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Report No: PAD1432

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$70 MILLION

TO THE

REPUBLIC OF ANGOLA

FOR A

SMALLHOLDER AGRICULTURE DEVELOPMENT AND COMMERCIALIZATION PROJECT

June 13, 2016

Agriculture Global Practice
Africa Region

CURRENCY EQUIVALENTS
Exchange Rate Effective March 31, 2016

Currency Unit = Angolan Kwanza (AOA)
AOA 160.54 = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADI	Agriculture Development Institute
ADP	Agricultural Development Program
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group for International Agricultural Research
CPS	Country Partnership Strategy
CQS	Selection Based on the Consultants' Qualifications
CSA	Climate-smart Agriculture
DPA	*Direção Provincial da Agricultura (*Provincial Directorate of Agriculture)
EDA	*Estação de Desenvolvimento Agrário (*Agricultural Development Office of ADI at the Municipal Level)
EIRR	Economic Internal Rate of Return
EMBRAPA	*Empresa Brasileira de Pesquisa Agropecuária* (Brazilian Agricultural Research Corporation)
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization of the United Nations
FBS	Selection under a Fixed Budget
FFS	Farmers' Field School
FM	Financial Management
GEPE	*Gabinete de Estatística Planificação e Estudos* (Division of Statistics Planning and Studies)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HHI	Household Horticulture
ICB	International Competitive Bidding
ICR	Implementation Completion and Results Report
IIA	*Instituto de Investigação Agraria* (Institute of Agricultural Research)
INM	Integrated Nutrient Management
INF	*Inspeção Nacional de Finanças (*National Inspectorate of Finance)
IPM	Integrated Pest Management
IPMF	Integrated Pest Management Framework
ISP	Implementation Support Plan
IUFR	Interim Unaudited Financial Report
LCS	Least-Cost Selection
LGP	Length of Growing Period
M&E	Monitoring and Evaluation
MINAGRI	Ministry of Agriculture

MIS	Management Information System
MOSAP	Market Oriented Smallholder Agriculture Project
MOU	Memorandum of Understanding
MTR	Midterm Review
NCB	National Competitive Bidding
NDP	National Development Plan
NGO	Nongovernmental Organization
O&M	Operations and Maintenance
PAPAGRO	*Programa de Adquisição de Produtos Agropecuários* (Program for Acquisition of Agriculture Products)
PC	Project Coordinator
PCC	Project Coordination Committee
PDO	Project Development Objective
PIM	Project Implementation Manual
PISC	Project Implementation Sub-committee
PIU	Project Implementation Unit
PPCC	Provincial Project Coordination Committee
PPISC	Provincial Project Implementation Sub-committee
PPIU	Provincial Project Implementation Unit
PPP	Public-Private Partnership
QBS	Quality-based Selection
QCBS	Quality- and Cost-based Selection
R&D	Research and Development
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SADCP	Smallholder Agriculture Development and Commercialization Project
SESS	Social and Environmental Safeguards Specialist
SESFP	Social and Environmental Safeguards Focal Point
SSI	Small-scale Irrigation
SSS	Single-Source Selection
TOR	Terms of Reference
WUA	Water Users' Association

Regional Vice President:	Makhtar Diop
Country Director:	Elisabeth Huybens
Senior Global Practice Director:	Juergen Voegele
Practice Manager:	Dina Umali-Deininger
Task Team Leader:	Aniceto Timoteo Bila

REPUBLIC OF ANGOLA
Smallholder Agriculture Development and Commercialization Project

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PAD DATA SHEET

Republic of Angola

Smallholder Agriculture Development and Commercialization Project (P154447)

PROJECT APPRAISAL DOCUMENT

AFRICA

Report No.: PAD1432

Basic Information		
Project ID	EA Category	Team Leader(s)
P154447	B - Partial Assessment	Aniceto Timoteo Bila
Lending Instrument	Fragile and/or Capacity Constraints [ ]	
Investment Project Financing	Financial Intermediaries [ ]	
	Series of Projects [ ]	
Project Implementation Start Date	Project Implementation End Date	
05-July-2016	31-December-2021	
Expected Effectiveness Date	Expected Closing Date	
05-October-2016	31-December-2021	
Joint IFC		
No		

Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Dina Umali-Deininger	Juergen Voegele	Elisabeth Huybens	Makhtar Diop

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Borrower: Republic of Angola			
Responsible Agency: Ministry of Agriculture			
Contact:	(244) 222-323650	Title:	Head of Office
Telephone No.:	(244) 222-323650	Email:	tobiaslopes@hotmail.com

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Project Financing Data(in US$, Millions)					
[X]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	95.00	Total Bank Financing:	70.00
Financing Gap:	0.00		

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Financing Source	**Amount**
Borrower	20.00
International Bank for Reconstruction and Development	70.00
LOCAL BENEFICIARIES	5.00
Total	95.00

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Expected Disbursements (in US$, Millions)

Fiscal Year	2017	2018	2019	2020	2021	2022				
Annual	7.00	15.00	15.00	15.00	12.00	6.00				
Cumulative	7.00	22.00	37.00	52.00	64.00	70.00				

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Institutional Data

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Jobs, Poverty and Equity, Trade & Competitiveness, Water

Cross Cutting Topics

[X] Climate Change

[ ] Fragile, Conflict & Violence

[X] Gender

[X] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Agriculture, fishing, and forestry	General agriculture, fishing and forestry sector	60	77	23
Public Administration, Law, and Justice	Public administration-Agriculture, fishing and forestry	14	67	33

Agriculture, fishing, and forestry	Irrigation and drainage	9		
Agriculture, fishing, and forestry	Agricultural extension and research	9		
Water, sanitation and flood protection	General water, sanitation and flood protection sector	8		
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

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Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Rural development	Rural services and infrastructure	45
Rural development	Rural markets	45
Rural development	Rural policies and institutions	10
Total		100

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Proposed Development Objective(s)

The objective of the Project is to increase smallholder agriculture productivity, production and marketing for selected crops in the Project areas.

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Components

Component Name	**Cost (US$, Millions)**
Component 1. Capacity Building and Institutional Development	23.00
Component 2. Support for Increased Production and Commercialization	37.00
Component 3. Project Management, Monitoring, and Evaluation	10.00

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Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Moderate

4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Low
8. Stakeholders	Low
9. Other	
OVERALL	Substantial

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Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]

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Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [ ] No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

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Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04		**X**
Forests OP/BP 4.36		**X**
Pest Management OP 4.09	**X**	
Physical Cultural Resources OP/BP 4.11		**X**
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37	**X**	
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

.

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Project Coordination Committee, Schedule 2, Section I, A, 2 (a)		05-April-2017	

Description of Covenant

The Borrower, through its Ministry of Agriculture, shall establish, not later than six months after the

Effective Date, and thereafter maintain, throughout the implementation of the project, a coordination committee (Project Coordination Committee or PCC), with a composition, mandate, and resources satisfactory to the Bank, and which shall be chaired by the Minister of Agriculture.

Name	Recurrent	Due Date	Frequency
Project Implementation Sub-committee, Schedule 2, Section I, A, 3 (a)		05-April-2017	

Description of Covenant

The Borrower shall establish, not later than six months after the Effective Date and thereafter maintain, throughout the implementation of the project, an implementation sub-committee (Project Implementation Sub-Committee or PISC) under the PCC, with a composition, mandate, and resources satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
Project Implementation Unit, Schedule 2, Section I, A, 4 (a)		05-April-2017	

Description of Covenant

The Borrower shall establish, not later than six months after the Effective Date, and thereafter maintain, throughout the implementation of the project, a project implementation unit (Project Implementation Unit or PIU) within the Agriculture Development Institute (ADI), with functions, staffing, and resources satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
Provincial Project Coordination Committees, Schedule 2, Section I, A, 5 (a)		05-April-2017	

Description of Covenant

The Borrower shall establish, not later than six months after the Effective Date, and thereafter maintain, throughout the implementation of the project, a provincial coordination committee for each of the participating provinces (Provincial Project Coordination Committee or PPCC), with a composition, mandate, and resources satisfactory to the Bank. Each PPCC shall be chaired by the provincial vice-governor responsible for economic development of the corresponding participating province.

Name	Recurrent	Due Date	Frequency
Provincial Project Coordination Sub-Committees, Schedule 2, Section I, A, 6 (a)		05-April-2017	

Description of Covenant

The Borrower shall establish, not later than six months after the Effective Date, and thereafter maintain, throughout the implementation of the project, a provincial implementation sub-committee for each of the participating provinces (Provincial Project Implementation Sub-committee or PPISC) under the corresponding PPCC, with a composition, mandate, and resources satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
Provincial Project Implementation Units, Schedule 2, Section I, A, 7 (a)		05-April-2017	

Description of Covenant

The Borrower shall establish, not later than six months after the Effective Date, and thereafter maintain, throughout the implementation of the project, a provincial project implementation unit for each of the participating provinces (Provincial Project Implementation Unit or PPIU) within the corresponding provincial offices of ADI, with functions, staffing, and resources satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
Recruitment of Certain Personnel for each PPIU, Schedule 2, Section I, A, 7 (c)		05-January-2017	

Description of Covenant

The Borrower shall recruit for each PPIU, not later than three months after the Effective Date, a provincial project coordinator, accountant, and monitoring and evaluation specialist, each with qualifications, experience, and terms of reference acceptable to the Bank, and in accordance with the provisions of Section III of Schedule 2 of the Loan Agreement.

Name	Recurrent	Due Date	Frequency
Recruitment of a Service Provider, Schedule 2, Section I, A, 8 (a)		05-April-2017	

Description of Covenant

The Borrower shall, not later than six months after the Effective Date hire a service provider to assist in the implementation of Part B of the project, with qualifications, experience, and terms of reference acceptable to the Bank, and in accordance with the provisions of Section III of Schedule 2 of the Loan Agreement.

Name	Recurrent	Due Date	Frequency
Memorandum of Understanding between ADI and IIA, Schedule 2, Section I, A, 8 (b)		05-April-2017	

Description of Covenant

The Borrower shall, not later than six months after the Effective Date ensure that a memorandum of understanding for the implementation of Part A.3 of the project has been executed on behalf of ADI and the Institute of Agricultural Research (*Instituto de Investigação Agrária,* IIA), in form and substance acceptable to the Bank.

Name	Recurrent	Due Date	Frequency
Updating the Financial Management and Accounting System, Schedule 2, Section II, B, 4		05-January-2017	

Description of Covenant

The Borrower shall update, not later than three months after Effective Date, its financial management and accounting system to incorporate the project.

Name	Recurrent	Due Date	Frequency
Recruitment of External Auditor, Schedule 2, Section II, B, 5		05-April-2017	

Description of Covenant

The Borrower shall recruit, not later than six months after the Effective Date, an external auditor with qualifications, experience, and terms of reference satisfactory to the Bank, in accordance with the

provisions of Section III of Schedule 2 of the Loan Agreement.			
Name	**Recurrent**	**Due Date**	**Frequency**
Midterm Review, Schedule 2, Section II, C, 1 (a)		05-October-2018	

Description of Covenant

The Borrower shall no later than twenty-four months after the Effective Date, carry out jointly with the Bank a midterm review of the progress made in carrying out the project. As part of the midterm review, the borrower and the Bank shall review a report prepared and submitted by the PIU three months in advance of the midterm review.

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Conditions

Source Of Fund	Name	Type
IBRD	Adoption of the Project Implementation Manual (PIM), Article IV, 4.01 (a)	Effectiveness

Description of Condition

The Borrower has adopted a Project Implementation Manual acceptable to the Bank.

Source Of Fund	Name	Type
IBRD	Recruitment of Certain Personnel for the PIU, Article IV, 4.01 (b)	Effectiveness

Description of Condition

The Borrower has recruited a project coordinator, a financial management specialist, and a procurement specialist for the PIU, each with qualifications, experience, and terms of reference acceptable to the Bank, and in accordance with the provisions of Section III of Schedule 2 of the Loan Agreement.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Aniceto Timoteo Bila	Team Leader (ADM Responsible)	Senior Agricultural Specialist	Agriculture Specialist	GFA07
Antonio L. Chamuco	Procurement Specialist (ADM Responsible)	Senior Procurement Specialist	Procurement	GGO07
Amos Malate	Procurement	Procurement Specialist	Procurement	GGO07
Enagnon Ernest Eric Adda	Financial Management Specialist	Senior Financial Management Specialist	Financial Management	GGO13
Joao Tinga	Financial Management	Financial Management Specialist	Financial Management	GG013
Adriaan Laurentius	Team Member	Consultant	Irrigation	GWADR

Josephus van den Dries				
Cheikh A. T. Sagna	Safeguards Specialist	Senior Social Development Specialist	Social Safeguards	GSU01
Clarisse Livia Isaias Nhabangue	Team Member	Team Assistant	Team Assistant	AFCS2
Domingas de Fatima Rego Pegado	Team Member	Program Assistant	Program Assistant	AFMAO
Guo Li	Team Member	Senior Agriculture Economist	Economist	GFA13
Jan Joost Nijhoff	Team Member	Senior Agriculture Economist	Agriculture Economist	GFA07
Luz Meza-Bartrina	Counsel	Senior Counsel	Country Lawyer	LEGAM
Marie-Claudine Fundi	Team Member	Language Program Assistant	Program Assistant	GFA07
Mohinder S. Mudahar	Team Member	Consultant	Consultant	GFA07
Nora Kaoues	Team Member	Senior Agricultural Economist	Senior Operations Officer	GFA07
Nuno Maria Brilha Vilela	Safeguards Specialist	Consultant	Consultant	GENDR
Paulo Jorge Temba Sithoe	Safeguards Specialist	Environmental Specialist	Environmental Safeguard Specialist	GEN01
Pedro Arlindo	Team Member	Agric. Economist	Agriculture Economist	GFA07
Mariangeles Sabella	Team Member	Senior Counsel	Legal	LEGEN
Gerard Jumamil	Team Member	ET Consultant	Legal	LEGAM
Jose Janeiro	Team Member	Senior Finance Officer	Finance Officer	WFALA

Extended Team

Name	**Title**	**Office Phone**	**Location**
Diogo Machado	Agribusiness Specialist		Rome, Italy
Marc Lacharme	Senior Agronomist, FAO/IC)		Rome, Italy
Simon Rietbergen	Team Leader		Rome, Italy

.

Locations

Country	**First Administrative**	**Location**	**Planned**	**Actual**	**Comments**

	Division				
Angola	Bie	Bie Province	X		
Angola	Huambo	Huambo Province	X		
Angola	Malanje	Malanje Province	X		
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Consultants (Will be disclosed in the Monthly Operational Summary)					
Consultants Required?	Consultants will be required				

I. STRATEGIC CONTEXT

A. Country Context

1. Angola is one of Africa's resource-rich countries. As such, its recent growth dynamics has been dictated by oil exploitation. Recent data indicate that the oil sector accounts for around 30 percent of Gross Domestic Product (GDP) and, 95 percent of total export value. Historically, it represented 3/4 of government revenues, but this ratio has gone down to nearly 50 percent. Angola experienced a long civil war following independence from Portugal in 1975. The conflict, which lasted almost 25 years and ended with a peace agreement in 2002, destroyed most of the country's productive infrastructure (particularly for the agriculture sector) and deeply impacted its social and economic development. Angola covers an area of about 1.25 million km^2 and has a total population of 25,789,024 inhabitants. According to the 2014 population census, 52 percent of the total population are women and 37 percent live in rural areas.

2. Although the agriculture sector contributes on average 5.5 percent to GDP, 44 percent of the employed population works in the sector according to the recent census. Moreover, 46 percent of the households were engaged in some agricultural activity and 6 percent were engaged in fishing activities. The Food and Agriculture Organization (FAO) estimates that almost 68 percent of economically active adults in Angola worked in the agriculture sector in 2014. More than half of Angola's poor are located in rural areas and depend almost exclusively on agriculture for their livelihood. Almost one-third (33 percent) of agricultural households are headed by women. Women are responsible for 70 percent of traditional subsistence agriculture and 24 percent of commercial agriculture.

