



1. Project Data

Project ID

P117148

Project Name

West Africa Agric Prod Progrm (WAAPP-1B)

Country

Western Africa

Practice Area(Lead)

Agriculture

L/C/TF Number(s)

IDA-48220,IDA-H6260,IDA-H6270,TF-10258,TF-98013,TF-98014,TF-98015,TF-98016

Closing Date (Original)

30-Jun-2016

Total Project Cost (USD)

119,000,000.00

Bank Approval Date

30-Sep-2010

Closing Date (Actual)

31-Dec-2016

IBRD/IDA (USD)

Grants (USD)

Original Commitment

90,000,000.00

24,130,000.00

Revised Commitment

90,000,000.00

23,104,863.10

Actual

88,419,710.31

23,104,863.10

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2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) statement in the Project Appraisal Document (PAD, page 7) for the second series of the first phase of the West Africa Agriculture Productivity Program (WAAPP-1B) was identical to objectives in the Financing Agreements for the three participating countries. The common objective was to:

“generate and accelerate adoption of improved technologies in the participating countries’ top



agricultural commodity priorities areas that are aligned with the sub-region's top agricultural commodity priorities as outlined in the Economic Community of West African States Agricultural Policy (ECOWAP)."

b. Were the project objectives/key associated outcome targets revised during implementation?
No

c. Will a split evaluation be undertaken?
No

d. Components

The project included four components.

1. Enabling Conditions for sub-Regional Cooperation in the Generation, Dissemination, and Adoption of Agricultural Technologies (appraisal cost: US\$8.37 million; actual cost: US\$6.08 million). It would support: (i) the development of a sustainable financing mechanism and corresponding institutional arrangements for the generation, dissemination, and adoption of improved, climate-resilient agricultural technologies and aquaculture; (ii) strengthening West and Central African Council for Agricultural Research and Development (CORAF) competencies in research and development as well as its knowledge management, information, and communication systems to accelerate the sharing of agricultural technology, tools, and best practices; (iii) the establishment of regional regulations on genetic materials and agrochemicals, including support for developing harmonized regulations on fertilizers (under preparation by ECOWAS) and for Project countries to align their national regulations with the ECOWAS regulations; (iv) strengthening National Registration Committees for the effective release of genetic materials, approval of pesticides, and management of IPRs; (v) the development of a strategy to mainstream climate change considerations in research and development (R&D) programs, because climate change presents major challenges to sustaining growth in agricultural productivity in West Africa; and (vi) the development of a strategy to mainstream gender considerations in R&D programs using similar tools as for climate change.

2. National Centers of Specialization (NCOS) (appraisal cost: US\$28.52 million; actual cost: US\$31.19 million). It would support: (i) the implementation of core R&D programs of NCOS, focusing on adaptive research conducted with effective participation from stakeholders, particularly producers and agribusinesses; (ii) capacity-building for researchers, along with the facilitation of regional and international partnerships (including support for research exchange programs, on-the-job-training of young researchers, and implementation of annual capacity building plans); (iii) construction and/or rehabilitation of core facilities, such as laboratories, buildings, and experimental fields, and the provision of equipment to strengthen or establish viable NCOS; (iv) supply chain analyses, impact studies, benchmarking, and monitoring and impact analysis for commissioned or strategic research; and (v) the financing of small grants to implement research activities to assess available technologies from within or outside the territory of the participating country.

3. Funding of Demand-driven Technology Generation and Adoption (appraisal cost: US\$67.53



million; actual cost: US\$55.75 million). This component would strengthen priority-focused, transparent funding mechanisms for demand-driven agricultural R&D within participating countries and would accelerate the adoption of released technologies. It included the following sub-components:

3.1. Demand-driven technology generation. This subcomponent would support the strengthening of the Competitive Agricultural Research Grant Schemes (CARGS) with strong buy-in from major stakeholders. These schemes include the regional scheme managed by CORAF and a national scheme existing in each participating country.

3.2. Support to accelerated adoption of released technologies. To bridge the gap between farmers' yields and yields obtained by researchers, this subcomponent would widen the adoption of technologies that have already been released, particularly for the six strategic value chains identified 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 would also support the dissemination of technologies generated under the project.

3.3. Facilitating access to improved genetic material. This subcomponent would increase the availability of and producers' access to improved genetic materials (seed, planting materials, fingerlings, and animal breeds) for the six strategic value chains including rice, maize, yam and cassava, livestock, meat, milk, and aquaculture.

