural productivity, strengthen institutions, and make markets work for households. Efforts in agriculture concentrate on smallholders and the food crops that sustain them: rice, cassava, and vegetables.

Selected Value Chain and justification for selection:	Rice, Cassava

The Liberian Rice Development Strategy is a deliberate initiative by the government to develop appropriate interventions to rebuild the rice sub-sector and ensure food security. The Rice Development Strategy is informed by goals and objectives in Liberia's Food and Agriculture Policy Statement and is consistent with CAADP. With this strategy, Liberia aims to achieve self-sufficiency and export capacity for rice production while improving productivity along the rice value chain to improve Liberia's global and regional competitiveness for this commodity. The objective of the Rice Development Strategy is to increase rice production by about 60 percent over current production, which is estimated at 216,000 tons. Cassava—now Liberia's second most important food crop—is grown throughout the country. There is a very large but not precisely quantified demand for cassava processed into farina (*gari*) and potential demand for cassava as starch and animal feed.

PDO Targets:	
Number of beneficiaries	150,000
Released technology by NCOS	Not Applicable
Area covered by improved technology	110,000 ha
Number of beneficiaries adopting technology	90,000

Project activities by components	
Component 1. Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	
The Project will therefore: support	

(i) The Crop Directorate of the Ministry of Agriculture (MOA) to (a) develop the national seed policy; (b) implement the ECOWAS common regulations on genetic materials and pesticides and the forthcoming fertilizer recommendations; and (c) set up the relevant bodies to enforce them (such as a seed council, registration committees, and so on) and implement a pilot of the Cyber Seed Scheme developed by the Africa Rice Center, which involves producers in rice seed certification.

(ii) The PCU to develop and implement annual communications and information plans based on the regional communications strategy prepared by CORAF; NARI and MOA to develop web-based information systems and create a Liberia WAAPP portal on the CORAF/WECARD website.

(iii) NARI and MOA to develop and implement: (a) a training program to upgrade skills in ICT/knowledge management and (b) a training program to mainstream climate change and gender in technology generation and adoption processes, based on the regional strategies prepared by CORAF.

Component 2: National Centers of Specialization (NCOS)

Liberia will not host a center of specialization but will benefit from technologies from NCOS in Mali (irrigated and upland rice), Sierra Leone (mangrove rice), and Ghana (cassava).

The Project will support CARI in rebuilding its basic national rice and cassava adaptive research capacity through backstopping from CGIAR Centers and expertise from NCOS currently operating in the subregion.

The Project will therefore finance:

(i) Rehabilitating and equipping CARI research facilities, including offices, priority laboratories, researcher and guest accommodation, and experimental rice perimeters.

(ii) Implementation of annual capacity-building plans, including on-the-job and academic training for young researchers and MOUs between CARI and the Africa Rice Center and between CARI and IITA that will include backstopping activities from these CGIAR Centers (technical assistance, training, and provision of breeder seed).

(iii) The provision of small grants to research teams to conduct adaptation trials for rice and cassava technologies generated by NCOS and CGIAR Centers.

(iv) Supply chain analysis, impact studies, and benchmarking

Component 3: Support to demand driven technology dissemination and adoption

Liberia does not have a CARGS but has identified several technologies that have already been developed and can quickly increase farmers' yields if adopted widely. They include several Nerica rice varieties, improved cassava varieties, and post-harvest and processing technologies

for rice and cassava.

Under this component the Project will support:

(i) Study tours and stakeholder workshop to set up and pilot a competitive grant scheme (CARGS) based on experiences in the subregion.

(ii) The operating cost of consultative stakeholder innovation platforms (at the county and national levels), as well as the development and implementation of action plans for adopting improved technologies (production, post-harvest, and processing), including the development of farmer forums and field schools, demonstration plots, mass media broadcasting programs, and other extension methods to scale up adoption, training of trainers, and training of producers.