3. Oil prices declined by over 72 percent between March 2014 and March 2016. This led to important changes in the economy: a current account deficit—the first since the financial crisis of 2008–2009; a scarcity of foreign currency; and local currency (Angolan kwanza) depreciation and inflationary pressures, with annual inflation currently around 26 percent. On the fiscal front, the drop in oil prices drastically reduced government revenues, leading the Government to implement large cuts in government expenditures, including the virtual elimination of fuel subsidies, the cancelation of capital expenditures, and a reduction in acquisitions of goods and services.

4. These changes prompted the Government to accelerate efforts to diversify the economy. Angola depends heavily on food imports. The Government Strategy to Exit the Crisis places a strong emphasis on agriculture as an immediate way to increase domestic production and reduce imports. Increased agricultural production (particularly cereals and vegetables) and productivity have the potential to ease the current account pressures and the foreign exchange scarcity.

5. While there has been reasonable progress toward attaining the Sustainable Development Goals, Angola did not meet its Millennium Development Goals targets in 2015. Angola ranks low on both human development and business environment indicators. Its overall institutional capacity remains weak, while bureaucratic hurdles and governance challenges inhibit private sector growth. Performance related to social indicators is mixed: good progress has been made in poverty reduction, primary education, and gender equality since 2002, but despite these achievements, other social indicators remain very poor. For example, maternal mortality is 450

out of 100,000 births, and malnutrition is acute with 30 percent of children less than five years of age suffering from stunting and 16 percent are underweight.

6. The overall poverty rate declined from 62 percent in 2001 to about 37 percent in 2009; a major achievement, but much more needs to be done to reduce poverty as part of the shared prosperity agenda. Major regional disparities in the poverty rate exist across different provinces as well as between rural and urban areas. The rural poverty rate is almost 58 percent, in contrast with an urban poverty rate of less than 30 percent; in the capital city of Luanda (with a population of about 5 million), the poverty rate is only about 9 percent. Smallholder agricultural development and commercialization are hence critical to reduce rural poverty.

7. Although Angola used to be a major agricultural exporter, a large share of the food consumed in the country is currently imported, with the exception of roots and tubers. Almost 36 percent of cereal consumption (about 1.1 million tons) is met through imports. This is due in part to the destruction of the agricultural production and marketing infrastructure during the civil war and in part to the improvements in terms of trade that came from high oil prices and increased oil exports volume. The fall in oil price registered in the last two years and the consequent currency devaluation is a natural incentive for domestic production to increase and replace part of the imports. However, the extent to which this incentive will materialize depends on other factors such as adequate macroeconomic framework, improvements in the business climate, infrastructure and labor skills.

8. In light of low international oil prices, declining oil revenues, and limited proven oil reserves, the Government is in the process of implementing policies that will increase national revenue and reduce national expenditure. At the same time, the Government is striving to improve the business climate to promote economic development, diversification of the non-oil economy (including agriculture), and competitiveness. This is critical because Angola was: (a) rated 181 out of 189 economies on the World Bank's 'Ease of Doing Business Index' in 2015; and (b) rated low on the World Economic Forum's Global Competitiveness Index in 2014. Government efforts to improve the business climate are likely to have a positive impact on diversification, competitiveness, and growth of the non-oil economy, including agriculture.

9. Angola has an estimated 35 million ha of arable land, of which less than 4 million ha are currently under cultivation. Overall, agricultural productivity and crop yields are extremely low. The soils are generally fertile in the north and the central highlands (Bié, Huambo, and Malanje provinces) and average rainfall exceeds 1,000 mm per year. The country has enormous potential to increase cropped area, raise crop yields, and exploit the potential of its diverse agroclimatic regions to increase agricultural and food production.

10. Global experience suggests that agricultural growth has a much higher potential to reduce rural poverty than growth in any other economic sector. Inclusive growth in the agriculture sector can not only reduce rural poverty but can also help enhance shared prosperity, diversify the economy, accelerate economic growth, increase food security, improve social indicators in rural areas, and achieve the Sustainable Development Goals. The proposed Smallholder Agriculture Development and Commercialization Project (SADCP) aims to provide a major impetus to the agriculture sector that will not only increase productivity and production but will

also improve the lives of rural poor people by reducing poverty, promoting balanced growth, and transforming agriculture in the project areas.

11. The SADCP will contribute to the Bank's twin goals of poverty reduction and shared prosperity. The project, which will cover 175,000 smallholder farmer as direct beneficiaries or a total of 875,000 people which represents about 9 percent of all rural population in Angola. The project will be implemented in three relatively poor provinces of the central highlands.[1] SADCP is expected to increase agricultural productivity, enhance market linkages, increase farmers' income, and reduce rural poverty. The project will also promote social inclusion by enhancing the role of female-headed agricultural households, which not only account for a large share of rural households but are also the most vulnerable.

B. Sectoral and Institutional Context

12. Before independence, Angola had a long history of exporting agricultural commodities and was once the world's third largest exporter of coffee. During the colonial period, agriculture had a dual structure, with a commercial sector of about 800,000 ha managed by Portuguese settlers using modern technologies and a traditional sector primarily composed of smallholder family farms cultivating about 3.4 million ha.

13. After independence, most Portuguese settlers left the country and many former commercial farms and plantations were converted into state farms, which have since been privatized. The civil war resulted in a virtual collapse in commercial production as large numbers of rural inhabitants either fled or reverted to subsistence agricultural production. Rural infrastructure suffered because of widespread destruction of roads, bridges, irrigation systems, and warehouses, compounded by the presence of thousands of land mines in rural areas. Although the situation has improved with the rehabilitation of main roads and bridges and clearance of mines, the agriculture sector has not yet fully recovered from the destruction and decapitalization. As a consequence, agricultural exports are currently negligible.

14. With an annual average share of 5.5 percent (2002–2013), agriculture is the third largest contributor to the gross domestic product. However, public spending in the sector has not only been low but has declined over time. For example, the share of agriculture in the national budget in 2013 was 1.1 percent (US$702 million); in 2014, the share was 0.5 percent (US$597 million); and in 2015, the share was 0.41 percent (US$544 million). It is important to note that the budget allocations for the agriculture sector not only fall under the Ministry of Agriculture (MINAGRI), but also under the Ministries of Commerce, Industry, and Transport. Due to the decline in oil prices and oil revenues, the national budget will be constrained and allocations to agriculture are likely to be adversely affected. Public investment support is critical to capitalize agriculture, rebuild agricultural infrastructure, strengthen institutions, and increase investment in agricultural research and development (R&D). In light of Angola's recent experience, increased public and private investment is needed in agriculture and public-private partnerships (PPPs) must be promoted.

[1] According to the 2008–2009 Household Survey, the central highlands region's poverty incidence is estimated to be 69.4 percent.

15. While the agriculture sector is essential to promote national development and economic diversification, its potential will remain untapped if productivity does not increase significantly. Agricultural production has increased gradually since 2002 (end of the war), but crop yields remain very low compared to other countries in Sub-Saharan Africa. According to FAO, the average yield of beans in Angola is 0.34 ton per ha compared to 0.60 ton per ha in the southern African region; the average yield of groundnuts is 0.38 ton per ha compared to 0.88 ton per ha in the region; and the average millet yield is 0.24 ton per ha compared to the regional average of 0.70 ton per ha. Substantial scope clearly exists for increasing crop yields and crop production through use of improved agricultural technology as well as through an increase in cultivated area. This will require the use of animal traction, mechanization, adoption of improved agronomic practices, improvements in soil fertility, use of modern agricultural inputs, increased cropped area under irrigation, and dissemination of agricultural knowledge to farmers. In addition, there is substantial scope for a value chain approach, strengthening market linkages, improving commercialization, and building agribusiness facilities through local entrepreneurs.

16. MINAGRI is responsible for the design and implementation of agricultural policies and programs at the national level to attain food security and sustainable commercial agriculture. At the provincial level, MINAGRI is represented by Provincial Directorates of Agriculture (DPAs), and by the *Estação de Desenvolvimento Agrário* (EDAs) which are the Agricultural Development Offices of Agriculture Development Institute (ADI) at the municipal level. Among others, MINAGRI's key agricultural programs at the national and provincial levels consist of agricultural research, extension, technology transfer, and irrigation. Substantial scope remains to improve the content, coverage, and performance of these agricultural programs, particularly for the benefit of smallholder farmers.

17. Within MINAGRI, the ADI is responsible for development of smallholder agriculture and extension services. As defined in the medium-term Agricultural Development Program (ADP) 2013–2017, ADI's mandate is to support smallholders across the country. ADI is present in 128 out of 131 municipalities in the country through the EDAs. Under extension services, ADI is responsible for promoting agricultural practices and technology generation to increase smallholder agricultural production and productivity. However, ADI faces institutional constraints such as weak human resource capacity and poor housing conditions for staff in municipalities and communes that they serve. ADI's staff total 699, of whom 104 have a university degree and 595 are medium-level technicians.

18. At present, 80 percent of Angolan farmers are smallholders who produce over 90 percent of all agricultural products in the country. The main constraints they face include: weak capacity and limited knowledge of improved agricultural practices and technology; poor access to extension services; limited access to modern inputs, including seeds and fertilizers; inadequate market information; and post-harvest losses. The agriculture sector's institutional capacity is extremely weak as well, particularly relating to irrigation, policy analysis, and agricultural statistics. The project will respond to these constraints through: supporting training in improved practices, marketing, and organizational skills; providing better access to improved extension services; improving access to inputs (seeds and fertilizers); and forming and strengthening farmer organizations through training in group formation, collective marketing, and business skills.

19. The SADCP builds on a previous Bank-supported project—The Market Oriented Smallholder Agriculture Project (MOSAP)—approved in July 2008 and implemented over seven years. MOSAP was designed to increase agricultural production through the provision of improved agricultural services and investment support to smallholder farmers. Activities implemented under MOSAP included: (a) training of over 50,000 smallholder farmers in the use of improved agricultural technologies to increase crop production (the training was provided by service providers recruited under the project as well as by FAO to over 25,000 producers on family farms through Farmers' Field Schools [FFSs])[2]; (b) training more than 60 agricultural technicians within MINAGRI; (c) providing support to over 10,000 smallholder beneficiaries by financing approximately 280 subprojects;[3] and (d) building the capacity of ADI staff in targeted provinces and municipalities. In addition to capacity building, MOSAP contributed to: (a) an increase in agricultural production; and (b) the adoption of improved technologies for maize, beans, cassava, and Irish potatoes in the project areas.

20. The SADCP will scale up the geographic scale of MOSAP to reach additional beneficiaries in more municipalities and communes within the same three provinces: Bié, Huambo, and Malanje. Additionally, the project will include rehabilitation of 1,000 ha of small-scale gravity-fed irrigation schemes as a pilot program for smallholders. Building on lessons learned from MOSAP, the SADCP strongly emphasizes capacity building, institutional development, and sustainability by strengthening MINAGRI's capacity for statistics, policy analysis, market information, irrigation development, and agricultural extension. Also building on lessons learned, the SADCP aims to mainstream environmental considerations and climate-smart agriculture (CSA) practices into the project design through investments in more efficient use of water resources, promotion of soil conservation techniques, and integrated natural resource management.

C. Higher-level Objectives to which the Project Contributes

21. The proposed project is consistent with Angola's National Development Plan (NDP) 2013–2017 and the ADP 2013–2017 as well as the Bank's Country Partnership Strategy (CPS) FY13–16. The NDP highlights agriculture and rural development as priority areas to improve food security and revitalize the rural economy. The overall objective of the ADP is to promote the sustainable transformation of subsistence agriculture to a commercial orientation, with the aim of achieving food security in the country. The ADP promotes four strategic objectives: (a) R&D, institutional strengthening, and human resources capacity building; (b) integrated rural development programs, agribusiness, development of irrigation, construction of infrastructures to support agricultural production, support for the national reforestation program, and promotion of rural credit and rural finance; (c) increased societal participation in the process of development and formation of agricultural cooperatives and associations; and (d) industrialization of the country. The project will directly support implementation of ADP's first three objectives.

[2] The FFS is a group-based learning process introduced in Angola by FAO and implemented under MOSAP to train smallholder farmer beneficiaries. An independent evaluation carried out in 2015 found a strong positive impact of FFS training on the crop management practices and crop yields of participating farmers.

[3] Subprojects are demand-based and supported in the form of matching grants provided by the project to rural communities and smallholder groups for small-scale agricultural infrastructure, production, processing, and marketing.

22. The Bank CPS for Angola FY13–16 aimed at: (a) deepening diversification for inclusive growth; (b) enhancing the quality of decentralization for services delivery; and (c) building human resources capacity. A new Country Partnership Framework is under preparation for the next four years and the Government has requested the World Bank support in the development of smallholder agriculture and to support the development of the commercial agriculture in the country. This request is in recognition of the critical role of agriculture and the need to increase agricultural productivity and competitiveness to reduce rural poverty and promote economic growth.

23. The SADCP is consistent with the Comprehensive Africa Agriculture Development Programme (CAADP) and the Malabo Declaration, which call for accelerated growth and transformation of Africa's agriculture for shared prosperity and improved livelihoods through harnessing opportunities for inclusive growth and sustainable development. The Malabo Declaration was signed in June 2014 in Equatorial Guinea by 52 heads of states, including Angola's.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

24. The project development objective (PDO) is to increase smallholder agriculture productivity, production and marketing for selected crops in the Project areas.

B. Project Beneficiaries

25. The project beneficiaries are a target group of about 175,600 beneficiaries of which 175,000 are smallholder farmers and 600 are government staff at different levels of government (national, provincial, municipal and communal). The beneficiary smallholder farmers are distributed in the 80 communes and 26 municipalities of the three beneficiary provinces of the central highlands (Bié, Malanje, and Huambo).with agroecological conditions suitable to increasing agricultural productivity, production, and commercialization. MOSAP covered the same three provinces, but only 12 municipalities and 25 communes; and benefitted over 50,000 smallholder farmers.

26. The population census of 2014 estimates the total population of the three provinces at 4.2 million, representing about 16 percent of Angola's total population.[4] In addition to providing direct support to 175,000 smallholder farmers, government staff at national, provincial, and municipal levels, nongovernmental organizations (NGOs), and the private sector are expected to benefit from the project.

27. The criteria used to select the project area included the following aspects: favorable agroclimatic conditions; significant population density; market access; existence of some supporting infrastructure; and potential synergies with other operations. These criteria point at the central highlands and its transitional zones, which represent the area of Angola characterized by not only high levels of food insecurity and a high proportion of vulnerable groups, such as

[4] Population Census 2014.

female-headed households, but also by significant potential for long-term sustainable agricultural development.

28. The targeted smallholder farmers cultivate an average 1.37 ha. Farm size varies between 0.5–2 ha. Although most smallholders produce at the subsistence level with a high incidence of poverty and food insecurity, the potential for increased production is large, with regard to both expansion of cultivated area per farmer and increased productivity per unit of land. With the proper enabling environment, an adequate supply of agricultural inputs (including seeds and fertilizer), diffusion of labor-saving technology, and better access to markets, smallholders' agricultural incomes could rise significantly over a relatively short period. A small minority of smallholders cultivate 2–5 ha and are considered to be potential change agents. The most vulnerable farmers are those who farm less than 1 ha, often female-headed households, which make up a large share of the overall population in some villages.

C. PDO-level Results Indicators

29. The key results expected from the proposed project are to increase: (a) the average yields of selected crops, including cassava, maize, beans, Irish potatoes, and vegetables; (b) the volume of production of selected crops; and (c) the proportion of production marketed by smallholder farmers. In addition to these three key PDO results indicators, the results framework (Annex 1) will also measure selected intermediate performance indicators for each of the project components.

30. The strategy to achieving key results under the SADCP is to build upon the outcomes achieved under MOSAP and to support smallholder farmers to increase agricultural productivity, production, and market linkages that generate self-sustaining agricultural growth over a larger project area than that covered under MOSAP. This will be achieved by: (a) building on potential synergies with ongoing agricultural programs; (b) maximizing opportunities for quick-win results by focusing on farmers who received training under MOSAP or other programs and have applied their knowledge; (c) strengthening the knowledge and skills of smallholder farmers and their associations as well as of agricultural extension staff and agricultural service providers; (d) recapitalizing productive agricultural systems and infrastructures, including irrigated agriculture; and (e) providing access to demand-driven agricultural services and agricultural markets. As far as possible, investments will be based on a flexible, participatory, and demand-driven as well as a nutrition- and gender-sensitive approach that promotes enhancement in productivity, production, and commercialization of agricultural activities on a sustainable basis.