3.4. Developing a yield prediction tool to help farmers on crop choices. The sub-component would finance technical assistance to CORAF to develop the Earth Audit Agricultural Yield Pilot (AYP) concept. The primary purpose of this tool is to help African farmers who depend heavily on rain-fed agriculture to attain more consistent and predictable crop yields. The project would finance: (i) research activities to complete the development of AYP infrastructure and set up of the web tool during the operational phase; (ii) organization of a regional launching workshops to disseminate the tool; (iii) training of researchers and other stakeholders on the AYP tool; and (iv) M&E activities.

4. Project Coordination, Management, Monitoring, and Evaluation (appraisal cost: US\$16.35 million; actual cost: US\$19.01 million). This component would ensure implementation of the following key activities: (i) financial management and procurement systems at CORAF and each participating country; (ii) reporting on Project activities; (iii) M&E of regional and national agricultural productivity; and (iv) a communication strategy.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost. The total project cost was estimated at appraisal as US\$122.19 million. Actual cost reported in the ICR (Annex 1) was US\$112.03 million. The difference was mainly due to lower than expected disbursements under component 1 and 3 at 73.25% and 82.56%, respectively.

Financing. The project was financed through an IDA Credit worth US\$90.00 million divided among the three participating countries as follows: Burkina Faso US\$15.00 million, Republic of Côte d'Ivoire US\$30.00 million, and the Federal Republic of Nigeria US\$45.00 million. The project also was expected to receive a Grant worth US\$19.00 million from the Food Price Crisis Response (FPCR) Core Multi-Donor Trust Fund divided among the three countries where Burkina Faso, the Republic of Côte d'Ivoire and the



Federal Republic of Nigeria received US\$6.00 million each, and US\$1.00 million would fund the West and Central African Council for Agricultural Research and Development. Actual amounts disbursed as reported in the ICR (Annex 1) were: US\$90.43 million for IDA and US\$17.63 million for FPCR.

Borrower Contribution. The borrowers and beneficiaries were expected to contribute US\$10.00 million and US\$3.17 million, respectively. Actual amount of counterpart funding was US\$3.97 million (30% of the appraisal estimate, ICR, Annex 1). However, the ICR did not provide the disaggregated amount for Borrowers and beneficiaries.

Dates. The project was expected to close on June 30th 2016. It closed six months later on December 31st 2016. The project was restructured three times, all Level 2 restructuring. The first was on December 17th 2014, when the amount disbursed was US\$62.70 million, in order to align the project's Results Framework to that of West Africa Agricultural Productivity Support Project/Program (WAAPP2A) that as was executed in parallel, and also to reallocate IDA funds to component 3. The second restructuring was on May 11th 2015, when the amount disbursed was US\$74.33 million, in order to extend the closing date of the Global Food Crisis Response Program Trust Fund from May 31st, 2015 to August 31st, 2015 to ensure full disbursement of trust fund resources. The third restructuring was on May 17th 2015, when the amount disbursed was US\$96.00 million, in order to extend the closing date from June 30th, 2016 to December 31st, 2016 to ensure full implementation of all planned activities. The Mid-term Review was conducted on November 30th, 2013 compared to a planned date on June 1st, 2013.

3. Relevance of Objectives & Design

a. Relevance of Objectives

High.

The Economic Community of West African States (ECOWAS) is home to about 290 million people living in 15 low-income countries. About 65% of the population live in rural areas. Most of these people derive their food and livelihoods from agriculture, which generates 35% of the regional gross domestic product (GDP) and over 15% of exports. The region is neither self-sufficient in food production nor food secure, particularly in the North (the Sahel). Agricultural productivity is low. As a net importer of cereals and livestock products and an exporter of raw materials, West Africa was severely affected by volatility in global food and fuel prices. West Africa could expect significant benefits from regionally integrated efforts to generate and disseminate agricultural technology, build a strong regional agricultural market, and promote sustainable development.

At project appraisal, objectives were highly relevant to the priorities of the three participating countries for their agriculture sector. Objectives were also in line with the New Partnership for Africa's Development (NEPAD) which called calls for 3% annual growth in agricultural productivity through technology generation and dissemination and 6% growth in agricultural GDP to reach the Millennium Development Goals (MDGs) by 2020. Objectives were also in line with the Comprehensive Africa Agricultural Development Program (CAADP) which included four pillars, and the fourth called for supporting agricultural research, technology



dissemination, and technology adoption. The project objectives also supported the agricultural investment plan of ECOWAS which was structured around three mobilizing programs. 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. Further, objectives were in line with the Bank's Regional Integration Assistance Strategy (RIAS) for sub-Saharan Africa. Finally, objectives were in line with the participating countries Country Assistance Strategies (CAS), all of which recognize the need to generate and disseminate agricultural technology to raise agricultural productivity, increase economic growth, improve food security, and reduce poverty.