(iii) The implementation of a sustainable seed multiplication program, including provision of breeder seed from CGIAR Centers; support for the production of foundation seed by CARI and commercial seed by producers and seed companies; and the distribution of mini-kits to farmers.

Component 4. Project Coordination, M&E

Implementation arrangements

At national level: The Ministry of Agriculture (MOA) will have the overall responsibility of project implementation. MOA will establish and chair a National Steering Committee of WAAPP.

At project level by: The existing PCU in MOA will coordinate day-to-day implementation of WAAPP-1C. MOA will appoint a Deputy Project Coordinator of the PCU in charge of WAAPP, an M&E Specialist, and a Communications Officer.

Fiduciary: The latest capacity assessment (November 2010) found that the existing institution has weak fiduciary capacity because it has no experience in managing Bank projects. Two Procurement Specialists and one FM Specialist with regional or international experience will be hired to strengthen the procurement unit. Both current and newly hired staff will be sponsored for specialized training.

Safeguards: The EA and PMP have already been disclosed, and an RPF (under preparation) will be disclosed before appraisal.

At component level:

Component 1	PCU will implement this component through results-based MOUs with all relevant Directorates of MOA
Component 2	PCU will entrust to CARI implementation of this component within the

	framework of the AWP&B for CARI.
Component 3	PCU will implement Sub-component 3.1 until the CARGS is established and operational; for Sub-components 3.2 and 3.3, PCU will sub-contract activities to relevant private service providers or sign MOUs with public service providers..
Component 4	PCU will manage this component.

Country: NIGER[33]

Sources of Financing:	IDA: US$30 million
Sector background:	
Niger's population of has 14.3 million is spread throughout 1,267,000 square kilometers; about 80 percent of these people live in rural areas. With a per capita GDP of about US$ 340 and a poverty rate estimated at 5.9 percent, Niger ranks among the world's poorest countries. Agriculture occupies an important place in Niger's economy. Although only about 12 percent of Niger's territory is under cultivation, agriculture accounts for 40 percent of GDP and employs 85 percent of the economically active population. Overall agricultural growth is around 3.9 percent. Livestock products represent 62 percent of export earnings from the rural sector and 21 percent of all exports. The country has a great potential in the livestock/meat value chain, but commercial exploitation is low at about 10 percent. The main challenges in the livestock subsector are primarily the need for improved animal feed and health. Niger's national agricultural research system includes several scientific and research and development institutions. Niger's participation in the WAAPP is consistent with the Government's vision as expressed in its Rural Development Strategy Paper (RDSP) and national agricultural investment program (*Programme National d'Investissement Agricole du Niger*), prepared under the ECOWAP/CAADP process in September 2009.	
Selected Value Chain and justification for selection:	Cattle, small ruminants, Cowpea, Sorghum, and Onions

[33] Source: WAAPP Niger Country Document

Within West Africa, Niger is considered an important livestock producer with a comparative advantage in livestock production, given its know-how and high potential for producing milk, meat, and hides from its well-adapted and well-performing livestock breeds.

Livestock contribute up to 15 percent of household budgets and 25 percent of diets in Niger, which makes livestock production the highest-ranking agricultural activity in the fight against poverty. The livestock subsector also contributes to regional integration through its exports and significant productivity gains (see IFPRI/CORAF/WECARD. The choice by Niger to establish an NCOS for livestock will strengthen and create synergies with efforts by the Government of Niger and technical and financial partners.

PDO Targets:

Number of beneficiaries	300,000
Released technology by NCOS	5
Area covered by improved technology Head of livestock covered	220,000 ha 500,000 head
Number of beneficiaries adopting technology	180,000

Project activities by components

Component 1. Enabling Conditions for Sub-regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	

Niger is developing national regulations on fertilizer, seed, and animal veterinary products. WAAPP-1C Niger will undertake the following:

(i) The *Direction Général de l'Agriculture* and *the Direction de la Protection des Végétaux* of the Ministry of Agriculture: i) process the implementation of ECOWAS common regulations on genetic materials, pesticides and fertilizer (under preparation) and; ii) set up the relevant structures for their operationalization (seed council, registration committees…);