III. PROJECT DESCRIPTION

31. The SADCP is designed to address two critical constraints to agricultural development in Angola. First, it is designed to increase agriculture institutional capacity through training programs, both nationally and in the project areas. Second, it is designed to address critical bottlenecks in the value chain, including extension, irrigation, production and post-harvest value addition, and market linkages of selected crops.

32. The project will be implemented over five years (FY 17–22). The total project cost is estimated at US$95 million, of which US$20 million equivalent will be in-kind and cash

contributions from the Government of Angola and US$5 million equivalent will be in-kind and/or cash contributions from project beneficiaries. A US$70 million IBRD loan will constitute the remainder of the total project cost.

33. The SADCP builds on the experience gained under MOSAP, from which it differs in the following important aspects: (a) it is larger in scope with regard to absolute funding and number of beneficiaries; (b) it includes a subcomponent to support development of small-scale irrigated agriculture; (c) in addition to food crops (maize, cassava, beans, and Irish potatoes), it emphasizes the production of high-value crops, particularly vegetables; and (d) it further strengthens commercialization of agriculture, including market linkages and contract farming. The proposed project has three components: Component 1. Capacity Building and Institutional Development; Component 2. Support for Increased Production and Commercialization; and Component 3. Project Management, Monitoring, and Evaluation. Details are provided in annex 2.

A. Project Components

Component 1. Capacity Building and Institutional Development - US$43 million (US$23 million from IBRD and US$20 million equivalent from the Government of Angola)

34. The objective of this component is to improve the technical, institutional, managerial, and marketing skills of 150,000 farmer beneficiaries and to strengthen the capacity of government agricultural extension specialists, agricultural research institutions, private agricultural service providers, and NGOs related to different aspects of agriculture, including value chains. The expected results are: (a) smallholder farmers' organizations established and strengthened; (b) technical and managerial competence of smallholder farmers improved; and (c) government capacity to support smallholder agricultural production and commercialization enhanced.

35. This component consists of three subcomponents: (a) Strengthening Capacity of Smallholder Farmers and Farmers' Organizations through Farmers' Field Schools; (b) Strengthening Institutional Capacity of Local, Provincial, and National Units of MINAGRI; and (c) Strengthening Capacity and Global Knowledge to Address Emerging Research Problems.

Subcomponent 1.1. Strengthening Capacity of Smallholder Farmers and Farmers' Organizations through Farmers' Field Schools - US$25 million (US$10 million from IBRD and US$15 million equivalent from the Government of Angola)

36. The objective of this subcomponent is to strengthen the capacity of smallholder farmers and farmers' organizations through FFSs including: (a) supporting the establishment of smallholder farmers' organizations; (b) strengthening the knowledge of farmers on agricultural practices, technology, inputs, and marketing; (c) strengthening the functional literacy and numeracy of farmers; (d) improving household nutrition; (e) improving soil fertility and integrated nutrient management (INM); (f) promoting conservation agriculture; and (g) building the capacity of relevant government staff at the municipal level to implement an FFS program.

37. The capacity of smallholder farmers and farmers' organizations will be strengthened in all critical aspects related to agriculture by scaling up the FFS initiative. The FFS training is expected to benefit 150,000 smallholder farmers. The FFS methodology empowers smallholder

farmers to set their own agenda and take steps to improve their agricultural knowledge and economic situation.

38. For effective implementation of the FFS approach, the government will ensure that each commune has at least three agricultural extension specialists at each EDA. The project expects to cover all 80 communes in 26 municipalities by the end of the third year, with at least 30 communes covered in the first year and 60 in the second year. This will ensure that all farmers in the target group benefit from at least one full FFS training cycle during the project.

Subcomponent 1.2. Strengthening Institutional Capacity of Local, Provincial, and National Units of the Ministry of Agriculture (MINAGRI) - US$9 million (from IBRD)

39. The second subcomponent aims at: (a) strengthening the institutional capacity of local, provincial, and national units of MINAGRI in the areas of irrigation, extension, market information, statistics, and policy analysis to improve provision of services to smallholder farmers at the farm-level investments; and (b) rehabilitating and constructing agricultural extension facilities at the local level of MINAGRI, including offices and residential complexes for agricultural extension staff. In particular, project financing will be provided for:

- **Data and statistics.** Targeted support to expand data collection for crop production (including forecasts) and post-harvest surveys through funding for enumerator training and data collection in the project areas; to produce regular production statistics and reports at the national level; and for the planned national agricultural census in 2016, as needed.

- **Policy analysis.** Targeted support for agricultural policy training and annual sector review processes, possibly with a link to Angola's commitment under the CAADP to institute two reviews of the agriculture sector per year.

- **Market information systems.** Support for the development of market information systems; exploration of possible systems to be developed for farmers' or traders' groups; and linkages to the Ministry of Commerce's initiatives around market information systems within the context of the Program for Acquisition of Agriculture Products (*Programa de Adquisição de Produtos Agropecuários,* PAPAGRO).

- **Small-scale irrigation (SSI).** The rehabilitation and development of SSI is part of ADI's mandate to support smallholder agriculture development in the country, while development of larger irrigation schemes is within the mandate of MINAGRI's Department of Hydraulics. The project will provide technical training on gravity-fed irrigation systems at provincial and municipal levels to enable technical backstopping for SSI systems to ADI staff and policy support such as preparation of water users' association (WUA) regulations to MINAGRI's Division of Statistics under the Department of Planning and Studies (*Gabinete de Estudos Planificação e Economia,* GEPE).

- **Provision of infrastructures for extension officers.** Critical agricultural extension

facilities need to be rehabilitated and/or built at local level. This will require construction and rehabilitation of office-residential complexes for agricultural extension services in selected communes. An estimated 40 new houses and 10 new offices will be required in the 80 beneficiary communes. This activity will be implemented by the Project Implementation Unit (PIU)/Provincial Project Implementation Units (PPIUs) in collaboration with local beneficiary organizations. The government will allocate specific resources for operations and maintenance (O&M) as part of its contribution.

Subcomponent 1.3. Strengthening Capacity and Global Knowledge to Address Emerging Research Problems - US$9 million (US$4 million from IBRD and US$5 million equivalent from the Government of Angola)

40. The main activities to be financed under this subcomponent include: (a) supporting the multiplication of seeds and planting material; (b) developing technology packages for selected crops; (c) improving soil diagnostic services; (d) building the technical capacity of the national research and extension system; and (e) increased field testing and demonstration of improved technologies.

41. The third subcomponent aims to strengthen the institutional capacity of Angola's national- and provincial-level agricultural research system to enhance access to modern agricultural innovations and technologies that increase agriculture productivity and production. The objective is to strengthen the research systems to address emerging issues in the productivity, production, and value chains of priority food and horticulture (vegetable) crops. This will include scaling up the availability of improved technologies for farmers, thereby filling technical knowledge gaps around cropping systems within the project areas and introducing new knowledge and technologies that may be available within the region or globally, where appropriate.

42. The project financing will be provided to develop proposals for addressing specific R&D initiatives linked to project objectives and building on relevant global or regional sources of knowledge and technology. Implementation of these activities will be executed by the Institute of Agricultural Research (*Instituto de Investigação Agraria*, IIA) and the partner(s) selected for the specific R&D activity, and the PIU will retain the fiduciary responsibility.

43. ADI and the IIA will prepare a detailed work plan for the R&D activities to be financed, with the time frame and budget. They will also prepare a memorandum of understanding (MOU) setting the responsibility of each party in the implementation of the work plan, including the supervision mechanisms during implementation. The MOU should be prepared no later than six months after effectiveness.

44. In particular, financing under the SADCP will be provided for the following:

- **Multiplication of seeds and planting material.** Scaling up breeder or foundation seed production within the IIA, developing partnerships with seed producers to increase production of certified or quality-declared seed, and scaling up production and dissemination of virus-free cassava cuttings through available tissue culture

laboratories (in Malanje and Luanda).

- **Development of recommended technology packages for project crops (*cartas tecnológicas por culturas*).** Packaging and disseminating recommendations for priority crops for use by farmers, delivered by extension system/technical service providers.

- **Improvement of soil diagnostic services (soil analysis and fertilizer recommendations).** Provision of equipment, training, and operational costs within Huambo and Malanje to improve soil testing facilities and development of comprehensive fertilizer recommendations.

- **Training of national research and extension system on specific technical topics by international experts.** Support to partnerships to bring in outside knowledge for the benefit of the national research and extension system from partners such as the Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária*, EMBRAPA), Consultative Group for International Agricultural Research (CGIAR) institutes, or within the Southern African Development Community region.

- **Scaling up the testing/demonstration of new technologies based on CGIAR research system or others.** Support for R&D activities within the IIA to test new technologies brought in from the CGIAR system, EMBRAPA, or countries within the region and targeting priority crops.

Component 2. Support for Increased Production and Commercialization - US$42 million (US$37 million from IBRD and US$5 million equivalent from beneficiaries)

45. The objective of this component is to support value chain development of selected crops through demand-based matching investment grants to smallholder farmers' groups and organizations to improve agricultural productivity, production, and market access for 50,000 eligible beneficiaries. The beneficiaries for investment support will be selected from those trained through FFSs under MOSAP, the SADCP, or any other training program. This component will support three kinds of investments in the value chain, including: (a) rehabilitation of SSI schemes; (b) agricultural production and productivity improvements; and (c) post-harvest management for value addition, including storage, processing, and marketing facilities.

46. The project will hire an experienced and competent service provider to provide necessary support during implementation of this component. The service provider will work within ADI's structures and will only hire internationally qualified experts to integrate in the team and to support ADI to address technical issues along the selected crops' value chains.

47. A Project Implementation Manual (PIM) will be compiled for the SADCP and will include eligibility criteria and the selection process for investment subprojects. These may vary according to the type of support required, as described in Annex 2, but eligibility for each subsequent investment will be contingent on satisfactory performance in the previous investment

support phase, if any. A detailed process for identification, appraisal, and approval of subproject proposals is described in the implementation arrangement in Annex 4 and details will also be provided in the PIM.

48. Smallholder farmer beneficiaries will be required to make at least 10 percent contribution (in kind or cash) to the matching grants funded by the project. The contribution by beneficiaries will vary depending on the type of investment. The project will cover up to US$100,000 of the subproject cost. Subprojects that will require project contribution above US$100,000 may be considered on exceptional basis and will require prior World Bank clearance. The approval process for the subproject proposals seeking matching grant investment support will be as follows:

(a) The Project Implementation Sub-committee (PISC) at the national level will approve subprojects above US$50,000 and up to US$100,000. The first two proposals in each category will require prior review and clearance by the World Bank;

(b) The Provincial Project Implementation Sub-committee (PPISC) will approve subprojects up to US$50,000, with the first two proposals in each category to be cleared by the World Bank.

49. The PISC and PPISC will include NGO and private sector representatives to ensure full transparency in the selection process. Subproject proposals from farmers' organizations will be evaluated by a special project committee against competitive selection criteria, as outlined in Annex 2. A full set of criteria and procedures will be outlined in the PIM. Farmers' organizations with a poor performance record under MOSAP will not be eligible for any new investment support under the SADCP, but every effort will be made to reach a diverse and large number of qualified farmers' organizations. In other words, selection of farmers' organization for investment support will focus on both equity and efficiency criteria. Strategically, the activities planned under this component will support implementation of Objective 2 of ADP 2013–2017 by promoting value chains, agribusiness, development of irrigation, and construction of infrastructure to support agricultural production.

50. This component will be divided into two subcomponents: Subcomponent 2.1 will provide technical support whereas Subcomponent 2.2 will provide investment support to qualified farmers' organizations and enterprises.

Subcomponent 2.1. Provision of Technical Support - US$7 million (from IBRD)

51. The activities to be implemented under this subcomponent, aim to provide support in preparing proposals for subprojects and in implementing selected subprojects under the investment support subcomponent.

52. The implementation modalities for providing technical support include contracting an experienced and competent service provider to: (a) support farmers' organizations to prepare subproject proposals for competitive funding under Subcomponent 2.2; (b) provide specialized technical assistance to smallholder beneficiaries of irrigation schemes to create WUAs; (c) provide implementation support to smallholder beneficiaries of subprojects to ensure that the

objectives of each subproject funded under the project are achieved; and (d) strengthen the capacity of NGOs and agricultural input providers to respond to the smallholder demands.

53. To increase the local level capacity and sustainability of the project interventions over time, the service provider will also strengthen the capacity of NGOs and agricultural input providers to be able to respond promptly to the smallholder needs. Selected NGOs' capacity will be strengthened to help disseminate knowledge and identify appropriate farmers' organizations to prepare subproject proposals for seeking competitive funding under Subcomponent 2.2; private agricultural input suppliers will be strengthened in developing systems to supply critical agricultural inputs and services to smallholder farmers; and private enterprises' capacity will be strengthened in agricultural marketing, post-harvest management, specific value chains, and processing as well as in strengthening market linkages so that smallholders can easily access markets to sell their produce.

54. In coordination with the PIU, PPIUs, and ADI, the service provider will organize at least three seminars per province per year for the following target audiences: NGOs, private sector input suppliers, and private sector value chain actors. These seminars will raise awareness; provide training for NGOs interested in helping farmers' organizations prepare investment proposals; and strengthen small, medium, and micro agribusiness enterprises' managerial and business capacities related to agricultural input supply, provision of agricultural services, and value chain activities, including storage, transport, packaging, processing, and value chains for different food and vegetable crops.

55. The provision of technical support by the service provider is divided into three broad categories: (a) irrigation subprojects; (b) production subprojects; and (c) post-harvest management subprojects. All provision of technical support will be in coordination with the provincial and local ADI offices.

2.1.1. Technical Support to Irrigation Subprojects

56. Rehabilitation of SSI schemes will be at pilot scale and will only cover 1,000 ha of the potential 5,500 ha identified for development of gravity-fed irrigation schemes in the country. The design of irrigation schemes and construction supervision will be done under Subcomponent 2.1 whereas actual construction and its funding will be done under Subcomponent 2.2.

57. Initial data indicate that about 279 irrigation schemes, covering about 5,500 ha in the three beneficiary provinces, require rehabilitation, but the level of rehabilitation required varies. Given capacity constraints and the costs of rehabilitation, the project will only support rehabilitation of about 1,000 ha of SSI systems as a pilot program, benefiting about 2,000 farmers (with an average of 0.5 ha each). Assuming an average of 32 ha per irrigation scheme, the project will cover approximately 32 irrigation schemes. The investment in irrigation schemes will adopt an integrated participatory planning and development process (details of this process as well as the eligibility criteria are given in Annex 2). The project will support the establishment of WUAs for all beneficiaries of irrigation schemes to ensure the investment's sustainability and to avoid possible future conflicts.

2.1.2. Technical Support to Production and Post-harvest Management Subprojects

58. The objective of this subcomponent is to increase crop production and marketing by smallholder farmers, thereby accelerating the transition from subsistence agriculture to commercial agriculture. The service provider will have the responsibility to: (a) identify the demand-driven but potentially critical subprojects for increasing crop productivity and production as well as post-harvest value addition and marketing; (b) support preparation of subproject proposals that meet the eligibility criteria for investment support and have a good chance for competitive selection for support under Component 2; and (c) supervise the implementation of subproject proposals selected for funding under Component 2. In addition, the service provider will train selected MINAGRI staff in project implementation, thus strengthening Angola's agricultural institutional capacity. It is extremely important that this subcomponent supports subprojects that are viable, sustainable, and likely to make a major contribution to increased productivity, production, and marketing, including value addition.

Subcomponent 2.2. Investment Support - US$35 million (US$30 million from IBRD and US$5 million equivalent by beneficiaries)

59. This subcomponent aims at carrying out subprojects in participating provinces, and providing matching grants to beneficiaries for carrying out the subprojects, in the following areas: (a) rehabilitation and construction of SSI and drainage schemes; (b) agricultural production and productivity improvements; and (c) post-harvest management and value addition.

60. The investment support will be provided for those competitively selected innovative subprojects that deal with irrigation, production, or value chains individually or in a fully justified package of investments in a combination of irrigation, production, and value chains. Further details, eligibility criteria, and eligible expenditures in each category are provided in Annex 2. While the menu of investment options will be flexible, the eligibility criteria will be strictly followed. Recipients of matching grants will be required to contribute at least 10 percent of the subproject's cost in kind and/or cash.