At project completion, objectives continued to be highly relevant to the government priorities of the three participating countries. Objectives were in line with the agricultural development strategies of the three countries involved. Enhancing agricultural productivity continued to be a central development objective of the national agricultural investment plans in each participating country, where it continued to be regarded as the most effective means of achieving food security, reducing rural poverty, diversifying the economy, and expanding exports. Objectives were also in line with the Bank's Country Partnership Strategies of the individual participating countries, as a key pillar of these strategies has been increasing agricultural productivity to boost competitiveness for rapid inclusive economic growth and poverty reduction. Also, agriculture remained a key sector for driving the achievement of the World Bank's twin goals of ending extreme poverty and boosting shared prosperity in the participating countries.

Rating

High

b. Relevance of Design

Substantial.

Design included a clear, but lengthy statement of objectives. The Results Framework included a results chain that reflected the causal link of the interventions proposed to the achievement of the development objective. Design aimed to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priorities areas that were aligned to the sub-region's top agricultural commodity priorities as outlined in the ECOWAP. Those priorities were banana-plantain in Côte d'Ivoire; mango and onion value chains in Burkina Faso; and fisheries, specifically catfish and tilapia in Nigeria. Design adopted an integrated Agriculture Knowledge Information System (AKIS) model to foster greater inclusiveness and innovation in technology generation and diffusion (TGD). To achieve the stated objectives, design featured four components. The first component would contribute to achieving the PDO through strengthening the mechanisms and procedures for generating, disseminating, and adopting improved agricultural technologies and tools at the national level. This was expected to enable ECOWAS member countries to benefit from those technologies within a regional framework for technical and scientific cooperation. The second component would contribute to achieving the PDO through strengthening the operational capacities of the National Agricultural Research System in one national priority area for each participating country, in alignment with regional priorities. This would allow countries to focus their top research and development priorities rather than attempt to address all possible issues, with little prospect of success. They would make the best use of



scarce resources to achieve meaningful progress towards increasing agricultural growth and reducing extreme poverty. The third component would contribute to achieving the PDO through strengthening priority-focused, transparent funding mechanisms for demand-driven agricultural R&D within participating countries such as Competitive Agricultural Research Grant Schemes. This was expected to improve research funding and accelerate the adoption of released technologies. The fourth component was focused on project management. The afore mentioned activities were relevant and directly linked to the PDO.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

PDO: to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priorities areas that are aligned with the sub-region's top agricultural commodity priorities as outlined in the Economic Community of West African States Agricultural Policy (ECOWAP).

Rationale

Outputs

The source of the information below was the ICR Results Framework analysis in the Data Sheet.

- 9 National regulations (3 for each country, target: 9) on genetic materials, fertilizers, and pesticides aligned to regional (ECOWAS) regulations and adopted (fully achieved).
- Regulation for fertilizer at ECOWAS level developed and adopted by the three countries (achieved).
- A system for data collection, analysis and reporting on agricultural technologies, researchers, and skills, and agricultural productivity is established at the national and regional level (achieved).
- 12 National/regional action plans on gender, communication, climate change were developed (breakdown by country) (achieved).
- 52 technologies (original target: 24, revised target: 36) were generated/adapted by National Center of Specialization and demonstrated by the Project in the project area (target exceeded by 44%).
- 14 technologies (target: 12) were generated/adapted by National Center of Specialization and demonstrated in at least 3 ECOWAS countries out the country of origin.
- 107,038 client days of training (original target: 14,500, revised target: 30,000) were provided (includes scientists, extension agents, agrodealers, farmers, community members (target over achieved by 144%).
- The project supported 44 scientists exchange visits (original target: 30, revised target: 45).
- The project supported 158 MSc (target:133) and 56 PhDs (target: 65).
- 92 National demand-driven research proposal projects (original target:104, revised target: 95) were financed by the national Competitive Agricultural Research Grant Scheme (CARGS)



- 7 Multi-country research proposals (original target: 18 revised target: 10) were financed by the regional Competitive Agricultural Research Grant Scheme (CARGS) maintained by CORAF (70% achievement rate).
- 90 technologies (target: 20, revised target: 36) were generated under the national/regional CARGS demonstrated by the project in the Project areas (target over achieved by 250%).
- With the project support, 223,000 tons of cereal foundation seeds (original target: 4,700 revised target: 252,800), 800 tons of vegetable seeds (original target: 150 tons), 49,200 ton of cassava (original target: 23,000 ton, revised target: 45,000 ton), 30,685 plantains (original target: 50,000, revised target: 500), and 16 million fingerlings (original target: 4 million, revised target: 10 million) were produced.
- By project completion, 3,146 field demonstrations (target: 2000) were carried out (target exceeded).
- 213 publications (original target: 36, revised target: 46) were released in regional/national magazine (target over achieved by 463%).