(ii) The PCU develop and implement annual communication and information plans based on the regional communication strategy prepared by CORAF; and IRAG and MAG/EL develop web-based information systems and create a Niger WAAPP portal on CORAF/WECARD website;

(iii) IRAG and MAG/EL develop and implement: i) a training program to upgrade skills in ICT/knowledge management; ii) a training program to mainstream climate change and gender in technology generation and adoption processes based on the regional strategies prepared by CORAF
Component 2: National Center of Specialization (NCOS)
INRAN[34] will coordinate the activities of the center under the supervision of CNRA. The NCO will also include the University Abdou Moumouni, the *Laboratoire Central de l Elevage,* and the *Centres de Multiplication du bétail.* Activities of the NCOS will be implemented in four INRAN local research centers: • Niamey (at the INRAN *Laboratoire de la Nutrition Animale*, LABOCEL, *Laboratoire d'Insémination Artificielle de la Faculté d'agronomie*). • Toukounous for the production/dissemination of Azawak breeds). • Maradi for multiplication and dissemination of the chèvres rousses de Maradi (*red goat of Maradi*). • Kollo and Tahoua for the development of livestock feed technologies. The Project will therefore support: (i) the development and implementation of INRAN's core research and development dissemination programs, including: (i) the implementation, through the provision of Small Grants, of research activities to assess available technologies from within or outside the Recipient's territory; (ii) the elaboration and implementation of dissemination and communication plans on readily available technologies; and (iii) the development of programs on adaptation and generation of new technologies and adequate responses to other constraints along the value chain; (ii) the enhancement of the capacity building of research scientists and the facilitation of national, sub-regional and international partnerships, including the carrying out of research exchange programs, the provision of training to young researchers, and the implementation of the annual capacity building plans; (iii) the construction and rehabilitation of selected core facilities the of INRAN, the University Abdou Moumouni, the *Laboratoire Central de l Elevage,* and the *Centres de Multiplication du bétail*, and the provision of equipment required for the purpose; and (iv) the carrying out of value chain analysis, impact studies, benchmarking, and monitoring and impact analysis for commissioned or strategic research.
Component 3: Support to demand-driven technology dissemination and adoption
Niger has created the CNRA and is processing the setting up of its Executive Secretariat (SE/CNRA). Once operational SE/CNRA will administer the national competitive grant schemes

[34] INRAN: INRAN est depuis avril 2010 (ordonnance n° 2010-09 du 1er avril 2010)

(CARGS).

The Project will support:

(i) The operationalization of SE/CNRA competitive agricultural research grant system (CARGS); The operating cost of a consultative stakeholder innovation platforms (at county and national level);

(ii) The elaboration and implementation of adoption action plans for production, post harvest and processing improved technologies including development of farmers field foras/schools, demonstrations plots, mass media broadcasting programs and other extension methods to scale up adoption, training of trainers and training of producers;

(iii) The implementation of a sustainable Seed multiplication program including provision of breeder seed from CGIAR centers and support to the production of foundation seed by CARI and commercial seed by producers and seed companies, distribution of mini kits to farmers.

Component 4. Project Coordination, M&E

Implementation arrangements

At national level: The Project overall implementation will be under the responsibility of the Ministry of Agriculture and Livestock (MAG/EL). The Steering Committee for Program 6 of SDR[35] will be WAAPP 1-C Niger Steering Committee.

At project level: The ''Programme d'Actions Communautaires'' (PAC-2 Community Action Program) will be responsible for the implementation of WAAPP-1C. WAAPP will provide additional staff to the PCU includingan Assistant Coordinator responsible for the Project and (1) communications specialist.

Fiduciary: The PCU already have a good expertise in Bank fiduciary management. WAAPP will provide additional staffing to the PCU including a Procurement officer and an accountant, as well as additional training to old and new staffs.