2.2.1. Investments in Irrigation Systems and Support Infrastructure

61. The objective of this pilot activity is to finance the irrigation infrastructure required to increase the productivity and profitability of smallholder irrigated agriculture while considering the environmental and social safeguards associated with the civil works. On the basis of participatory designs and the eligibility criteria, the SADCP will finance the costs of the schemes' rehabilitation/construction. Irrigation infrastructure development will be based on clearly articulated investment proposals and commitment from beneficiaries in scheme development and O&M. No infrastructure investments will be made before the local authorities confirm the beneficiaries' land user rights and water rights. Regarding land and water user rights, the site- or scheme-specific environment and social assessment supported by an Environmental and Social Management Plan (ESMP) (to be prepared after the site/design details are known) should consider the ability of downstream users to use water, as well as, any environmental/ecology flow required to maintain the integrity of the ecosystem, as an important element. Therefore, it is essential that an environment assessment be taken for all rehabilitation schemes that would quantify the negative and positive impacts due to construction and operation and provide recommendation to sustain ecological flow to other users.

62. In general, the rehabilitation and construction works will consist of (a) upgrading of the area around the intake and the main canal; (b) construction of water collecting structures and/or rehabilitation of damaged embankments; (c) installation of control structures like water gates; (d) upgrading of the main canals and, where necessary, lining critical stretches of the distribution system; and (e) use of local plants/grass to control canal erosion. In places where the installation of buried pipes is feasible, hand-dug earthen canals may be substituted by pipes, if water losses warrant this. Considering the higher unit cost of installing gravity-buried pipe systems, the costs and benefits of this option will be evaluated and discussed with the community before installation of any such system.

63. The SADCP will endorse a mix of construction methods, including both plant-based and labor-intensive construction methods that are designed to: (a) build local capacity in irrigation construction and maintenance; (b) create local entrepreneurship for sustainable delivery of irrigation services; and (c) deliver planned irrigation construction investments on time, of high quality, and at potentially significantly lower cost than contractor and equipment-based constructions experienced in past irrigation projects in Angola. The choice of construction method will be made on a case-by-case basis at the feasibility stage, as this will determine subsequent stages of design/supervision and tendering. After field visits to some of the irrigated areas, the cost for small-scale gravity-fed irrigation scheme rehabilitation or development was estimated to be between US$1,000–US$2,000 per ha.

2.2.2. Investments in Agricultural Production

64. The main objective of this subcomponent is to support a sustainable increase in smallholder agricultural productivity and production. To achieve this objective, the subcomponent will provide matching grants to smallholder farmers' groups and organizations for investments in farm assets. Specific activities likely to be considered for investment support are demand-based agricultural technology packages and improved inputs designed to increase agricultural productivity and production (see the menu of investment options in Annex 2). The main focus will be on crops identified as a priority for the project areas (that is, maize, beans, cassava, Irish potatoes, and vegetable crops).

65. To access matching grants for investment subprojects, eligible farmers' organizations will need to submit subproject proposals. Subcomponent 2.1 will assist eligible participants in the preparation of detailed subproject proposals that will allow an informed decision about their feasibility from technical, economic, financial, social, and environmental perspectives. Subproject proposals can be submitted for any investment that will contribute to increasing crop production and productivity.

66. Proposals will be identified, appraised, and approved based on the criteria summarized in Annex 4. A full set of criteria and procedures will also be defined in the PIM. Proposals will be evaluated and selected by an independent technical committee based on the defined criteria. Although the disbursement mechanisms and advances may vary, taking into consideration the type of grant, the eligible expenditures are for goods, works, and services.

2.2.3. Investments in Post-harvest Management and Value Addition

67. The main objective of this activity is to promote investments aimed at increasing value addition, reducing post-harvest losses, and strengthening market linkages for key priority food and vegetable crops in the project area.

68. The ultimate goal is to improve the performance and efficiency of the targeted value chains. This activity will support investments related to market linkages and commercialization of key crops and horticulture (see the menu of investment options in Annex 2). Any subproject requesting financing under this subcomponent will prepare a project proposal and a business plan that will go through a complete appraisal process to determine its economic feasibility and sustainability as well as its environmental and social impacts.

69. Financial support for farmers' organizations and rural enterprises' value addition activities is crucial for the sustainability of public investment in SSI development as well as for investments in agricultural production. Eligible beneficiaries of value chain investment support will therefore include smallholder farmers' organizations that have proven capacities for market-oriented production and/or value chain activities. A key distinguishing feature of this activity will be more complex subprojects that may require multiple stages of support or greater focus on business development services.

Component 3. Project Management, Monitoring, and Evaluation - US$10 million from IBRD

70. The third project component will finance management, coordination, and monitoring and evaluation (M&E) of the project. It consists of two subcomponents.

Subcomponent 3.1. Project Management

71. The purpose of this subcomponent is to: strengthen the capacity of the PIU for project management, coordination, M&E, including fiduciary (that is, financial and procurement management), environmental, and social safeguard compliance, audits, and reporting support; and strengthen the capacity of the PPIUs to assist in project management, coordination, M&E at the provincial level, including fiduciary (that is, financial and procurement management), environmental, and social safeguard compliance, and reporting.

72. Overall this subcomponent is designed to ensure that the project is implemented correctly, on time, and in accordance with the Loan Agreement. This will be the responsibility of a project coordinator (PC) and a team of experts located at the national and provincial levels. Financing will be provided to support project coordination activities, including planning and budgeting, management and administration, procurement, financial management (FM), M&E, safeguards compliance, audits, and national and provincial engagement. Government counterpart resources will be used to pay staff-related costs that are not eligible for IBRD funding. The final arrangements for project management incorporate the lessons learned under MOSAP with regard to organization, staffing, and timing. Eligible expenditures under this component may include funding activities in connection with the preparation of the new agricultural subprojects aimed at supporting the development of commercial agriculture.

Subcomponent 3.2. Project Monitoring and Evaluation

73. This subcomponent is to support the establishment and implementation of an M&E system for the project, including establishment of a management information system (MIS) within the PIU.

74. An M&E system will be established to collect and process appropriate information to monitor project performance and measure the output, effects, and eventually the impacts of project activities over time. Baseline information will also be collected at the beginning of project implementation.

B. Project Financing

75. The total project cost will be US$95 million, of which US$20 million equivalent will be in-kind or cash contribution by the Government of Angola and US$5 million equivalent will be in-kind or cash contribution by beneficiaries. A US$70 million IBRD loan will constitute the remainder of the total project cost.

Project Cost and Financing

Project Components	Project Cost (US$, millions)	IBRD Financing	% Financing
1.Capacity Building and Institutional Development	43	23	53
2.Support for Increased Production and Commercialization	42	37	88
3.Project Management, Monitoring, and Evaluation	10	10	100
Total Project Costs	**95**	**70**	**74**
Front-End Fees	—	—	—
Total Financing Required	**95**	**70**	**74**

C. Lessons Learned and Reflected in the Proposed Project

76. **MOSAP was the first agricultural development project supported by the World Bank in Angola.** An independent evaluation of MOSAP was carried out in early 2015.[5] The following key lessons from MOSAP implementation are reflected in the SADCP design and implementation.

77. **The FFS approach to agricultural extension was very effective in enhancing smallholder farmers' capacity to generate and use new knowledge and adopt improved agricultural practices and technology.** FFS training was effective in equipping about 22,000 subsistence farmers with the skills and experience needed to engage in commercial agriculture, as witnessed by the high success rate of the investment subprojects that a subset of the trained farmers were engaged in under MOSAP. The proposed project will train a much larger number of farmers (150,000) and take on new themes such as irrigation and horticulture. To ensure the success of this scaled up, thematically enhanced FFS training, it will be essential to improve the

[5] *Projecto de Agricultura Familiar Orientada para o Mercado (MOSAP): Lições Aprendidas, Conclusões e Recomendações para Futuras Intervenções, elaborado pelo Consultor Eng. Raimundo José de Carvalho Melo, com a colaboração do Eng. Chipilica Barbosa, Instituto de Desenvolvimento Agrario, Abril 2015.*

quality and frequency of supervision of government technicians and to emphasize training of and reliance on farmer facilitators.

78. **A capable and internationally experienced service provider will be required to help farmers' organizations develop and implement investment proposals, especially for value chain investments.** The use of small, local service providers to assist farmers' associations in the preparation and implementation of MOSAP subprojects was problematic because of their limited technical and organizational capacity. Improving the quality of technical and commercial assistance and making it available to a much larger number of beneficiaries will require recruitment of a highly capable and internationally experienced service provider who will also train the local NGOs and private sector subcontractors with whom they will work.

79. **Financing demand-driven subproject investment proposals promotes their sustainability.** The modalities for preparing and implementing demand-driven subprojects under MOSAP were generally successful, with over 70 percent of subprojects judged sustainable by the above-mentioned independent evaluation. The key elements of success were (a) creation of ownership through community participation in all stages of subproject preparation and implementation, as well as direct community contributions (cash or in kind); (b) farmers' organizations' commitment to engage in O&M before disbursement of project contribution; (c) training of farmers' organizations and assistance with establishment of user rules and cost-sharing agreements; and (d) awareness raising and encouragement for farmers' organizations to identify and contract the technical assistance they need.

80. Building government capacity accelerates project implementation and increases country ownership of results. MOSAP implementation was slow, especially at the beginning of the project. To accelerate SADCP implementation and ensure sustainability of project results, targeted government capacity building will be essential, especially in the following areas: (a) improving the competence and motivation of government staff involved in supervision of extension agents; (b) improving the accuracy and timeliness of government agricultural statistics to allow for more informed decision making; and (c) enabling senior government staff to address structural constraints through informing and promoting agriculture sector policy dialogue.

81. **While MOSAP was successful in reaching women, more needs to be done to ensure that women play an equal role in farmers' organizations and influence project investment decisions.** Women had only limited influence on the choice of subprojects, an issue that will need extra attention under the proposed project. Women's participation in farmers' organizations was lower than that of men and women usually had a secondary role, with only a few occupying leadership positions. More women could be encouraged to get training as FFS facilitators and become community leaders, for example by arranging training sessions to favor women's participation. The inclusion of literacy and numeracy skills in the FFS curriculum under the SADCP will also help women farmers benefit from the training provided, to play a more important role in farmers' organizations' decision making, and to develop marketable production.

82. **Procurement, FM, and M&E teams need to be involved in the early stages of project design.** During MOSAP implementation, the project had difficulty finding local qualified professionals to effectively undertake the fiduciary and M&E functions. The lack of qualified

procurement staff was in part responsible for the delayed start of project implementation. While hiring was possible within a reasonable period, the selected consultants were not familiar with World Bank procedures. The SADCP will try to keep the MOSAP fiduciary team and at an early stage will hire an international experienced consultant to support procurement and provide training for locally recruited staff.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

83. Detailed project implementation arrangements at the national, provincial, and municipal levels are outlined in Annex 3 and the Implementation Support Plan (ISP) is outlined in Annex 4. The existing MOSAP PIU, staff, and implementation arrangements will remain in place to coordinate SADCP implementation.

84. At the national level, the project will be implemented by MINAGRI, with appropriate support from national and international consultants, technical assistance from FAO for Subcomponent 1.1, and a service provider with international experience who will be responsible for supporting Component 2.

85. MINAGRI will be responsible for overall project implementation, in consultation with the other relevant ministries at the national level, to ensure that project activities are consistent with national policies. A Project Coordination Committee (PCC), chaired by the minister (or, by delegation, the secretary of state) of agriculture will oversee overall project implementation, including approval of the annual work plan and annual report. The Director General of ADI (within MINAGRI) will be the executive-level manager of the project. A PIU headed by the PC will be established within ADI and charged with (national-level) day-to-day project management. A small executive PISC of the PCC will be established to accelerate project implementation and decision making.

86. At the provincial level, ADI will be responsible for project implementation, in coordination with the DPA and in consultation with other relevant provincial government agencies as well as provincial-level representatives of the other ministries involved. A Provincial Project Coordination Committee (PPCC), chaired by the vice governor responsible for economic development, will oversee project implementation, including monitoring project progress at the provincial level and making decisions in line with the objectives and institutional arrangements consistent with project documents and legal agreements. The provincial director of ADI will be responsible for project implementation. Headed by a provincial PC, a PPIU will be established within the provincial ADI and charged with day-to-day management of the project. A small executive PPISC of the PPCC will be established to accelerate decisions and procedures.

87. At the municipal level, ADI's agricultural development offices (EDAs) will be responsible for project implementation, in coordination and consultation with the municipal administration. The EDAs will obtain the consent of the municipal administration before forwarding subproject proposals to the provincial level. The project will assist in capacity building of EDAs, provide technical assistance to EDAs, and engage service providers to assist EDAs in their work related to project implementation.

88. Although the project will largely rely on FAO, which will provide technical assistance to Subcomponent 1.1, and on an experienced service provider for Component 2, overall implementation will be the responsibility of ADI, which will set up a PIU for daily project management. FAO and the service provider will report to ADI through the PIU. With regard to key staff, both FAO and the service provider will only hire international senior staff with qualifications and experience that are not available in country. These staff will also support the on-the-job training for ADI staff at all levels.

89. The project will be under the general oversight of the PCC, chaired by the minister of MINAGRI. The PCC will include representatives from the Ministries of Finance, Planning, Trade, Social Affairs, and other relevant government entities. The PCC will be responsible for approving the annual work program and budget, providing necessary policy guidance to the PIU, addressing any emerging problems likely to affect project implementation, and providing oversight during project implementation.

90. Coordination and technical implementation of the project will be the responsibility of the PIU, reporting to ADI, specifically the director general of ADI. The PIU will include a PC, agricultural specialist, communication specialist, safeguards expert, M&E specialist, senior procurement specialist, FM specialist, accountant, and other relevant positions to support project implementation.

91. Each beneficiary province will have a PPIU. PPIUs will have a maximum of five staff, including a provincial coordinator, and will collaborate with local EDAs to facilitate project implementation at the provincial level. The project will finance the salaries of externally hired staff and limited technical assistance and training, office equipment and vehicles, and operational costs. The project will also finance the costs of periodic financial audits.

92. FAO will provide technical assistance for Subcomponent 1.1. FAO will be hired by MINAGRI on a single-source selection (SSS) basis because of its unique expertise in the field and will report to the Government through the PIU which is the implementing agency.

93. Component 2 will be implemented by a service provider hired on a competitive basis, based on terms of reference (TOR) agreed with the World Bank. Component 2 will provide demand-based support in the form of matching grants to smallholder farmers' groups and organizations for SSI, production, processing, and marketing subprojects. The subproject implementation arrangements include the following steps and elements:

(a) Identification, which originates at the beneficiary level through a facilitated participatory development planning exercise, resulting in an identified subproject proposal. The service provider will work with local NGOs to support the formation and capacity building of smallholder farmers' groups and associations to identify and prepare subprojects using participatory planning exercises. The subproject proposals, after approval by local smallholder committees, are submitted to EDAs.

(b) Appraisal, where service providers in partnership with NGOs will prepare the respective subproject documentation for submission to EDAs or provincial

agricultural offices. All subprojects are screened for technical, financial, economic, social, and environmental feasibility.

(c) Evaluation, whereby all subproject proposals are evaluated by the PIU. This includes verification of all eligibility and feasibility criteria.

(d) Approval, based on criteria described in Annex 2.

(e) Implementation, under which service providers, provincial agricultural offices, the PIU, and PPIUs will be responsible for overall coordination of implementation of approved subprojects. The project FM and procurement specialists will support this process. Whenever possible and justifiable, procurement will be done by beneficiaries or with their full involvement through local smallholder committees, with the project processing payments on their behalf.

B. Results Monitoring and Evaluation

94. The results framework and the arrangements for monitoring results are reported in Annex 1. The project will make use of existing data sources, supplemented by regular routine data collection, and special survey and assessment updates will be carried out by contracted specialists. Both quantitative and participatory M&E methods will be used to assess the social and gender inclusion of project participants.

95. The project will recruit an M&E officer at the PIU who will establish a simple, project-specific MIS. This project MIS will include an activity-specific database aligned with the annual activity plans and the M&E Plan for all outcome and intermediate performance indicators. The M&E officer will be responsible for updating the MIS on a regular basis and producing quarterly progress reports.