Outcome

Achievement of the PDO was assessed through three elements: improved technology generation; improved technology access, and accelerated technology adoption. Direct project beneficiaries reached a total of 3.36 million compared to a revised target of 2.90 million and an original target of 1.1 million. This were over achieved in Cote D'Ivoire and Nigeria by 157% and 115%, respectively, however, achievement in Burkina Faso was 72% of the target. The number of technologies generated reached 52 compared to a target of 34, with Burkina Faso and Cote d'Ivoire recording higher percentage of achievement than their respective targets at 200% and 167%, respectively. The area of improved technologies disseminated under the project reached 1,039,654 hectares comparted with the target of 900,000 hectares, with Nigeria lagging (at 92% achievement rate) and Ivory Coast surpassing the target by 232%. The number of processors/producers who adopted at least one new technology reached 1,014,851 compared to a target of 950,000 and only Nigeria did not achieve the target with 62% achievement rate. Based on the afore mentioned achievements and despite some minor shortcomings, the efficacy of this project's outcome is rated substantial.

The following are the detailed project achievements:

Improved technology generation

- The project delivered 52 technologies from 102 project financed competitive grants (7 regional and 95 country level research proposals) to over 1.01 million producers covering over 1.02 million hectares, across the three countries. These technologies were expected to make farmers more productive and help them to be resilient to climate change.
- The project also strengthened the national research systems, particularly the National Center of Specialization (NCoS) and the allied institutes with physical infrastructure including: buildings, labs and equipment.
- Finally, the project also supported building the scientific and research capacity through trainings and the funding of 217 higher academic studies (MSc-158, PhD-59), 44 scientific exchange visits, small grants to



carry out adaptive research, and deploying participatory varietal/technology development and release strategies to accelerate the generation of technologies (ICR, para 48).

Improved Access to technology

- The adoption of the harmonized regional framework (particularly for genetic materials) facilitated the exchange of technologies across borders, for example, Burkina Faso, Cote d'Ivoire, and Nigeria respectively received 10, 30, and 7 technologies from other countries participating in the program while these countries also shared 15, 5 and 7 technologies, respectively with other countries.
- The project also helped in strengthening the national Registration Systems for genetic materials and pesticides. According to the ICR (para 55) each country had the necessary regulatory and control bodies, and they were performing satisfactorily. This contributed to acceleration of the registration and release of the technologies, for example improved seeds.
- In addition, the project scaled up the production of improved inputs including foundation seeds for cereals, fish fingerlings, among others which improved the availability of certified improved planting materials and breeds.

Accelerated technology adoption and impact on productivity

- To disseminate the project results, the project promoted advanced communication technologies including the use of ICT and web-based information systems. The project also piloted the e-extension system in Cote d'Ivoire where farmers seeking information used a call center and automated messages in local languages. This system went beyond delivery of simple text messages and for a small fee per week, farmers (and anybody else interested in the service) could obtain and exchange information on production issues, marketing and prices.
- To demonstrate results the project supported field demonstrations that totaled 3,147 demonstration plots. The project exceeded its target for the technology indicator for area under improved technologies disseminated by the project which was achieved by 116%. Also, the number of producers/processors who have adopted at least one new technology was achieved by 107%.
- According to the ICR (para 66) a farm level survey from Burkina Faso showed that yield increments for all commodities supported under the project, ranged from 3.5% for mangoes to 57% for maize; and technology adoption rates reached 35%.
- In Cote d'Ivoire an impact study showed that adoptions rates reached 20% for plantain-bananas and 70% for cereals. While another impact study in Cote d'Ivoire showed that the biggest impact of the project was on the area cultivated under bananas which increased 10 fold from 6,364 ha at the beginning of the project to 64,298 ha by project completion and total banana production increased from 175,528 tons at the beginning of the project to 2,246,758 tons by completion.
- In Nigeria an impact study showed that productivity for aquaculture increased by 60.2% among project beneficiaries, awareness and adoption of project technologies among beneficiaries went from 28.5% to



71.5%; and farm income from aquaculture increased by 88% among project beneficiaries. However, it was not clear in the ICR whether annual increments in productivity exceeded the project target of 15% for the three countries.

According to the PAD (paragraph 22) the triggers for moving from phase 1 to phase 2 of the WAAPP were as follows for each country participating in the Program:

- (i) the country has ratified the common regulations for the registration of genetic materials and pesticides adopted at ECOWAS level;
- (ii) the country has established equivalent functional national registration system for plant materials and pesticides;
- (iii) NCOs has been established and operational (this will be required for countries where an NCOS has been established);
- (iv) a sustainable funding mechanism scheme for the Competitive Agricultural Research Grant Scheme (CARGS) has been adopted by the Government; and
- (v) achievement of key outcomes of first phase, including release of at least three new technologies by NCOs, minimum of 15 percent farm level productivity increase for released technologies, and achievement of targeted adoption rate of improved varieties.