Safeguards: EA and PMP have already been disclosed at regional level and by INFOSHOP on November 30, 2010. An RPF has been prepared and disclosed on January 20. 2011.

At component level:

Component 1	PCU will implement this component through results based MOUs with all relevant Directorates of MAG/EL

[35] SDR was created by Decree No. 110 of 27/06/2008

Component 2	PCU will entrust to IRAG implementation of this component within the framework of AWP&B.
Component 3	PCU will implement 3.2 until SE/CNRA is fully operational; for 3.2 and 3.3 PCU will sub-contract activities to relevant private service providers or sign MOUs with public service providers..
Component 4	PAC-2 PCU will implement this component

Country: SIERRA LEONE[36]

Sources of Financing:	IDA: US$12 million; Japan PHRD: US$10 millions (rice sector)

Sector background:

Sierra Leone covers 72,000 km² with 6, 2000,000 inhabitants, and a population growth rate of 2.1%. Agriculture is the mainstay of the economy contributing about 46 percent of the GDP and providing employment for about 75 percent of the population. Most Sierra Leoneans live on small, scattered farms, following a scheme of bush-fallow rotation, slash-and-burn field preparation, and limited use of fertilizer. The ten year civil war experienced by Sierra Leone severally damaged agricultural production and the capacities (human resources, infrastructure, etc.) of research and extension advisory services.

Sierra Leone Second Poverty Reduction Strategy Paper (PRSPII) and National Agricultural and Food Security Investment Plan (NAFSP) adopted under the ECOWAP/CAADAP process, places top priority on agriculture productivity increase as key factor to achieve agricultural growth and food security. WAAPP design has been done in synergy with the GAFSP funding provided to Sierra Leone to support implementation of NAFSP.

Selected Value Chain and justification for selection:	Rice (center of specialization) and Cassava

Rice and cassava are the priority crops in Sierra Leone, as identified in the IFPRI/CORAF quantitative study. Rice and cassava are also secure sources of food and nutrients, which also offer the possibility of increasing producers' income. That is a justification for the choice of these commodities for WAAPP-1C in Sierra Leone.

Rice, grown by 80% of farmers, is the most important subsistence crop. According to the National Rice Development Study (2009), the acreage allocated to rice cultivation amounted to

[36] Source: WAAPP Country Document

649,487 ha in 2007 with production at 637,983 mt.

Government has started with the support of several donors to restore rice research and extension capacities and rice production through the provision of inputs and fertilizer to producers. Cassava also benefit from some emergency programs that started to provide improved varieties to farmers. These short term emergency supports have a limited scope and are not sustainable.

PDO Targets:

Number of beneficiaries	200,000
Released technology by NCOS	5
Area covered by improved technology	150,000 ha
Number of beneficiaries adopting technology	120,000

Project activities by components

Component 1. Enabling Conditions for sub-Regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	

At the regional level, ECOWAS has adopted common procedures for the release of genetic materials and pesticides based on frameworks developed by UEMOA and CILSS. GoSL has already adopted ECOWAS' common regulations.

The Project will therefore: support

(i) The Directorate of Agriculture of the MAFFS to prepare and implement an action plan to operationalize ECOWAS common regulations on genetic materials, pesticides and fertilizer (under preparation); and set up of the National Seed Secretariat (NSS) and the national registration committee for pesticides.

(ii) The PCU develop and implement annual communication and information plans based on the regional communication strategy prepared by CORAF and MAFSS and SLARI develop web-based information systems and open a portal on CORAF/WECARD website;