96. Two evaluations of project outputs and impact will be commissioned, at midterm and at completion. No later than three months after the credit closing date, MINAGRI will provide the World Bank an Implementation Completion and Results Report (ICR). The ICR will include: original or revised project targets and actual achievements; project impact assessments focusing on results; and project management performance by the Government and the World Bank. An M&E section will be established within the PIU and the MIS, and procedures for data collection and reporting will be prepared to the World Bank's satisfaction. The project will finance M&E costs, including the impact evaluations (midterm and completion) as well as the ICR.

C. Sustainability

97. Sustainability can be viewed as having four pillars: government, farmer, project intervention, and enabling environment. The SADCP strengthens and responds to all of these pillars in a way that promotes sustainability. Specifically, the project's sustainability will be achieved in the following manner:

(a) By specifically targeting smallholders, the project will not only contribute to poverty reduction and improved food security, but will also contribute to diversifying the economy and improving social stability in rural areas. These are considered by

fostering stakeholders' ownership and commitment to successful project outcomes that are essential for sustainability.

(b) The project interventions are expected to increase crop productivity, production, and profitability through the adoption and use of improved agricultural practices and technology. This is critical for the sustainability of the project over time.

(c) Priority will be given to capacity and institutional strengthening of farmers' organizations, local service providers such as input suppliers, NGOs, and local government institutions. Project investments are demand-driven and project beneficiaries' capacity will be strengthened to manage them. Because most project activities will be demand-driven and owned and managed by project beneficiaries, the prospects are good that they will be sustained long after project completion.

(d) The project will stimulate private service providers to take over roles and functions that should normally be within the private sector domain but are currently provided by government institutions and/or NGOs. Thus the project will reduce the implementation burden on weak public institutions and foster long-term fiscal sustainability.

(e) Finally, by anchoring project implementation within ADI, giving it full responsibility for project management, and linking the project to ADI's rural extension and development program, the project will have a catalytic effect on public sector reform and transparency of governance in the agriculture sector. The project is therefore designed to build capacity and experience within ADI to implement the proposed project and future public sector programs that are necessary for the sustainability of public sector investments in agriculture. Furthermore, the Government of Angola's commitment to and ownership of this project is very strong.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

98. The Systematic Operations Risk-Rating Tool for the proposed project outlines the critical operational risks the project will likely face and the mitigation measures that will reduce their likelihood.

99. The political, governance, and macroeconomic risks are Substantial. With regard to political and governance risks, project implementation may slow down during preparation for the 2017 general elections and thereafter, as a new government will take over project implementation. To mitigate the political and governance risks, MINAGRI has prepared a 24 months implementation plan at appraisal with well-defined activities and targets. For implementation the project will use, to the extent possible, the mechanisms established during the implementation of MOSAP including the financial management and procurement frameworks that have been tested under it. The macroeconomic risk is linked to the depreciation of the kwanza and the rationing of foreign currency, which may drive prices high above the

appraisal estimates. All of these aspects will be revaluated and adjusted accordingly during the midterm review (MTR) scheduled to take place not later than 24 months after effectiveness.

100. Because the institutional and fiduciary capacities are weak, the potential main risks that the SADCP will likely experience are weak procurement and FM; low capacity in MINAGRI's irrigation, agricultural research, and agricultural extension departments; and possible implementation delays. Provisions have been made in the project to augment existing weak technical capacity in the public sector by recruiting on a need-basis local and international consultants to train and support local technicians. The project will hire experienced procurement and financial management specialists under the PIU and FAO will provide technical assistance for the capacity building component and in addition, an experienced service provider will be hired to support the implementation of Component 2 to support the preparation of investment subprojects. This team of individual consultants, FAO and private service provider will work with the MINAGRI staff on a daily basis. Because capacity building is a long-term process, the proposed project will also strengthen institutional capacity of NGOs (for farmers' organizations and preparation of subproject proposals for investment support) who will work closely with farmers and the respective government institutions.

101. Risks related to sector strategy and policies and technical design for the project are all assessed as Moderate given the sound basis for formulation of the project, the government's strong ownership, and its complete alignment with the respective sector and country strategies.

102. The environmental and stakeholder risks are rated Low based on MOSAP's experience. The MOSAP was able to provide social and environmental screening to all subprojects with support from consultants and the World Bank team. For SADCP implementation, four focal points for environment and social issues will be hired. No issue is anticipated with stakeholders.

103. The overall risk is assessed as Substantial due to weak institutional capacity for implementation and fiduciary matters. The key risk categories are summarized in Table 1.

Table 1. Systematic Operations Risk-Rating Tool

Risk Category	Rating
Political and Governance	Substantial
Macroeconomic	Substantial
Sector Strategies and Policies	Moderate
Technical Design of Project or Program	Moderate
Institutional Capacity for Implementation and Sustainability	Substantial
Fiduciary	Substantial
Environment and Social	Low
Stakeholders	Low
Other	
OVERALL	Substantial

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

Rationale for Public Intervention

104. Most of Angola's critical public investments and institutions were destroyed or de-capitalized during the civil war. This project will support the rebuilding, rehabilitation, and development of public goods, including agricultural value chain infrastructure, institutions, and production capacity. The benefits generated by this support will be reinvested in part in the creation of new infrastructure and production capacity, thus serving as a catalyst for the development of additional private assets even after the project has ended.

105. The rationale for public sector financing lies in the following reasons: (a) Most of Angola's rural population relies on agriculture as the main source of livelihood (food, income, and employment); (b) Without public sector support, the private sector will not invest in improving the technical and managerial capacity of smallholder farmers and their organizations; (c) The proposed project will build on the work started under MOSAP and further expand those activities in critical areas; and (d) The Strategy for Poverty Reduction (*Estrategia de Combate da Pobreza*) highlights agriculture and rural development as one of the priority areas, and increased importance will be given to enhancing food security and the revitalization of the rural economy. The objectives for the agriculture sector, as stated in the strategy, are to: (a) increase production and productivity, particularly of food crops; (b) promote agro-industry; (c) promote sustainable development of natural resources; and (d) create employment and income for rural communities.

World Bank's Value Added

106. The project is well aligned with the priority themes of the Angolan NDP and the overall goals/strategic themes of the Agriculture Global Practice in Sub-Saharan Africa, which seeks to provide financing and advice to address critical constraints to agriculture sector growth, and will contribute to key areas of growth. This notably covers: enhanced access to markets for smallholders, linking them to large food buyers/processors and to financial institutions; capacity building and infrastructure to reduce post-harvest losses; access to improved technologies and technology transfer; promotion of CSA; and due consideration of nutrition-sensitive agriculture. Ultimately, the project will contribute to the World Bank's ambitious twin goals of ending extreme poverty and promoting shared prosperity.

107. Beyond financing, the added value arises mainly from the World Bank's technical input based on international experience for similar smallholder and value chain development projects (and that of FAO, which participated in the preparation under the FAO/World Bank Cooperative Programme); introduction of innovative financing mechanisms with enhanced linkages of smallholders with financial institutions; support for capacity development of farmers' organizations and other value chain actors during implementation through training-of-trainers methodologies (notably for the ex-ante preparation and financial analysis of subprojects/business plans); and knowledge sharing and communication. By providing this important support, the World Bank will complement—and aim to correct deficiencies of—national sources of expertise and business advisory support services to farmers, resulting in increasing the project's development impact in ways that go beyond what could be realized by exclusive reliance on the Government's own institutions or existing national consulting firms.

108. In addition, as an important development partner in promoting economic and agricultural development in Angola, the World Bank's involvement will help formulate a harmonized framework among development partners for supporting smallholder agriculture. Because of its

convening power, the World Bank can maintain a dialogue and work with other development agencies that are active in smallholder agriculture in Angola. For example, the International Fund for Agricultural Development co-financed MOSAP and worked within the same framework to reduce duplication and improve the impact of the development assistance provided.

Development impact of the project

109. A financial and economic analysis was conducted to determine the relationship between the costs and expected benefits, first from the viewpoint of project participants (financial analysis) and then from the standpoint of the national economy as a whole (economic analysis). The detailed results are reported in Annex 5.

110. The methodology used was a cost-benefit analysis, based on a monetary valuation of the project's costs and benefits. The analysis focused on the target crops. On the basis of extensive discussions with smallholders in the project provinces and with MINAGRI and FAO staff, typical crop and farm models were developed to assess whether the proposed technologies under the 'with project' situation are likely to attract interest and participation from targeted smallholders by enabling them to generate enough additional income and enhance their food security.

111. In the typical 'without project' situation, smallholders follow a traditional cropping pattern/practice, characterized by the use of locally/own-produced seeds/seedlings and inadequate placement techniques, no or little use of fertilizer, and no or little use of pesticide. The data used for yields were derived from the MOSAP baseline study undertaken in 2012 for maize, cassava, beans, and Irish potato; the results of the 2013/2014 crop year were used for soybean and vegetables.

112. In the typical 'with project' situation, smallholders increase production by improving yields, area cultivated, or both. A distinction was made between the impact of FFS support and investment support. FFS support alone will reach more smallholders 125,000 but will have relatively less impact on yield as the improved cropping techniques will not often be accompanied by increased input use. The yield increases expected are mostly around 25 percent in comparison with the 'without project' situation. Conversely, investment support combined with FFS training is expected to reach fewer smallholders around 50,000 but will have a more significant impact on yield and area cultivated as it will be used to rehabilitate and develop SSI schemes and improve access to agricultural assets and inputs (fertilizer and seed).

113. Three models were developed: (a) rain-fed crops (including Irish potato), with an average cropped area of 1.37 ha; (b) household horticulture (HHI), capturing vegetable production on small individual plots using basic technologies, with an average cropped area of 0.1 ha; and (c) SSI schemes, with an average perimeter of 25 ha.

114. The project will increase crop production an estimated 118–193 percent for vegetable crops and 31–78 percent for food crops. From the fifth year, the project will generate a yearly incremental production of 44,000 tons of maize, 118,000 tons of cassava, 12,000 tons of Irish

potato, 5,000 tons of beans, 382 tons of soybean, 18,000 tons of onion, 31,500 tons of tomato, and 5,000 tons of cabbage.

115. The economic analysis was conducted for a 20-year period. Aggregating additional net benefits derived from all types of operating models and transforming financial prices and costs in economic terms resulted in an economic internal rate of return (EIRR) of 19 percent and a net present value of US$50 million (at a 10 percent discount rate). The sensitivity analysis found these results to be resilient to an increase in costs and a reduction in benefits. The EIRR is 17 percent and 13 percent, if benefits are reduced by 10 percent and 30 percent, respectively. Even if the benefits lag by two years, the EIRR is still 14 percent.

B. Technical

116. Alternative technical approaches were considered in the SADCP's design, utilizing experience from other projects in Angola and from other countries with comparably large oil sectors. Extensive consultations were carried out with the government at the national and provincial levels, key stakeholders, and development partners to improve the technical integrity of the proposed design. The analysis dealt with the following technical aspects during the process of designing the SADCP.

117. **Commercialization and modernization of the agriculture sector.** The SADCP's design not only incorporates critical lessons about technical aspects from MOSAP but also adds new activities that are critical for promoting transformation of the agriculture sector. Positive experiences from other countries in Africa involved in modernizing the agriculture sector were also considered. These experiences have shown that a package of institutional capacity, service delivery, investment in productive assets, and market linkages can be important to achieve commercialization at the level of smallholder farmers. The project's design promotes the transition from subsistence agriculture to commercial agriculture through enhanced market linkages, post-harvest management, and food processing and value addition.

118. **Institutional capacity building.** MOSAP's experience clearly indicates that weak institutional capacity was the main hindrance in accelerating implementation. The SADCP was designed to strengthen institutional capacity at the national, provincial, and municipal levels for promoting agricultural development. Capacity building and institutional development will focus on three critical areas that have direct impact on agriculture: (a) formation and strengthening of farmers' organizations for smallholder agriculture; (b) institutional strengthening of MINAGRI's local, provincial, and national units; and (c) strengthening agricultural research capacity and mobilizing global knowledge to improve agricultural productivity. Capacity development will deal with several critical areas, including irrigation, extension, research, data and statistics, market information systems, and policy analysis as well as managerial and organizational skills.

119. **Investments in farm assets and improved technology through matching grants.** The SADCP is designed to provide agricultural investment support in areas related to agricultural productivity, production, marketing, and value addition. As far as agricultural production is concerned, the focus will be on promoting improved agricultural practices, modern agricultural

technology, and irrigation. Irrigated agriculture will facilitate the cultivation of high-value crops such as vegetables. A cost-sharing mechanism will be used to support investment subprojects. This matching grant mechanism was implemented under MOSAP and has been used as a best practice in other countries in Africa. This approach will not only promote competition but will also be demand-driven, thereby promoting local ownership and sustainability.

120. **Responsiveness to climate change.** The SADCP deals with smallholder agricultural development and promotes CSA and climate adaptation through use of improved technologies and conservation agriculture. Angola tends to experience seasonal rain variability and sometimes even long periods of drought that adversely affect agricultural production. The proposed project will promote appropriate adaptation practices, including irrigated agriculture, to mitigate such production losses.

C. Financial Management

121. The FM arrangements of the proposed project will be the same as MOSAP. In line with the FM policies of OP/BP 10.00 on Investment Project Financing, these FM arrangements were assessed to determine their acceptability by the World Bank.

122. The objective of the assessment was to determine whether (a) the PIU has adequate FM arrangements to ensure that project funds are used for their intended purposes in an efficient and economical way; (b) financial reports will be prepared accurately, reliably, and on time; and (c) project assets will be safeguarded.

123. The assessment concluded that the PIU's FM system is adequate and the existing arrangements comply with the World Bank's FM requirements under OP/BP 10.00 as (a) qualified staff well conversant with World Bank procedures are in place (one FM specialist and two accountants at the PIU); (b) an acceptable Financial Procedures Manual is in use; (c) an appropriate accounting system combined with an acceptable internal control system are in place; and (d) the PIU's handling of MOSAP is satisfactory.

124. Considering the likely risk of excessive work load, the overall FM risk is assessed as Substantial. To strengthen the FM system, the assessment proposed the following mitigation measures: (a) amendment of the existing Financial Procedures Manual to integrate SADCP specificities; (b) upgrade of the current MIS to integrate the proposed project; (c) recruitment of three additional accountants at provincial level (Bié, Malanje, and Huambo); and (d) recruitment of an external financial auditor. The detailed FM arrangements are described in Annex 3.

125. **FM conditions and covenants.** (a) amendment of the existing Financial Procedures Manual to include details of the new project, as part of updating the PIM; (b) upgrade of the existing accounting software to handle the new project no later than three months after effectiveness; and (c) recruitment of three additional accountants at provincial level (Bié, Malanje, and Huambo), as indicated in the FM mitigations risks above, three months after effectiveness.

D. Procurement

126. Procurement for the SADCP will be carried out in accordance with the World Bank's 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014; 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014; and the provisions stipulated in the Legal Agreement. Further, the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, and revised in January 2011, will apply.

127. Implementation of the SADCP will be through a dedicated PIU established within MINAGRI. This unit will be the same one that exists for the MOSAP operation and should maintain the same structures. This will be extended to the three project provinces. The procurement function reports to the PC at central level and to the provincial PCs at provincial level.

128. The PIU's procurement capacity was assessed on June 2, 2015. The procurement capacity at the provincial level was discussed with the three provincial PCs. The PIU's procurement function has a procurement specialist and a procurement assistant. The experience and capacity of these officers were assessed and found to be reasonable. However, they will require close hands-on support from the World Bank team based in the Maputo office.

129. The procurement officers possess adequate experience with the preparation and regular update of procurement plans but the system for monitoring procurement activities needs to be strengthened. The recordkeeping and filing system was reviewed during the post-procurement review and found to be acceptable, but room for improvement remains.

130. The procurement capacity mentioned above will remain in place for implementation of the proposed project. Given the SADCP's increased coverage with regard to number of activities, its decentralized approach, and the extension of its geographic coverage from 12 to 26 municipalities and from 25 to 80 communes, its implementation will require additional capacity. The procurement risk associated with carrying out the proposed project is thus rated Substantial.