According to the ICR (paragraph 37) " results of the first phase are satisfactory and triggers for moving to the next phase have been met, except for adoption of sustainable funding mechanism schemes for the Competitive Agricultural Research Grant System, which are still being debated by project beneficiaries." In light of the project's achievements stated in the ICR and summarized above, this Review rates the project's efficacy as substantial.

Rating

Substantial

5. Efficiency

Economic and Financial Efficiency

ex ante

- Ex ante economic analyses in the PAD were performed for three specific groups of value chains (onions and mangoes, bananas and plantains, and catfish) using a minimum national impact approach to identify the minimum incremental benefit stream or minimum incremental yield increase needed to reach the breakeven point and justify the proposed investment. The analysis did not include an overall economic rate of return for the project investments.
- An incremental adoption approach was used to determine whether the proposed Project could, under a



reasonable set of operating assumptions, produce the desired minimum benefit stream. Estimates showed that the productivity gains required to break even are modest and that the planned investment is economically viable.

- **Onions and mangoes.** Average mango yields in Burkina Faso, Côte d'Ivoire, and Nigeria at appraisal were low at 6 tons per hectare compared to the world average of 7 tons per hectare. Yield potential in the region could range from 23 tons per hectare (the current average yield in Mali) to 40 tons per hectare (Cape Verde), implying that the yield gap is about 19–36 tons per hectare. With potential spillover benefits in the other participating countries— Côte d'Ivoire and Nigeria—the productivity gains required to break even were modest. The incremental annual yield increase required was estimated to be 0.24% in Burkina Faso to break even (equal to a yield increase of 0.7% in Year 5 and a 1.6% cumulative productivity gain by Year 5), assuming that only one-quarter of the yield increases spills over to Côte d'Ivoire and Nigeria.
- **Bananas and plantains.** Production of bananas and plantains in West Africa at appraisal was estimated to be 6–7% of world production. The gaps between farmers' yields and yields from on-farm research were large in West Africa, was estimated at around 30–40 tons per hectare. For example, farmers' yields in Côte d'Ivoire averaged 10 tons per hectare, whereas on-farm testing generated 40–45 tons per hectare. With potential spillover benefits in Nigeria, the required incremental yield increase was 0.6% in Côte d'Ivoire (or a yield increase of 1.8% in Year 5 and a cumulative productivity gain of 3.9% by Year 5), assuming that Nigeria would attain only one-quarter of the yield increase.
- **Catfish.** Improved breeding and management of catfish was estimated to increase the survival rate from the present 60% to over 80%. These technologies were also expected to reduce the growth rate- per culture period for fingerlings by 33% from the present 6 weeks; they would reduce the growth rate/culture period for table fish by 20–33% from the 5–6 months level. For Nigeria to break even, the required incremental productivity increase per year was between 0.2 to 0.6% percent (equal to a productivity increase of 0.6 to 1.8% in Year 5 or a cumulative productivity gain of 1.2 to 3.6% by Year 5), assuming a 25–75% increase in production cost.

ex post

- The ICR did not include a comprehensive ex post Economic and Financial Analysis (EFA) at the project level. An alternative approach was adopted to validate some of the key assumptions of the appraisal ex-ante EFA.
- The ex post analysis relied on a three step process (ICR, paragraphs 65, 66 & 67) that included: comparing the appraisal targets with the achievements, confirming that productivity and adoption rates in-country were indeed acceptable; and confirming that in-country adoption is sustainable and would most likely have spill-over effects to other West African countries
However, an overall ERR was not estimated. The economic viability was derived indirectly by validating appraisal targets which were a reflection of the viability assumptions. Viability was further confirmed by value chain specific productivity and adoption rates through extensive in-country surveys.
- Efficiency is rated modest because economic viability relied on an indirect approach and there was no actual economic and financial analysis of project investments.



Administrative and Institutional Efficiency

The project closed six months later than expected. Initial project activities were delayed due to the temporary suspension of Bank operations in Cote d’Ivoire because of the unsettled political situation at the time. Credit effectiveness in Nigeria was delayed because of internal borrowing regulations that required parliamentary approval. Government procurement rules in Burkina Faso led to delays in the construction of a laboratory which only was inaugurated in towards the end of the project; and there were delays in the release of counterpart funding. Implementation also was negatively impacted by delays in obtaining non-objection IDA notifications (ICR, p, 57).