(iii) MAFSS and SLARI develop and implement a training program to upgrade skills in ICT/knowledge management and i develop and implement a training program to

mainstream climate change and gender in technology generation and adoption processes based on the regional strategies prepared by CORAF
Component 2: National Centers of Specialization (NCOS)
The Rokupr Agricultural Research Centre (RARC) of SLARI has been selected to be the as Center of Excellence for mangrove rice for the sub region. But Njala Agricultural Research Centre (NARC) of SLARI capacities will be also strengthened to carry out adaptive research on cassava. The Project will therefore finance: (i) the rehabilitation and equipment of office buildings, guest houses, laboratories, irrigation facilities, research fields and the establishment of a training 'complex' at RARC; the rehabilitation and equipment of office buildings, guest houses and houses for researchers and the laboratory at NARC research center; the provision of vehicles and operational cost for SLARI (ii) implementation of annual capacity building plans including on the job and academic training for young researchers an MOU between SLARI and AFRICA rice and between SLARI and IITA that will include backstopping activities from these CGIAR centers (technical assistance, training, provision of breeder seeds) (iii) The provision of small grants to research teams to conduct core research activities on rice at RARC and adapt and promote technologies generated in the sub-region for cassava at NARC.
Component 3: Support to demand driven technology dissemination and adoption
GoSL is in the process of establishing the national competitive grant schemes. Under this component the Project will support: (i) The set up and operationalization of the CARGS under the oversight of SLARI (ii) The operating cost of a consultative stakeholder innovation platforms on rice (at district and national level); The elaboration and implementation of adoption action plans for production, post harvest and processing improved technologies for the rice value chain including development of farmers field foras/schools, demonstrations plots, rural radio programs and other extension methods to scale up adoption, training of trainers and training of producers (iii) The implementation of a sustainable Seed multiplication program including provision of breeder seed from CGIAR centers and support to the production foundation seed by SLARI and commercial seed by producers and seed companies, distribution of mini kits

of improved seeds to producers.
Component 4. Project Coordination, M&E

Implementation arrangements

At national level by: The Project overall implementation will be under the responsibility of the Minister of Agriculture, Forestry and Food Security (MAFFS). The National Steering Committee of WAAPP will be chaired by MAFFS.

At project level by: Project Coordination Unit (PCU) of existing World Bank funded Rural and Private Sector Development Project (RPSDP).

Fiduciary: The PCU already have a good expertise in Bank fiduciary management. WAAPP will provide additional staffing to the PCU including a Procurement officer and an accountant, as well as additional training to old and new staffs.

Safeguards: EA and PMP have already been disclosed at regional level and by INFOSHOP on November 30, 2010. An RPF has been prepared and disclosed on January 20. 2011.

At component level:

Component 1	PCU will implement this component through results based MOUs with all relevant Directorates of MAFFS and other implementing agencies
Component 2	PCU will entrust to SLARI implementation of this component within the framework of AWP&B
Component 3	PCU will implement sub-component 3.1 until CARGS is established and operational; for sub-component 3.2 and 3.3 PCU will sub-contract activities to relevant service providers.
Component 4	PCU will implement this component.

Country: TOGO[37]

Sources of Financing:	IDA: US$12 million

Sector background:

Togo covers an area of 56,600 Km²; the population is estimated at 5,598,000 inhabitants in 2008,

[37] Source: Togo Country Document

with an average growth rate of 2.4%. The country has 3.4 million ha of arable land. The agricultural sector employs 70% of the workforce and contributes at 38% to GDP. Over the last 10 years the evolution of the share of livestock in agricultural GDP varied from 13% to 18% in agricultural GDP generated at 68% for food crops which are dominated by cereals

Togo's participation in WAAPP is consistent with GoT's vision as stated in the ''Note de Politique Agricole'' adopted in 2006 for the period 2007-2011, and in the "Programme National d'investissement agricole et de Securité Alimentaire" (PNIASA) developed under the framework of the ECOWAP/CAADP in November 2009. WAAPP design has been done in synergy with the GAFSP funding provided to Togo to support implementation of PNIASA. GAFSP funding for Togo has been split into two complementary programs managed by the Bank and IFAD.