131. To strengthen the capacity of smallholder farmers and farmers' organizations in the three project provinces, the existing FFS initiative will be used to ensure a harmonized approach for training. Given FAO's unique expertise in this field, it will be hired on an SSS basis for a period of at least 30 months, which is the cycle time of FFS. Depending on the FFS status at midterm, either the FAO contract will be extended or a local consultant of equivalent quality will be contracted.

132. The risk mitigation measures for the project include enhancement of the SADCP's procurement capacity by: (a) hiring one additional experienced senior procurement specialist at the PIU, whose main duty will be to hire a service provider and provide support to the procurement team; (b) hiring and training two procurement assistants for Bié and Huambo; and (c) revising the procurement manual. Considering the above mitigating measures, the residual procurement risk for the project is considered Moderate. Further details of the project's procurement arrangements are available in Annex 3.

E. Social

133. The social safeguards risks and impacts of the project are expected to be minimal, rather site specific, and easily manageable. The project was rated Category B with four main operational safeguards policies triggered, of which one is social (that is, OP/BP 4.12 - Involuntary Resettlement). The Government prepared a Resettlement Policy Framework (RPF), because the exact location of the project activities will be known only during implementation. The RPF sets forth the basic principles and prerogatives to be followed during implementation to prepare a site-specific Resettlement Action Plan (RAP) to comply with OP/BP 4.12 core requirements to avoid or minimize involuntary resettlement and related disruption and to assist the affected persons in their efforts to improve their standards of living or at least to restore them.

134. The RPF includes a screening form to be applied to all subproject activities to shed light on issues related to land acquisition, community institutions and social networks that are weakened, kin groups that are dispersed, cultural identity, traditional authority, loss of potential for mutual help and access to assets and/or income sources or means of livelihood, and whether or not the affected persons must move to another location. Likewise, the RPF includes arrangements for stakeholder consultation and participation, institutional arrangements, eligibility criteria for defining various categories of displaced persons, methods of valuating affected assets, a description of the Grievance Redress Mechanism, and an M&E mechanism, as well as a description of the arrangements for funding resettlement, including the preparation and review of cost estimates, the flow of funds, and contingency arrangements in a budget section to guide project implementation. It also makes provisions for women, youth, and other vulnerable groups, inclusive of host communities wherever applicable, so as to ensure such groups' concerns are fully captured in the project processing. The RPF was prepared, reviewed, amply consulted upon, and publicly disclosed in-country with World Bank approval on December 16, 2015, and at the InfoShop on December 21, 2015.

135. Women have traditionally played a major role in agriculture in Angola. About 33 percent of all rural households are headed by women. MOSAP reached out to female beneficiaries extremely well. The majority of participants in the FFSs and 20–30 percent of the facilitators were women. Women benefitted a great deal from project investments, particularly in maize and cassava mills. The SADCP will also promote the role of women farmers in agriculture through training and appropriate project investments and will invest in youth farmers. Numerous and diverse incentives, such as access to land, agricultural inputs, and markets will be explored under this project. Furthermore, various other opportunities are already built in to encourage youth participation in the agriculture sector, including youth-focused R&D. Overall, the project is likely to increase farm income and thus reduce the poverty level of beneficiary smallholder farmers.

F. Environment

136. Project activities are expected to have minimal and localized environmental impacts. Because project activities will finance rehabilitation of SSI and construction of extension workers' houses, including the possibility for increased use of pesticides by farmers. The project may include the use of pesticides on a small scale to treat crops against pest and disease infestations to enhance agriculture productivity of project beneficiaries. The project was rated

Category B. The three environmental safeguards policies triggered under this project are: Environmental Assessment (OP/BP 4.01); Pest Management Plan (OP 4.09); and Safety of Dams (OP/BP 4.37).

137. **Environmental Assessment (OP/BP 4.01).** The environmental safeguard policy OP/BP 4.01 is triggered to set forth the basic principles and prerogatives to be followed to comply with the safeguard requirements, as the project will finance rehabilitation of SSI and construction of extension workers' houses. The borrower has prepared an Environmental and Social Management Framework (ESMF) that will guide preparation of Environmental and Social Impact Assessments (ESIAs) and ESMPs. The ESMF has been publicly disclosed in Angola on December 11, 2015, and in the World Bank's InfoShop on December 16, 2015.

138. **Pest Management Plan (OP 4.09).** Safeguard policy OP 4.09 Pest Management is triggered, as most project activities aim at increase agriculture production and productivity and may include and or induce the use of pesticides. MINAGRI has prepared an Integrated Pest Management Framework (IPMF) with guidelines for the use of agro-chemicals. The IMPF has been disclosed in Country on December 11, 2015 and at the InfoShop on December 16, 2015.

139. **Safety of Dams (OP/BP 4.37).** This policy applies to new and existing dams, including small dams, which require generic dam safety measures designed by qualified engineers. The project will not fund any large dams, as defined in OP 4.37. However as part of the rehabilitation of small-scale gravity irrigation schemes it may fund simple diversion weirs and other small-scale water control structures. For this reason, OP 4.37 is triggered as a precautionary measure.

140. As indicated above, to ensure compliance with World Bank safeguards policies, the Government updated, consulted, and disclosed in-country an ESMF, IPMF, and a RPF for the SADCP. All safeguard instruments were also reviewed by the World Bank safeguards specialists and cleared by the regional safeguards advisor and disclosed on the World Bank's InfoShop before appraisal.

141. Because the precise location of the proposed project activities will not be known before project implementation, the updated ESMF provides detailed guidance for preparation of an ESIA, a RAP, and ESMPs as and when needed. The ESMF includes a model ESMP and an environmental and social screening form for subprojects to be evaluated and determined as well as a set of environmental and social clauses for project implementers that can be adjusted to the specifics of subproject activities.

142. Under Component 2, the SADCP will support activities for increased production and commercialization that are likely to promote the use of pesticides (although expected at a small scale). Hence, an IPMF was duly updated to include provisions to monitor and mitigate the possible negative impacts of any increase in the use of agrochemicals, particularly chemical pesticides, by promoting ecological and biological control of pest management. The IPMF will also be vital in supporting the establishment of national data banks and a monitoring system for pesticide poisoning in Angola.

143. MINAGRI has accumulated considerable experience in implementing World Bank-funded projects. Nonetheless, its institutional capacity to implement environmental and social

safeguards requirements as well as national environmental regulations is still weak, especially at the local level. Substantial training and capacity building will be required. MOSAP did not have a social and environmental safeguards focal point (SESFP), but training was provided for all M&E specialists and provincial PCs. Further steps are already being considered to strengthen the Government's capacity for SADCP implementation, particularly through the hiring of four SESFPs, one at the national level with an overall safeguards coordination role and one for each of the three project provinces. These SESFPs will ensure compliance of the proposed project activities with relevant Angolan environmental laws and regulations and the World Bank's safeguards policies. This initiative will be coupled with a series of regional training workshops to be organized for all actors involved, such as project coordination teams at all levels, beneficiary groups, contractors, and other relevant project partners in the implementation of social and environmental safeguards policy such as the Ministry of Environment and its local affiliates upon project effectiveness. The safeguards policies triggered for this project are summarized in Table 2.

Table 2. Safeguards Policies Triggered by the Proposed Project

Safeguards Policy	Yes	No
Environmental Assessment (OP/BP 4.01)	X	
Natural Habitats (OP/BP 4.04)		X
Forests (OP/BP 4.36)		X
Pest Management (OP 4.09)	X	
Physical Cultural Resources (OP/BP 4.11)		X
Indigenous Peoples (OP/BP 4.10)		X
Involuntary Resettlement (OP/BP 4.12)	X	
Safety of Dams (OP/BP 4.37)	X	
Projects on International Waterways (OP/BP 7.50)		X
Projects in Disputed Areas (OP/BP 7.60)		X

G. Public Consultation and Participation

144. Throughout the design of this project and preparation of its safeguard instruments, extensive consultation workshops were held in Luanda (central level) and in the beneficiary provinces and municipalities. Beneficiaries were given a full presentation of the project, and they provided invaluable feedback and contribution that influenced the design of the project and the way the safeguards instruments were prepared. Issues of gender inclusion and youth participation were discussed at length, as the Government intends to strengthen its youth strategy in the agriculture sector. The choice of commodities in each province (that is, maize, cassava, beans, potatoes, and vegetables) as well as the emphasis on encouraging the use of locally grounded knowledge demonstrates the effective capture of local ideas, preferences, and knowledge in the design of project activities.

145. The project laid great emphasis on public consultation and participation. Before appraisal, all project safeguards instruments were amply consulted upon and publicly disclosed in-country through various media channels, with extensive usage of local languages to ensure community understanding and buy in; they were also provided on the World Bank's InfoShop. Overall, these series of public/stakeholder consultations encouraged more built in ownership behavior toward the project, which was welcomed by communities, especially after they learned about MOSAP's positive outcomes. Such ownership should foster more social accountability,

which will ultimately pave the road to increased sustainability of project activities. Because stakeholder consultation and participation is an iterative process, this will be maintained throughout the lifespan of this project.

H. World Bank Grievance Redress System

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

Annex 1: Results Framework and Monitoring

Country: Angola

Project Name: Smallholder Agriculture Development and Commercialization Project (P154447)

Results Framework

Project Development Objectives	
PDO Statement	
The objective of the Project is to increase smallholder agriculture productivity, production and marketing for selected crops in the Project areas.	
These results are at	Project Level

Project Development Objective Indicators

		Cumulative Target Values					
Indicator Name	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**End Target**
Average crop yields (food crops: maize, cassava, beans, and Irish potatoes; horticulture: cabbage and tomato) (Tons/ha/year)							
Tomatoes (Tons/ha/year - Sub-Type: Breakdown)	12.60	14.00	16.00	18.00	23.00	25.30	25.30
Cassava (Tons/ha/year - Sub-Type: Breakdown)	10.40	12.00	13.00	14.00	16.00	18.20	18.20
Beans (Tons/ha/year - Sub-Type: Breakdown)	0.30	0.33	0.38	0.43	0.48	0.53	0.53
Irish potatoes (Tons/ha/year - Sub-Type: Breakdown)	4.00	4.50	5.30	6.00	7.00	8.00	8.00
Cabbage (Tons/ha/year - Sub-Type: Breakdown)	10.40	11.00	12.00	15.00	17.00	20.80	20.80
Maize (Tons/ha/year - Sub-Type: Breakdown)	0.57	0.60	0.80	1.00	1.40	1.70	1.70
Volume production of major food crops (Tons/year)							
Beans (Tons/year - Sub-Type: Breakdown)	16,000	17,000	17,500	18,000	19,000	21,000	21,000
Cassava (Tons/year - Sub-Type: Breakdown)	386,500	405,000	410,000	415,000	450,000	505,000	505,000

Maize (Tons/year - Sub-Type: Breakdown)	61,000	65,000	75,000	75,000	85,000	105,800	105,800
Proportion of production marketed (Percentage)	17	20	25	30	40	57	57
Direct project beneficiaries (Number) - (Core)	0	45,000	71,000	100,000	128,000	175,600	175,600
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	0	20	25	50	50	50	50
Intermediate Results Indicators							
Indicator Name	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**End Target**
Number of smallholder farmers who benefitted from training in FFS (Number)	0	38,000	56,000	75,000	94,000	150,000	150,000
Female beneficiaries (Percentage - Sub-Type: Supplemental)	0	50	50	50	50	50	50
Client days of training provided (Number) - (Core)	0	760,000	1,120,000	1,500,000	1,800,000	3,000,000	3,000,000
Client days of training provided - Female (Number - Sub-Type: Breakdown) - (Core)	0	380,000	560,000	750,000	940,000	1,500,000	1,500,000
Number of MINAGRI staff who benefitted from training under the project (Number)	0	60	280	400	500	600	600
Technologies demonstrated in the project areas (Number) - (Core)	0	2	5	8	12	20	20
Number of beneficiaries under subprojects (Number)	0	6,000	15,000	25,000	34,000	50,000	50,000
Female beneficiaries (Number - Sub-Type: Breakdown)	0	3,000	7,500	12,500	17,000	25,000	25,000
Farmers with formal links to the market (Percentage - Sub-Type: Supplemental)	0	0	5	10	15	20	20
Area provided with irrigation and drainage services (Ha) - (Core)	0	0	100	300	600	1,000	1,000
Operational water user associations created and/or strengthened (Number) - (Core)	0	0	3	10	20	32	32
Number of subprojects under investment in production completed (Number)	0	50	100	150	200	300	300
Number of subprojects engaged in post-harvest management and value-addition activities completed	0	10	50	100	140	200	200

(Number)							
Citizen engagement section included in the project annual report (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes

Indicator Description				
Project Development Objective Indicators				
Indicator Name	Description (Indicator Definition and so on)	Frequency	Data Source/Methodology	Responsibility for Data Collection
Average crop yields (food crops: maize, cassava, beans, and Irish potatoes; horticulture: cabbage and tomato)	The average crop yield will be measured with regard to the quantity of crop harvested (tons) per ha per year for the selected crops. The average will result from two levels of calculations. First, the average for each crop in the project area will be calculated; then a weighted average for all crops in the project area will be calculated based on the relative weight of each crop. When inter-cropping exists, appropriate calculations will be applied to calculate crop yields.	Baseline and annually	Surveys and data from the local EDAs	PIU
Tomato	This indicator is to monitor the tomato yield increase of farmers who have received training and investment.	Baseline and annually	Surveys and data from local EDAs	PIU
Cassava	This indicator is to monitor the cassava yield increase of farmers who have received training and investment.	Baseline and annually	Survey and data from local EDAs	PIU
Beans	This indicator is to monitor the beans yield increase of farmers who have received training and investment.	Baseline and annually	Surveys and data from local EDAs	PIU
Irish potato	This indicator is to monitor the Irish potato yield increase of farmers who have received training and investment.	Baseline and annually	Survey and data from local EDAs	PIU
Cabbage	This indicator is to monitor the cabbage yield increase of farmers who have received training and investment.	Annually	Surveys and data from local EDAs	PIU
Maize	This indicator is to monitor the maize yield increase of farmers who have received training and investment.	Baseline and annually	Surveys and data from local EDAs	PIU

Volume production of major food crops	For each crop, the volume of production will be calculated on the basis of the overall crop production by targeted smallholder farmers in the project areas, measured in tons.	Baseline, MTR and end of the project	Surveys	PIU
Beans	Monitor volume increase in production of beans.	Baseline, MTR and end of the project	Surveys	PIU
Cassava	Monitor volume increase in production of cassava.	Baseline, MTR and end of the project	Surveys	PIU
Maize	Monitor volume increase in production of maize	Baseline, MTR and end of the project	Surveys	PIU
Proportion of production marketed	The proportion of crop production marketed is calculated in terms of the production marketed (volume) in the project area as a percentage of the total crop production (volume).	Baseline, MTR and end of the project	Surveys	PIU
Direct project beneficiaries	Direct beneficiaries are people who directly derive benefits from the project intervention.	Every six months and annually	Project reports	PIU
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	Every six months and annually	Project reports	PIU
Intermediate Results Indicators				
Indicator Name	Description (indicator definition and so on)	Frequency	Data Source/Methodology	Responsibility for Data Collection
Number of smallholder farmers who benefitted from training in FFS	Smallholders farmers who benefited from training are all farming households trained in cycle 1 of the FFS program.	Every six months	FAO	FAO and PIU

Female beneficiaries	This indicator is to track the number of female beneficiaries.	Every six months	Project reports	Project M&E
Client days of training provided	This indicator measures the number of client days of training provided, that is, the number of clients who completed training multiplied by the duration of training expressed in days.	Every six months	Project reports	PIU
Client days of training provided - Female	This indicator measures number of training days provided for women	Every six months	Project reports	Project M&E
Number of MINAGRI staff who benefitted from training under the project	The indicator measures the total number of MINAGRI staff who benefit from any type of training. Regardless of the number of training activities attended by each staff, every staff will count only once (that is, as one staff member).	Annually	Project data	Project M&E
Technologies demonstrated in the project areas	This indicator measures the number of unique technologies demonstrated by the project.	Annually	Project data	Project M&E
Number of beneficiaries under subprojects	Refers to the total number of beneficiaries under subprojects approved in the project areas. The total will include subprojects on irrigation, production, and value chains in all three provinces.	Annually	Project data	Project M&E
Female beneficiaries	The project has to determine the number of female beneficiaries under the subprojects.	Every six months	Project reports	PIU
Farmers with formal links to the market	Out of the total number of beneficiaries under subprojects the project has to identify the percentage of those that have formal linkage with the market	Every six months	Project reports	PIU

Area provided with irrigation and drainage services (ha)	This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (a) the area provided with new irrigation and drainage services, and (b) the area provided with improved irrigation and drainage services, expressed in ha.	Every six months	Project reports	PIU
Operational water user associations created and/or strengthened (number)	This indicator measures the number of WUAs created and/or strengthened under the project that are operational.	Every six months	Project reports	Project M&E
Number of subprojects under investment in production completed	This refers to the number of subprojects under investment in production that are completed.	Every six months	PIU	PIU
Number of subprojects engaged in post-harvest management and value-addition activities completed	Post -harvest value addition activities can broadly be grouped into the following types of activity: grading, packaging, storage, transportation, processing, and marketing.	Annually	Project data	Project M&E
Citizen engagement section included in the project annual report	This indicator is designed to capture the integration of different people in the project implementation at all levels, national, provincial, municipal and communal. The project will include a section in the project annual report to summarize how the citizens were engaged, what issues were raised, and how the project has responded.	Annually	Project annual report	PIU

Annex 2: Detailed Project Description

ANGOLA: Smallholder Agriculture Development and Commercialization Project

I. PROJECT OVERVIEW

1. The objective of the Project is to increase smallholder agriculture productivity, production and marketing for selected crops in the Project areas.