Although this project has clearly achieved success in a number of areas, the ICR provided no credible evidence that it was efficiently implemented and its efficiency is therefore negligible.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of this project’s objectives was rated high while relevance of design was rated substantial. Efficacy was rated substantial despite some minor shortcomings. The information provided in the ICR pointed to the success of the project in generating and accelerating adoption of improved technologies in the participating countries’ top agricultural commodity priorities. Also, the project met or exceeded most of its outcome targets including: number of beneficiaries, number of technologies generated and the area using improved technologies generated under the project. However, efficiency was rated modest due to the absence of an ex post economic and financial analysis of project investments. Overall the project had moderate shortcomings and its outcome is therefore rated as moderately satisfactory.

a. Outcome Rating



Moderately Satisfactory

7. Rationale for Risk to Development Outcome Rating

According to the ICR the risk to the project's development outcome was rated modest based on the following reasons (paragraphs 80 to 94):

- Sector-level risks. Focusing on regional dissemination activities helped overcome the risk of limited spillovers from National Center of Specialization investments. The concern that there would be an inadequate supply response by the private sector for production of seeds and planting material was alleviated by the emergence of a large number of smallholder seed entrepreneurs encouraged by the project (paragraph 81).
- Pooling human resources through the Competitive Agricultural Research Grant System alleviated the lack of good technical skills to address research and extension problems. The project also supported a large training program at the MSc and PhD level which significantly strengthened the human capital base for agricultural research. Capacity building measures and close supervision of West and Central African Council for Agricultural Research and Development (CORAF) and the Bank through the arrangement for co-TTLs alleviated the concerns related to poor management of project activities and inadequate coordination with other donors (paragraph 82).
- Political risk. Due to the political crises in Ivory Coast and Burkina Faso project implementation was delayed and generally West-African countries remain vulnerable to similar risks. As noted in the ICR, the future of regional technology cooperation and exchange will be intertwined with political stability and the economic process of establishing a more closely integrated economic space in the ECOWAS countries (paragraph 84).
- This Review would add that the ICR stated that a follow-on regional West Africa Transformation Project is under preparation and expected to start in 2018. This is expected to provide short to medium term sustainability to the first phase.

a. Risk to Development Outcome Rating

Modest

8. Assessment of Bank Performance

a. Quality-at-Entry

- The project was the second phase of the West Africa Agricultural Productivity Program (WAAP). WAAP was a two-phase, ten-year, horizontal Adaptable Program Loan (APL) to support the implementation of Economic Community of West African States Agricultural Policy through the implementation of Comprehensive Africa Agricultural Development Program's fourth pillar.



- The project design focused on the sub-region's top agricultural commodity priorities including banana-plantain in Côte d'Ivoire; mango and onion value chains in Burkina Faso; and fisheries, specifically catfish and tilapia in Nigeria. To ensure country ownership, the project's design addressed national interests and priorities and provided regional public goods.
- Design was informed by the first phase of the program and by the East Africa Agricultural Productivity Program (EAAPP), notable lessons included adopting an integrated Agriculture Knowledge Information System (AKIS) model to foster greater inclusiveness and innovation in technology generation and diffusion instead of the traditional linear model for technology generation.
- Design required the three participating countries to contribute one-fifteenth of their IDA credit proceeds to finance CORAF's regional coordination tasks under the project. These funds enabled CORAF to harmonize procedures, disseminate knowledge, and coordinate monitoring and evaluation (ICR, para 21).
- Seventeen risks were identified at the preparation stage (PAD, page 16), six sector-level risks, six operational-level risks; and five control risks. The risk assessment was completed not only for the PDO, but also for each of the four project components. This helped to adapt the risk mitigation measures to each component. Overall risk rating was moderate and the mitigation measures were relevant.
- M&E had some minor design shortcomings (see section 10 a for more details).

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

According to the ICR (para 86), implementation support missions promoted innovative ideas and concepts such as south – south collaboration for global knowledge sharing; and speeding up the seed multiplication systems in the three countries by attracting private companies and scaling up seed growers' associations. The ICR also reported that the Bank's project team constantly explored ways of accelerate dissemination and adoption of research results within the countries and across national borders. The project's implementation benefitted from transparent and public assessment of achievements of project outcomes and intermediate outcome indicators for each country after each implementation support mission. The ICR noted that this benchmarking in performance rating generated a healthy competition in-between the participating countries that was geared toward improving project implementation.