Selected Value Chain and justification for selection:	Maize, rice, poultry and small ruminants

Agriculture is mainly rain fed and highly oriented toward auto-consumption, dominated by small farmers (less than 0.5ha). Agricultural sector is still confronted with: low productivity, investment, and productivity. The main commodities that have include maize, rice, yams, cassava, cowpea, poultry and small ruminant. Less than 3% of the areas of food crops benefitted from improved seeds, 16% received fertilizers, and 25% advisory services.

WAAPP will complement IFAD, IDA, GAFSP and GFRP funds raised through several programs and projects supporting the implementation of PNIASA (PADAT, P ASA). An agreement was reached during pre-appraisal with IFAD, Bank teams that all project will be managed by the Ministry of Agriculture which capacity will be strengthened, WAAPP will focus on technology generation and adaption, capacity building of research system, strengthening of the seed multiplication chain and ensuring that enough seed is available to producers, promotion of improved technologies and training of trainers. While IFAD PADAT and Banque PASA will support capacity building of the Ministry of agriculture and scaling up of adoption of improved technologies by producers along the value chain.

PDO Targets:

Number of beneficiaries	200,000
Released technology by NCOS	Not Applicable
Area covered by improved technology	100,000 ha 60% of poultry vaccination coverage
Number of beneficiaries adopting technology (agribusinesses, producers)	120,000

Project activities by components	
Component 1. Enabling Conditions for sub-Regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	
Togo has already adopted ECOWAS' Regional strategy for the promotion of fertilizers in West Africa in April 2006. Regarding the field of seeds, a national seed policy consistent with the ECOWAS regulations was validated and adopted in 2011. The Project will therefore support: (i) The development and implementation of an action plan to disseminate the ECOWAS' common regulations on genetic materials and pesticides (and fertilizers under preparation) to relevant stakeholders; the strengthening/setting up of relevant bodies for their implementation (seed council, registration committees..); capacity building of the Direction de la Protection des Végétaux (DPV) and seeds services of the MAEP (ii) The development and implementation of annual national information and communication plans; upgrade of the website of ITRA, ICAT, the SNRA[38]WAAP Togo and the MAEP and establish a dynamic linkage with CORAF's website. (iii) development and implementation of a training program to upgrade skills in ICT/knowledge management, a training program to mainstream climate change and gender in technology generation and adoption processes based on the regional strategies prepared by CORAF	
Component 2: National Centers of Specialization (NCOS)	
Togo will not host a center of Specialization but it will benefit from technologies generated in the centers of Specialization supported under WAAPP. The project will focus on building the Togolese Institute for Agricultural Research (ITR A)[39] and the Togolese National Extension services (ITRA) capacity for adaptive research and technology transfer. The Project will therefore support: (i) rehabilitation and equipping of offices, meeting rooms, guest houses, research fields, irrigation facilities for plant and animal production in the Ativemé, Kolocopé, Avétonou, and Sotouboua research stations as well as office building of ITRA headquarters the laboratories for soil analysis, phytopathology and plant genetic resources and rehabilitate and equip the agricultural training centers of Gbatopé,	

[38] SNRA: Système National de Recherche Agricole
[39] ITRA was created in 1997 by Decree No. 97-105/PR 23 July 1997 under the technical supervision of the Ministry of Agriculture, Livestock and Fisheries

Kamina, Adjengré, Agbassa as well as office buildings of ICAT headquarters.

(ii) Development and implementation of annual capacity building plan including: a) on the job and academic trainings for young researchers; b) exchange programs for visiting researchers,

(iii) The provision of small grants to research teams to conduct adaptation trials for technologies generated by NCOS and CGIAR centers on rice and cassava; operating cost for ICAT and ITRA

(iv) supply chain analysis and impact studies and benchmarking

Component 3: Support to demand driven technology dissemination and adoption

Togo has processed through a participatory process the creation of a national competitive agricultural grant system known as the "*Fonds National d'Appui aux Institutions Agricoles*'' (FNAIA), under the MAEP. This fund created by Decree in 2002 has not operational to date due to the unrest situation in the country and lack of resources.