2. This annex provides a detailed project description of how the stated PDO will be achieved. The key outcome indicators for measuring the project performance are (a) an increase in average crop yields; (b) an increase in crop production; and (c) an increase in crop production that is marketed. The detailed results and performance indicators are provided in Annex 1.

3. The project area is expected to cover 80 communes that are part of 26 municipalities in the three selected provinces of Bié, Huambo, and Malanje. The population census of 2014 estimates that these three provinces have a total population of 4.2 million, representing about 16 percent of Angola's total population, and 43.6 percent of the total rural population in the country.[6] An estimated 175,000 smallholder farmers are expected to be direct project beneficiaries. In comparison, MOSAP covered 12 municipalities, 25 communes, and 50,000 beneficiaries (in the same three provinces).

4. The main criteria for the selection of the three provinces were (a) significant agricultural potential; (b) large share of rural population; (c) accessibility; and (d) achievements under MOSAP. Similarly, the main criteria for the selection of the 26 municipalities and 80 communes for the project were (a) significant agricultural potential; (b) large share of rural population; (c) easy access to markets, urban centers, and PAPAGRO centers; (d) availability of water for promoting irrigated agriculture in some municipalities of Huambo and Bié; (e) strong administrative leadership; (f) availability of agricultural extension technicians; and (g) existence of NGOs, private sector operators, and farmers' association and/or cooperatives.

5. The project strategy is to enable smallholders in the project area to increase agricultural productivity and competitiveness through increased commercialization and market access. Producing for expanding food markets in urban areas as well as supplying raw material to emerging supply chains and agro-based business enterprises will facilitate the rural economy's integration into the overall economy of Angola. This will in turn facilitate a reduction in rural poverty, which is about 58 percent at present compared to 37 percent nationwide. The proposed project is designed to address two critical constraints to agricultural development in Angola. First, it will increase agriculture institutional capacity through training programs, both nationally and in the project areas. Second, it will address critical bottlenecks in the value chain, including extension, irrigation, production and post-harvest value addition, and market linkages of selected crops. The proposed project has three components: Component 1. Capacity Building and Institutional Development; Component 2. Support for Increased Production and Commercialization; and Component 3. Project Management, Monitoring, and Evaluation.

II. PROJECT COMPONENTS

[6] Anon. 2014. Preliminary results of the Population Census 2014.

Component 1. Capacity Building and Institutional Development - US$43 million (US$23 million from IBRD and US$20 million equivalent from the Government of Angola)

6. The skills and knowledge of smallholder farmers about improved agricultural practices and technologies as well as the capacity of agricultural institutions remain extremely weak. Furthermore, farmers have limited access to the equally weak agricultural extension system. Hence the objective of this component is to strengthen the technical, institutional, managerial, and marketing skills of 150,000 smallholder beneficiaries. After appropriate training, 25,000 qualified smallholder beneficiaries are also likely to get investment support under Component 2. All farmers seeking support under this project must first organize themselves into farmers' organizations (groups, associations, or cooperatives). As part of this process, capacity will be strengthened for government agricultural extension specialists, agricultural research institutions, agricultural service providers, and NGOs related to different aspects of the project, including value chains. The expected results are (a) smallholder farmers' organizations established and strengthened; (b) technical, marketing, and managerial competence of smallholder farmers improved; and (c) government capacity to support smallholder agricultural production and commercialization enhanced in the project area.

7. The formation and capacity building of smallholder farmers' groups and organizations are key factors in the project's strategy, which is designed to enhance agricultural production and commercialization. The project will use the FFS methodology for training and capacity building for both smallholder farmers and extension specialists. To accomplish this, each commune must have at least three full-time government agricultural extension specialists at the local EDA. This will be an important criteria for scaling up project activities in new communes and municipalities.

8. This component consists of three subcomponents: (a) Strengthening Capacity of Smallholder Farmers and Farmers' Organizations; (b) Strengthening Institutional Capacity of Local, Provincial, and National Units of the Ministry of Agriculture (MINAGRI); and (c) Strengthening Capacity and Global Knowledge to Address Emerging Agricultural Research Problems.

Subcomponent 1.1. Strengthening Capacity of Smallholder Farmers and Farmers' Organizations through Farmers' Field Schools - US$25 million (US$10 million from IBRD and US$15 million equivalent from the Government of Angola)

9. The objective of this subcomponent is to strengthen the capacity of smallholder farmers and farmers' organizations through FFSs, including: (a) supporting the establishment of smallholder farmers' organizations; (b) strengthening the knowledge of farmers on agricultural practices, technology, inputs, and marketing; (c) strengthening the functional literacy and numeracy of farmers; (d) improving household nutrition; (e) improving soil fertility and INM; (f) promoting conservation agriculture; and (g) building the capacity of relevant government staff at the municipal level to implement an FFS program.

10. In addition to training farmers and farmers' organizations, the FFS initiative will build capacity of local government staff to strengthen the extension service delivery and technical backstopping to farmers by building institutional capacity at ADI (provincial) and EDA (municipal) levels. FAO will train master trainers (mainly EDAs' agricultural extension staff), who will in turn train other government extension staff and farmer facilitators. The trainers will be selected from among the three technicians to be provided by the Government in each commune.

11. The capacity of smallholder farmers and farmers' organizations will be strengthened in all critical aspects related to agriculture by scaling up the FFS initiative. The FFS training is expected to benefit 150,000 smallholder farmers. The FFS methodology empowers smallholder farmers to set their own agenda and take steps to improve their agricultural knowledge and economic situation. It also includes training of master trainers (mainly EDAs' agricultural extension staff), who will in turn train other government extension staff and farmer facilitators by using the enhanced and improved FFS curriculum.

12. Scaling up the FFS initiative involves:

(a) Increasing training capacity at the commune level (three agricultural extension specialists in each local EDA) and farmer facilitators at the community level (farmers selected by farmers) who will become paid FFS facilitators, backstopped by the agricultural extension specialists.

(b) A complete FFS training cycle is approximately 30 months (12 months in cycle 1, 6 months in cycle 2, and 12 months in cycle 3). One agricultural extension specialist is expected to cover 14 FFSs at any one time. The scope of each FFS cycle is summarized in Table 2.1.

(c) An FFS group will consist, on average, of 30 smallholder farmers (both men and women) from the same village or surrounding villages, and the training will be conducted within the village itself. Women farmers are expected to comprise at least 50 percent of all trainees.

Table 2.1. Summary of FFS Cycles

Cycle 1 - Basic Crops	Cycle 2 - Diversification	Cycle 3 - Consolidation
- Participatory diagnostics - Organization of the FFS program - Production techniques for the main crops of the area (cassava and beans for Malanje; maize, potato, and beans for Huambo and Bié) or of byproducts - Social themes such as gender, basic sanitation, HIV/AIDS, and planning	- Reinforcement of themes of cycle 1 (analysis of the results of studies or field trials) - Diversification of crops: food crops that are not popular in the area (potato for Malanje and cassava for Bié and Huambo), nutritious crops, and cash crops (vegetables, potato) - CSA and soil management: irrigation, introduction of soil-improving plants (green manure), agroforestry, crop rotation, and composting - Rational use of chemical fertilizers - Social themes according to cycle 1, adding nutrition (to accompany crop diversification)	- Sustainable management of soils (analysis of the effects) - Reinforcement of the structure and management of farmers' organizations - Integration: agriculture-livestock-forestry - Commercialization, processing, and micro credit - Social themes: literacy and numeracy (to be able to read and write contracts, do accounts for agricultural investments)

13. As part of the FFS training, the project will make a concerted effort to promote the active participation of women and other vulnerable groups in agricultural production and value chain activities. Specifically, the project will support their acquisition of basic skills to (a) increase their ability to actively participate in smallholder farmer group formation and leadership; (b) increase their chances of benefitting from further project support under Component 2; and (c) more effectively operate in an increasingly commercial environment. Courses will be delivered

to targeted rural communities that include a large number of members seeking such training.[7]

14. The issue of malnutrition will also be addressed in FFS training because it is critical to reduce the prevalence of diseases, facilitate normal growth of children, and improve human productivity. The project will encourage the production and consumption of fresh vegetables and promote balanced nutrition to address the problems of malnutrition for adults as well as children in the project area. The ongoing extension activities under the FFS already include a nutrition module that raises awareness about malnutrition's causes and measures for reducing it, such as growing more nutritious crops, preparing more diverse meals, and using improved methods to preserve seasonal crops rich in vitamins and minerals for use throughout the year. Specific focus will be placed on training girls and women, because they are responsible for preparing daily meals for the family, and on increasing the awareness of both male and female household heads of the importance of allocating adequate resources for improving nutrition. Nutrition issues will also be addressed as part of the project's awareness and communication efforts.

15. CSA refers to a set of agricultural technologies and practices that reduce the vulnerability of farming systems to climate change (for example, increasing temperatures and more erratic rainfall) while at the same time reducing greenhouse gas (GHG) emissions from agriculture. Most of the technologies and practices involved have been around for a long time (for example, irrigation, soil conservation and organic matter enhancement, measures to improve water infiltration, use of environmentally friendly agrochemicals, and faster-maturing, drought-resistant crop varieties). Many practices are already integrated in MOSAP's FFS training curriculum, but FAO will revise the FFS curriculum to enhance the CSA content of the training provided under the SADCP.

16. The available limited transport facilities constrain agricultural extension specialists' ability to travel to rural agricultural areas and interact with smallholders. To address this problem, the project will provide all government extension staff involved in FFS with motorcycles to enable them to effectively reach smallholder beneficiaries.

17. As indicated earlier, for effective implementation of the FFS approach to provide agricultural extension to smallholder farmer beneficiaries, the Government must ensure that each commune has at least three agricultural extension specialists at each EDA. In other words, implementing the FFS program in 80 communes will require at least 240 government agricultural extension officers. Over a five-year period, the project will organize approximately 5,000 FFS training programs with 30 participants each, effectively training about 150,000 smallholders. Additional FFS training will continue to be provided to existing MOSAP farmer groups but will focus primarily on issues that build farmers' capacity for value addition.

18. The key selection criteria for determining smallholder farmers' eligibility as beneficiaries of the FFS training program are (a) farming as the main economic activity; (b) willingness to work in a group/organization; (c) awareness and willingness to resolve their agricultural problems; (d) preferred location with easy access to the FFS site; (e) average farm size not greater than 5 ha; (f) gender, such that at least 50 percent of FFS participants are women; (g) potential for knowledge transfer to other villages in the same area; and (h) existence of farmer leaders and champions for modernizing agriculture.

[7] In addition to the general support activities outlined here, women will also benefit from specific targeted investments under Component 2. The grinding mills funded under MOSAP, for example, reduced the time and energy spent by women on food preparation and freed their time for other activities, with a significant positive impact on household revenue and quality of life.

19. The FFS training program is expected to cover all 80 communes in 26 municipalities by the end of year 3, starting with at least 30 communes in year 1 and 60 in year 2. This will ensure that all farmers in the target group benefit from at least one full FFS training cycle during the project. This subcomponent will be implemented in two phases.

1.1.1. FAO as Provider of Technical Assistance in Phase 1 (Three Years)

20. FAO involvement in FFS training under MOSAP was judged positively by the independent evaluation commissioned by ADI in 2015. Under this project, FAO will employ at least (a) an experienced FFS team leader; and (b) three senior FFS experts, one for each province. From the start of the project, the Government will make available qualified agricultural extension specialists as counterparts for the three senior FAO FFS experts, so that the latter can be replaced (if the Government so desires) by government staff during year 4 of the project. FAO will ensure that its team includes cutting-edge expertise on an appropriate improved agricultural package of practices, agricultural technologies, modern agricultural inputs, gender, nutrition, and CSA.

21. As part of the FFS program, the informal FFS groups of smallholder farmers (about 30 in each group) will be organized by FAO with the help of NGOs. To improve economic sustainability, selected groups will be organized into formal farmers' organizations (associations or cooperatives), conferring two key advantages. First, these farmers' organizations can use their collective economic strength to improve their bargaining power for better prices and terms in marketing their produce and purchasing agricultural inputs. Second, they will have a better chance of competitively qualifying for investment support under Component 2.

1.1.2. Government role in FFS in Phase 2

22. FAO will complete its assignment at the end of year 3. During the first three years, FAO will train a team of Government experts who will take over responsibility for the FFS program starting in year 4. The Government and the World Bank will review this option during the MTR and decide either that the Government team is ready to take over the implementation or that FAO's contract should be extended for the remaining two years of the project.

Subcomponent 1.2. Strengthening Institutional Capacity of Local, Provincial, and National Units of the Ministry of Agriculture (MINAGRI) - US$9 million (from IBRD)

23. The objective of the second subcomponent is to: (a) strengthen the institutional capacity of local, provincial, and national units of MINAGRI in the areas of irrigation, extension, market information, statistics, and policy analysis to improve provision of services to smallholder farmers at the farm-level investments; and (b) rehabilitate and construct agricultural extension facilities at the local level of MINAGRI, including offices and residential complexes for agricultural extension staff.

1.2.1. Institutional Capacity Strengthening

24. The objective of this subcomponent is to strengthen MINAGRI's institutional capacity at the national and decentralized levels to provide appropriate data, statistics, and market information as well as the complementary services needed for SADCP farm-level investments. This subcomponent represents a new area of investment and builds on lessons learned under MOSAP and the need to strengthen technical services to increase the impact of community-level investments. The PIU will coordinate implementation of these activities in collaboration with the

Department of Planning and Studies and ADI. Financing will be provided to strengthen: (a) agricultural statistics; (b) market information systems; (c) agricultural policy analysis; and (d) irrigation-related services.

1.2.1.1. Agricultural Statistics

25. Project support under this activity will expand the regular collection and dissemination of data on crop forecasts, crop production, agricultural input and output prices, and other agricultural and economic variables, with a focus on SADCP project areas.

26. GEPE within MINAGRI will be responsible for its implementation. At present, the division undertakes regular post-harvest surveys on crop production but has not been able to expand the frequency or scope of these surveys to allow for crop forecasts or collection of detailed price data, according to standard practice in many Sub-Saharan African countries. Recent efforts to strengthen agricultural statistics have been made with the support of FAO and other partners at the national level, and as part of the larger 'Global Initiative to Improve Agricultural and Rural Statistics', to which the World Bank is a partner. In line with these efforts, a full agricultural census is planned for 2016. A strategic plan for the Division of Statistics is also under development and is expected to provide a roadmap for a comprehensive approach to data collection, processing, dissemination, and analysis for the agriculture sector and capacity strengthening within MINAGRI.