However, the Bank did not act responsibly by not warning the Borrowers and executing agencies in a timely manner of the fact that there would be no second phase of the project, to complete the anticipated 10 year APL, and the Bank did not explain its decision (ICR, paragraph 87). Although the ICR states that a West Africa Agricultural Transformation Project is "under preparation" it is acknowledged that "some of the momentum that was built up under WAAPP-1B will be lost" (paragraph 80). In the case of Burkina Faso, the effective cancellation of a second phase was, according to the ICR, likely to lead to disruptions in the financing for agricultural research as it had the weakest agricultural research establishment among the participating countries in terms of number of scientists and annual budget allocations (ICR, paras 37 and 87). There were no specific references in the ICR to disruption in the financing of agricultural research caused in Cote d'Ivoire or Nigeria because of the Bank's decision not to finance WAAPP-2.



Quality of Supervision Rating

Moderately Unsatisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

This section of the Review will cover the performance of all governments involved. According to the ICR (para 89) project effectiveness was delayed due to longer than expected time for signing of the grant agreements, especially in the case of Nigeria. The three governments satisfactorily set up National Steering Committees under the relevant Ministry. The three Steering Committees provided the requisite guidance, reviews, and annual budget approvals in a regular and timely manner. However, in Nigeria, the project experienced a period of uncertainty and slower implementation progress due to political infighting over who should be the Project Coordinator after the first office holder retired. In Burkina Faso, Government procurement rules contributed to delays in the construction of a laboratory which was inaugurated only towards the end of the project; and delays in the release of counterpart funding was a problem sometimes.

Government Performance Rating

Moderately Satisfactory

b. Implementing Agency Performance

The project was implemented through three national project coordination units (PCUs), one in each of the three countries. These PCUs were under the authority of the Secretariat General of the Ministry of Agriculture in Burkina Faso; the Inter-Professional Fund for Research and Extension of the Ministry of Agriculture and Rural Development in Ivory Coast; and the Agricultural Research Council of Nigeria under the Federal Ministry of Agriculture and Rural Development in Nigeria. By the Midterm Review, the PCUs performance improved with regard to understanding and following the Bank's procedures for procurement, financial management, M&E, and environmental and social safeguards (ICR, para 92). In addition, the countries' agricultural extension agencies, private contractors (NGOs, producer organizations, and others) participated in project execution. The selected National Centers of Specialization were the primary actors in research. All three countries operated competitive research grant systems as foreseen at appraisal. The West and Central African Council for Agricultural Research and Development (CORAF) was responsible for coordinating, monitoring, and evaluating the project's generation and adoption of technologies across the three countries. It also assisted the PCUs and National Centers of Specialization in the development of their work programs and in networking with regional and international centers of excellence, particularly for developing the visiting scientist program. CORAF also built up its fiduciary capacity which was used to assist the participating countries (ICR, para 91).



Implementing Agency Performance Rating

Satisfactory

Overall Borrower Performance Rating

Moderately Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

CORAF had the overall responsibility for managing the project's M&E. At the regional level, CORAF would sub-contract with appropriate regional and international agencies to update studies on the region's agricultural productivity each other year. At the country level, the Project Coordination Unit (PCU) was responsible for the overall M&E of project indicators and outcome. The National Centers of Specialization (NCoS) in participating countries were responsible for measuring the impact of technology released and transferred under component 2. The Results Framework (RF) included five outcome indicators that were relevant, measurable and directly linked to the PDO; and baseline studies were conducted at the beginning of the project. The outcome indicators included measures of critical elements of the PDO such as the dissemination and adoption of technologies by farmers and the area covered under new technologies. However, establishing an average benchmark of 15% increment in productivity for all the targeted commodities for the project implementation period was too general. The assessment would have benefitted from setting specific targets for each commodity based on the baseline production and expected increments that could be potentially achieved through adoption of the project technologies. The RF also included 22 intermediate outcome indicators geared to capture the achievements under the four project components.

b. M&E Implementation

The Results Framework was revised at the Midterm Review to be aligned with the RF of WAAPP 2-A that was executed in parallel and its RF was considered "more comprehensive" (ICR, para 31). The alignment ensured consistency in data collection of project level results and facilitated aggregation of country level project results at the regional level (ICR, para 14). The proposed changes included increasing targets for: Indicator 1: Direct project beneficiaries (direct/indirect), 40% of whom are female: to 2,900,000; Indicator 2: Technologies generated by the project with at least 15% productivity increase over the control technology: 34; (iii) Indicator 3: Area under improved technologies disseminated under the project (hectares): 900,000; and (iv) Indicator 4: Processors/Producers who have adopted at least one new technology (number): 950,000. Also, five new intermediate outcome indicators were also added including: "Beneficiaries who are using technologies generated by other WAAPP countries" and "Technologies generated/adapted by NCoS and demonstrated in at least 3 ECOWAS countries outside the country of origin." These were geared to reflect the regional nature of the project and the spread of technology across borders. The Bank's suggestion to establish teams of three M&E specialists rather than a single M&E officer enhanced M&E efficiency as it allowed peer mentoring and effective coordination. CORAF developed a web-based M&E system at the



regional level, which was also adapted to the country coordination units for effective data capturing and collation. Towards the end of the project implementation, impact evaluation studies to measure the uptake of new technologies by farmers in all three countries and beneficiary assessments were undertaken under terms of reference approved by CORAF.

c. M&E Utilization

Information about the project's progress was generated in a timely manner and results were communicated to different groups of stakeholders. To communicate project results effectively CORAF relied on different communication methods including digital media and internet, in addition to traditional media such as newspapers and scientific journals.