The Project will therefore support :

(i) Consultant services, workshops, study tours and operating cost for the operationalization of the (FNAIA)

(ii) Elaboration and implementation of adoption action plan of improved technologies including the set up and operating of innovation platforms, farmers field foras and other extension methods to scale up adoption

(iii) The implementation of a sustainable Seed multiplication program including provision of breeder seed from CGIAR centers and support to the production of foundation seed by ITRA and commercial seed by producers and seed companies.

Implementation arrangements

At national level by: The Ministry of Agriculture (MAEP) will have the overall responsibility for Project implementation. WAAPP-1C will have two oversight bodies: (i) the ISSC chaired by the Minister responsible for Agriculture and comprising representatives of the Government, Technical and Financial Partners, signatories of the Partnership Framework. It meets at least twice a year to proceed with the adoption of reports and to ensure compliance with the project strategy; and (ii) the TCP chaired by the Secretary General comprising the technical services of the department for Agriculture, representative from other ministerial departments and producers; it meet at least three time a year to approve the AWP&B, and review progress reports.

At project level by: The Secretary General of the MAEP will Coordinate the Project. He will be assisted by an operational assistant coordinator in charge of WAAPP.

Fiduciary: According to the capacity assessment (latest one done in November 2010) the existing

institution has weak fiduciary capacity as it has no experience in Bank Project management. Therefore, a procurement specialist will be hired by the project and an international consultant firm will be contract to support fiduciary capacity building of the MAEP. The existing and new staff will be sponsored to undertake specialized trainings. Safeguards: EA and PMP already disclosed on November 30, 2011 and due to land issues between communities and targeted research centers a RAP has been prepared and disclosed on January 20, 2011. At component level:	
Component 1	The Secretary General of the Ministry will sign result-based MOU with ICAT, ITRA, and other relevant Directorates of MAEP responsible for the implementation of the Project's activities
Component 2	The Secretary General of the Ministry will entrust to ITRA implementation responsibilities for component 2 within the framework of AWP&B
Component 3	FNAIA will implement Sub-component 3.1. For Sub-components 3.2 and 3.3 the Secretary General will sub-contract activities to relevant private service providers and sign MOUs with public service providers
Component 4	The Secretariat General will implement Component 4.

Country: THE GAMBIA[40]

Sources of Financing:	IDA: US$7 million; GFRP: US$5 million
Sector background:	
According to the GNAIP, the agricultural sector accounts for about 29 percent of GDP in 2009. provides employment to 75 percent population and meets about 50 percent of the national food requirements. Its share of the country's total exports is 70 percent, thus constituting a substantial part of The Gambia's foreign exchange earnings. The livestock sector contributes 33 percent to agricultural GDP. . About 91 percent of the extremely poor and 72 percent of the poor work in agriculture. The agricultural sector is regarded as the prime sector for investments to raise income, improve food security and reduce poverty. According to 2003 Population and Housing Census nearly 80% of Women have been involved in agricultural activities. The Gambia's participation in WAAPP is consistent with the Government's vision as stated in	

[40] Source: Gambia WAAPP-1C Country Document

the Gambia National Agricultural Investment Program (GNAIP: 2011 – 2015) prepared under ECOWAP/CAADAP process.	
Selected Value Chain and justification for selection:	Rice, maize, vegetables, small ruminants and poultry.
The Gambia does enjoy comparative advantages for lowland rice, groundnuts, coarse grains, as well as for vegetable and poultry targeting the tourist industry. Livestock production, particularly small ruminant and poultry, is carried out nationwide by almost all rural households. The performance of agriculture remains well below its potential mainly due to low productivity, weak research and advisory services. This proposal is aimed at supporting the process of enhancing agricultural productivity of these strategic commodities, and therefore justifies WAAPP targeting off these commodities.	
PDO Targets:	
Number of beneficiaries	100,000
Released technology by NCOS	Not Applicable
Area covered by improved technology	72,000 ha
Number of beneficiaries adopting technology (agribusinesses, producers)	60,000
Project activities by components	
Component 1. Enabling Conditions for sub-Regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies	
The Gambia has already adopted ECOWAS' common regulations on genetic materials and pesticides but still need to speed the implementation of regulations. The Gambia does not have an efficient agricultural information/communication system. The Project will therefore support: (i) The Directorate of Agriculture of the Ministry in charge of Agriculture to implement an action plan for the dissemination and the setting up of the required bodies in order to operationalize ECOWAS common regulations on genetic materials, pesticides and fertilizer (under preparation);	

(ii) The PCU prepare coordinate and implement comprehensive annual communication plans based on the regional communication strategy prepared by CORAF

(iii) NARI and DOA: (i)to upgrade and integrate their web-based information systems and it linkage with CORAF/WECARD website; (ii) develop and implement a training program to upgrade skills in ICT/knowledge management and iii) develop and implement a training program to mainstream climate change and gender based on the regional strategies prepared by CORAF.

Component 2: National Centers of Specialization (NCOS)

The Gambia will not host a center of Specialization. The project will support the Gambia strengthen its capacities for adaptive research. Agricultural research is carried out in The Gambia mainly by the National Agricultural Research Institute (NARI) and the University of The Gambia.

The Project will therefore support:

(i) Rehabilitation and equipment of offices, laboratories, storage facility, guest accommodation, staff residence for Sapu station and engineering workshops at NARI stations in Brikama and Sapu. (ii) research and seed production fields for year round activities in Sapu and Brikama and; (ii) rehabilitation of four on-farm research support and out-reach stations in the four ecological regions of the country.

(ii) The elaboration and implementation by NARI of annual capacity building plans including on the job-and academic training for young researchers and research exchange programs

(iii) NARI identify priority research needs of stakeholders and - through the provision of small grants to research teams including researchers from the University - adapt and promote dissemination of technologies generated by NCOs in the sub region and CGIAR centers.

(iv) supply chain analysis and impact studies and benchmarking

Component 3: Support to demand driven technology dissemination and adoption

The Gambia is in the process of establishing the Competitive Agricultural Grant Scheme (CARGS) under the oversight of the Ministry of higher Education Research Science and Technology (MOHERST).

Under this component the Project will support:

(i) The set up and operationalization of the Competitive Agricultural Grant Scheme (CARGS) under the oversight of the PCU

(ii) The elaboration and implementation of adoption action plans of improved technologies

including the set up and operating of innovation platforms, farmers field foras and other extension methods to scale up adoption

(iii) The implementation of a sustainable Seed multiplication program including support to the provision of breeder seed from CGIAR centers or relevant centers of Specializations and the production of foundation seed and commercial seed.

Implementation arrangements

At national level: The ministry of Agriculture (MOA) is responsible for the overall coordination and implementation of the project. A Project Steering Committee (PSC) chaired by MOA including representatives from the relevant government institutions, private sector, NGOs, farmer organizations will be established

At project level: MOA will entrust the coordination of the project to the PCU of the existing of Gambia Emergency Agricultural Production Project (GEAPP). Two Assistants M&E Specialists, a Communication Officer and an Assistant Procurement Officer will be appointed by MOA. Fiduciary: The PCU already have a good expertise in Bank fiduciary management. WAAPP will provide additional staffing to the PCU including a Procurement officer and an accountant as well as additional training to old and new staffs.

Safeguards: Safeguard documents are under preparation and will be disclosed prior to appraisal. They include an ESMP, PMP and RPF.

At component level:

Component 1	PCU will implement this component through results based MOUs with all relevant Directorates of MOA
Component 2	The PCU shall entrust to NARI the implementation responsibilities for component 2 within the frame of the AWP&B in accordance with the Project Implementation Manual
Component 3	PCU will implement Sub-component 3.1 until CARGS is established and operational; For Sub-components 3.2 and 3.3 PCU will sub-contract activities to relevant service providers
Component 4	PCU will implement Component 4