Overall, M&E design had minor shortcomings, implementation was successful and M&E information was successfully communicated to stakeholders. The ICR also relied on the M&E data generated by the project and the impact evaluation studies. It is plausible to assume that the M&E data were also used to inform project management. Therefore, M&E performance is rated substantial.

M&E Quality Rating

Substantial

11. Other Issues

a. Safeguards

The project was classified as a Category B project and triggered two safeguard policies: Environmental Assessment (OP 4.01) and Pest Management (OP 4.09). The environmental and social impacts of the project, were expected to be minimal, site specific, and manageable to an accepted level. A regional Environmental and Social Management Framework (ESMF) and a regional Pest Management Plan (PMP) were prepared with inputs from each participating country and published in each country and the WB InfoShop.

The ICR did not provide details on mitigation or compliance for any of the two triggered safeguards. It only stated that "all research projects and the laboratories that were constructed were screened to ensure that there would be no negative environmental impact" (ICR, paragraph 33).

b. Fiduciary Compliance

Financial Management. According to the ICR (para 35) the project had adequate financial management systems at both at the national and regional levels. CORAF coordinated financial management for the three participating countries. At the country level, the financial management systems benefitted from well-trained



financial management teams and accounts were well maintained, but project implementation suffered delays due to the late release of counterpart funds. Project financial reports (including Interim Financial Reports) were submitted in a timely manner to the Bank. All audits were submitted on time and were unqualified.

Procurement. Procurement faced some challenges under the project as local teams in charge of procurement needed time to master World Bank procurement guidelines. National procurement procedures were cumbersome, but procurement support provided by CORAF helped the project to overcome these problems (ICR, paragraph 36).

c. Unintended impacts (Positive or Negative)

d. Other

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	---
Risk to Development Outcome	Modest	Modest	---
Bank Performance	Satisfactory	Moderately Satisfactory	The Bank did not advise the Borrowers and executing agencies in a timely manner of the fact that there would be no WB financing for a second phase of the WAAPP which created problems for national research financing.
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of ICR		Substantial	---

Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006. The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.



13. Lessons

The ICR included six lessons. The following are emphasized with some adaptation of language:

- **For long term investments such as agricultural research long term program lending should be used to ensure sustainability.** The WAAPP-1 showed sound results, but they are unlikely to be sustained because the Bank decided to retract its commitment to the program. The World Bank undermines its credibility as a development partner by withdrawing from a commitment to financially support long term lending program that is delivering good results in its early phases.
- **The adoption of a value chain approach in agricultural projects calls for a multidisciplinary research teams.** As agricultural technology no longer focuses primarily on production aspects, the degree of complexity increases and the inclusion of additional scientific disciplines becomes necessary. A new balance needs to be struck between natural scientists, social scientists, engineers and agricultural policy makers. The task of accelerating adoption of released technologies requires added attention to and strengthening of the national extension systems, including the training of key extension staff to the MSc and PhD level and the creation of extension departments at university level.
- **Strengthening producer organizations (associations, federations, cooperatives) is critical to enable the use of new technologies and technical innovations that require economies of scale.** Building social capital, including strong producer organizations, should be a major focus of national extension systems and extension agents should be trained accordingly in how to work with farmer groups, communication theory, sociology, adult pedagogy and psychology, but also agricultural planning, business administration and market analysis.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR provided thorough coverage of project activities and was candid on some issues that faced the project during implementation such as the Bank's very late advice to the Borrowers that it would not contribute to financing WAAPP-2. However, the ICR included limited reporting on shortcomings in the project's implementation. Rather, it reflected mostly a positive picture for the reader and limited details on weaknesses and/or implementation issues. For example, it could have provided more details on design weaknesses and implementation issues as well as clearer statements on compliance with the Bank's safeguard policies and mitigation measures. The assessment of efficiency was weak and acknowledged to be so in the ICR. On the other hand, discussion of the project's overall outcomes was logical and relied on the project achievements. Lessons listed did not reflect all lessons learned from the project. Overall the quality of the ICR is rated substantial.



a. Quality of ICR Rating
Substantial