27. The SADCP will provide targeted financing in three areas: expansion of data collection for crop forecasts and post-harvest surveys; preparation of regular agricultural statistics and reports at national, municipal, and commune levels; and support for the planned national agricultural census in 2016. To expand data collection for crop forecasts and post-harvest surveys, SADCP funding will be used to undertake training of enumerators and MINAGRI technical staff in Bié, Huambo, and Malanje as well as to provide operational support to provincial directorates to undertake data collection. This work is expected to support MINAGRI's effort to expand survey data collection nationwide. Lessons learned from this initiative will be instrumental in the expansion of this program to additional provinces under government funding outside the project. The SADCP will also provide funding for technical assistance and capacity building at the national and provincial levels to improve the quality of regular reports and statistics. The project will finance technical assistance and training for the agricultural census's design and implementation. Some support will also be provided to include a module within the census to capture data on SADCP beneficiaries.

1.2.1.2. Market Information Systems

28. This activity will also be implemented by GEPE in coordination with the National Directorate of Rural Trading at the Ministry of Commerce (Trade). The project will support these two institutions to increase the availability of market information (prices and market situation) on a regular basis at least for the crops targeted in the project area. This will allow more informed production and marketing decisions. Farmers currently have relatively limited access to retail, wholesale, and producer prices within major marketing centers. The Ministry of Commerce through PAPAGRO, a national PPP, links supply of agricultural products for public institutions (schools, hospitals, and military and government-run supermarkets) to a marketing channel targeting smallholder farmers groups through publicly funded, privately managed '*agromerca'* centers. These centers purchase farm output from farmers at the provincial level. PAPAGRO began implementation of this program in 2013 and is gradually expanding operations across Angola, including in the project areas. In addition to crops, the market information system

will deal with the prices of critical agricultural inputs.

29. Financing under the SADCP is designed to support establishment of a market information system for key agricultural commodities and inputs and dissemination of this information for the benefit of farmers. Support is likely to include development of action plans at the provincial level and technical assistance to design possible options for the market information system. This could include linkages to farmers' or traders' groups such as UNACA (*Confederação das Associações de Camponeses e Cooperativas Agropecuárias de Angola*)—the National Federation of Farmers' Association and Cooperatives—and linkages to Ministry of Commerce (Trade) initiatives within the context of PAPAGRO.

1.2.1.3. Agricultural Policy Analysis

30. To strengthen capacity for agricultural policy analysis, the SADCP will provide targeted financing to support training in agricultural policy analysis and annual sector review processes led by MINAGRI's Department of Planning and Studies. The aim of SADCP support is to strengthen platforms for discussing relevant policy issues that will arise as part of SADCP implementation. This is expected to include dialogue related to major issues such as fertilizer and seed policy, agricultural finance, market access and rural infrastructure, food security, and human nutrition as well as their social and environmental implications (including the impact of climate change on agriculture). The main purpose of this activity is to strengthen MINAGRI's capacity to analyze agricultural policy constraints and identify appropriate policy solutions to address them.

31. SADCP funding is also expected to support the fulfillment of Angola's commitment under the African Union's CAADP to institute two reviews annually of the agriculture sector, which were agreed in June 2014 as part of the African Union Summit in Malabo and contained in the Malabo Declaration on Accelerated Agricultural Growth.[8]

1.2.1.4. Irrigation-related Services

32. Within MINAGRI, capacity will be strengthened for ADI staff who deal with provision of SSI-related services. Gravity-fed irrigation systems are currently in use within the SADCP project area but provincial and municipal MINAGRI staff have limited capacity to provide technical backstopping to communities undertaking rehabilitation of SSI systems—or building new systems where technically feasible and socioeconomically appropriate—under the SADCP. The service provider (to be hired under Component 2) will also include targeted technical training on gravity-fed irrigation systems and support to WUAs at both provincial and municipal levels. This will enable more effective technical backstopping for irrigation activities in Component 2. Training will primarily target Bié and Huambo, the provinces with the highest potential for gravity-fed SSI systems.

1.2.2. Provision of Extension Infrastructure

33. Most of Angola's agricultural infrastructure in rural areas was destroyed during the civil

[8]The Malabo Declaration covered a number of commitments for accelerating agricultural growth, including a 'Commitment to Mutual Accountability to Actions and Results' which calls for regular and robust evidence-based analysis and review of the agriculture sector. See page 6 of the declaration: http://caadp.net/sites/default/files/documents/sustaining-CAADP-momentum/Malabo_Declaration_on_Accelerated_Agricultural_Growth_and_Transformation_for_Shared_Prosperity_and_Improved_Livelihoods,_adopted_June_2014-2.pdf

war and agricultural production suffered a great deal. In this context, critical agricultural extension facilities need to be rehabilitated and/or built at the local level. This will require construction and rehabilitation of office and residential complexes for agricultural extension staff in selected communes. An estimated 40 new houses and 10 new offices will be required in the 80 beneficiary communes. This activity will be implemented by the PIU/PPIUs in collaboration with local beneficiary organizations. The plans for this activity will be included in the project's 24-month implementation plan, which was made available to the World Bank by appraisal.

Subcomponent 1.3. Strengthening Capacity and Global Knowledge to Address Emerging Agricultural Research Problems - US$9 million (US$4 million from IBRD and US$5 million equivalent from the Government of Angola)

34. The main activities to be financed under this subcomponent include: (a) improving soil diagnostic services; (b) supporting the multiplication of seeds and planting material; (c) building the technical capacity of the national research and extension system; (d) developing technology packages for selected crops; and (e) increased field testing and demonstration of improved technologies received from international and regional research institutes.

35. The third subcomponent aims to strengthen the institutional capacity of Angola's national- and provincial-level agricultural research system to enhance access to modern agricultural innovations and technologies that increase agriculture productivity and production. The objective is to strengthen the research systems to address emerging issues in the productivity, production, and value chains of priority food and horticulture (vegetable) crops. This will include scaling up the availability of improved technologies for farmers, thereby filling technical knowledge gaps around cropping systems within the project areas and introducing new knowledge and technologies that may be available within the region or globally, where appropriate.

36. The project financing will be provided to develop proposals for addressing specific R&D initiatives linked to project objectives and building on relevant global or regional sources of knowledge and technology. The implementation will be executed by the IIA and the partner(s) selected for the specific R&D activity, and the PIU will retain the fiduciary responsibility.

37. ADI and the IIA will prepare a detailed work plan for the R&D activities to be financed, with the time frame and budget, and they will also prepare an MOU setting the responsibility of each party in the implementation of the work plan, including the supervision mechanisms during implementation. The MOU should be prepared no later than six months after effectiveness.

1.3.1. Soil Diagnostic Services

38. The project will finance equipment, training, and operational costs to strengthen the soil analysis laboratory in Huambo and soil fertility research programs such as (a) soil analysis in irrigated areas (to be rehabilitated under the SADCP) and rain-fed cropped areas; (b) analysis of soil fertility under continuous exploitation in irrigated and rain-fed areas; and (c) fertilizer recommendations, INM, and appropriate technologies to improve soil fertility management. These programs intend to develop comprehensive fertilizer recommendations for priority food and horticulture crops under INM programs for both irrigated and rain-fed cropped areas. Increased capacity for soil analysis under FFS will enable more effective use of fertilizers, higher crop productivity, and on-farm investments envisioned under Component 2.

1.3.2. Multiplication of Seeds and Planting Material

39. Training related to the potential benefits and multiplication of seeds and planting material will be incorporated in the FFS. Improved seeds for maize, beans, and vegetable crops and clean planting material for cassava and potatoes are not readily available to farmers. SADCP financing will be used to scale up breeder or foundation seed production within MINAGRI (through IIA stations in Huambo and Malanje) to generate a more reliable supply for private sector seed producers. In cases where private seed companies are not producing seeds—such as most open pollinated crop varieties or self-pollinated crops where farmers retain seeds over multiple cropping seasons—the SADCP will provide technical assistance or limited operational costs to develop partnerships with community or nonprofit seed producers to increase production of certified or quality-declared seed. The SADCP will also finance the production of cassava cuttings that are resistant to cassava mosaic virus and cassava brown streak disease. Cassava will be produced through tissue culture laboratories operating in Malanje and Luanda to more quickly increase the availability of disease-free, clean planting material. For potato, the project will explore the possibility of creating facilities for private or public tissue culture in Huambo or Bié to start potato certified-seed production with clean material.

1.3.3. Strengthening National Agricultural Research and Technology Transfer

40. Project financing will be provided to develop and disseminate improved packages of technologies and agricultural practices and to strengthen the technical knowledge of extension workers or other service providers related to improved technologies relevant to project areas. Funding will be provided through ADI, which will work with the IIA to provide technical training at provincial and municipal levels to address both farmers' and service providers/extension agents' low levels of awareness of improved technologies. The program will consist of two critical activities.

1.3.3.1. Identification and Characterization of Farming Systems

41. Innovation in each crop should be linked with a good understanding of the traditional farming systems and likely constraints. A research program will be implemented in close collaboration between ADI and the IIA to describe traditional farming systems (such as crop rotations, agricultural practices, input use, farm income) to identify the main constraints for farmers and the appropriate improved technologies and agronomic practices to be disseminated.

1.3.3.2. Developing Recommended Technology Packages for Project Crops

42. Support will be provided to increase the supply of technical messages on topics such as crop management practices, variety selection, or soil fertility management relevant to the particular agroecological conditions in Bié, Huambo, and Malanje. To deliver environmentally sustainable intensification measures and CSA recommendations to extension services, FFSs, and farmers' organizations, recommended practices on these topics will be integrated into the crop technology packages (*Cartas Tecnológicas por Cultura*). SADCP financing will be used for MINAGRI (through ADI, contracting the IIA, as needed) to further develop recommendations related to improved technologies for priority crops for use by smallholders, extension system staff, and technical service providers. These will include production and dissemination of messages through '*tecnológicas por culturas'* or other mass media/publications. Research and demonstrations on technology packages will be carried out in collaboration with ADI and FFS activities in research stations and on farmers' fields.

1.3.4. Scaling up of Improved Technologies through International and Regional Partnerships

43. A number of improved technologies have already been developed for SADCP priority crops within the international CGIAR system, neighboring countries in southern Africa, and research institutions in tropical agriculture, such as in Brazil. These technologies include: higher-yielding maize, potatoes, cassava, and bean varieties that are resistant to pests and diseases prevalent in Angola; agronomic practices to improve soil health and soil fertility; CSA technologies that accommodate higher temperatures or erratic rainfall; bio-fortified maize, potato, and beans with nutrients such as vitamin A, beta carotene, iron, or zinc; and cassava varieties resistant to cassava mosaic virus and cassava brown streak disease, among others. ADI and the IIA will test, validate, adapt, and disseminate such improved technologies to benefit farmers supported by the SADCP.

44. Angola has a number of existing partnerships that can be further expanded under the SADCP to increase the availability of improved technologies to farmers in Angola. MINAGRI's recently expanded engagement with EMBRAPA is expected to result in support for research management, institutional capacity building, and targeted support for priority crops. The IIA has been actively implementing joint activities with the southern Africa regional offices of International Institute of Tropical Agriculture (soybean, farming systems), the International Potato Center (potato), the International Maize and Wheat Improvement Center (maize), the International Crop Research Institute for Semi-Arid Tropics (groundnut), and the International Center for Tropical Agriculture (beans). A regional World Bank-financed program (the regional Agricultural Productivity Program for Southern Africa) was launched and it finances regional collaboration around priority R&D topics for crops, including maize, rice, and grain legumes between Malawi, Mozambique, and Zambia. Given the similar agroecology and language, scope may exist for Angolan participation on a demand-driven basis in specific R&D activities.

45. To implement Subcomponent 1.3, MINAGRI will hire a consultant (agricultural research specialist) under MOSAP to further develop a work plan that will serve as the basis for the MOU to be signed between the IIA and ADI based on the following principles: (a) each research activity should be closely linked with FFS and extension activities; and (b) most research activities will be implemented through contracts between ADI and the IIA or other research facilities, such as the Faculty of Agricultural Sciences of Huambo University and the Climate Change and Tropical Ecology Center (under the Ministry of the Environment).

Component 2. Support for Increased Production and Commercialization - US$42 million (US$37 million from IBRD and US$5 million equivalent from beneficiaries)

46. The objective of this component is to improve productivity, production, and market access for 50,000 eligible smallholder beneficiaries as part of farmers' groups and organizations. These beneficiaries for investment support will be selected from those trained through FFS under MOSAP, the SADCP, and/or any other appropriate training program. This component will support three kinds of investments: (a) rehabilitation and development of SSI schemes as a pilot program; (b) agricultural production and productivity improvements; and (c) value addition, including investment in storage, processing, and marketing facilities.

47. This component will provide demand-based investment support to farmers' groups and organizations that are currently engaged in production and want to rehabilitate/develop irrigation schemes or engage in agricultural production and/or value chain activities. This support will be provided by an experienced and competent service provider to be hired by the project. Eligibility criteria for investment support may vary according to the type of support required, as described below, but eligibility for each subsequent investment will be contingent on satisfactory performance in the previous phase of investment support.

48. The support for value chains will finance a complementary set of investments that will target more mature farmers' organizations to move to greater commercialization. Eligible beneficiaries for the value chain support will include smallholder farmers' groups and organizations that have proven capacities for market-oriented production and/or value chain activities. Therefore, in the first year the investment component will consider proposals from farmers' groups and organizations that received training under MOSAP or from other similar capacity-strengthening efforts.

49. **Operational framework for grant mechanism.** The selection criteria for determining the eligibility of farmers' organizations as beneficiaries of investment support under Component 2 are the following: (a) all members of the organization have already completed training in FFS curriculum; (b) most of the organization members have a commercial orientation and produce for the market; (c) the organization follows good governance practices and has dynamic leaders who respect the organization's rules; (d) the organization has not benefitted from SADCP investment support or has already completed the investment project with satisfactory performance; and (e) the organization is willing and able to provide financial contribution for the matching grant.

50. As a condition for accessing a matching grant, the smallholder farmer beneficiaries will be required to make a small contribution (in kind or cash) for investment-matching grants to be funded by the project. This will stimulate farmers' organizations' ownership of the subproject and ensure their commitment for implementation as well as sustainability. Farmers' organizations' contribution for the investment-matching grant will be at least 10 percent, depending on the type of investment. The contribution by beneficiaries will vary depending on the type of investment. The project will cover up to US$100,000 of the subproject cost. Subprojects that will require project contribution above US$100,000 may be considered on exceptional basis and will require prior World Bank clearance. The approval process for the subproject proposals seeking investment support is as follows:

(a) PISC, at the national level will approve subprojects above US$50,000 and up to US$100,000, with prior review and clearance by the World Bank; and

(b) PPISC will approve subprojects up to US$50,000, with the first two proposals in each category to be cleared by the World Bank.

51. The PISC and PPISC will include representatives of NGOs/community-based organizations as well as the private sector to ensure full transparency in the selection process for the subproject proposals for investment support under the SADCP.

52. Subproject proposals from farmers' organizations will be evaluated by a special Project Committee against the following competitive evaluation criteria for matching grants:

(a) The economic and financial viability of proposed subproject activities

(b) The extent to which these activities add value and are consistent with SADCP objectives, such as to promote production and productivity and to improve market access to farmers by adopting concrete mechanisms such as contract farming

(c) The expected positive impact on market demand for smallholder produce

(d) The extent to which the proposal adopts best practices and/or introduces agricultural innovations in Angola's context

(e) Possible replicability and scalability by other farmers and farmers' organizations in the project area and beyond

(f) Likelihood of sustainability, including minimum adverse environmental and social impacts

(g) Reasonable project duration to get results (less than two years)

(h) Implementable with a clearly defined timeline for work and implementation responsibilities.

53. A full set of criteria and procedures will be defined in the PIM. Farmers' organization with poor performance under MOSAP will not be eligible for any new investment support under the SADCP, but every effort will be made to reach a diverse and large number of qualified farmers' organizations. In other words, selection of farmers' organizations for investment support will focus on both equity and efficiency criteria. This component is divided into two subcomponents: Subcomponent 2.1 provides technical support whereas Subcomponent 2.2 provides an opportunity for investment support to qualified farmers' organizations and enterprises.

Subcomponent 2.1. Provision of Technical Support - US$7 million (from IBRD)

54. The activities to be implemented under this subcomponent, aim to provide support in preparing proposals for subprojects and in implementing selected subprojects under the investment support subcomponent.

55. The implementation modalities for providing technical support include contracting an experienced and competent service provider to: (a) support farmers' organizations to prepare subproject proposals for competitive funding under Subcomponent 2.2; (b) provide specialized technical assistance to smallholder beneficiaries of irrigation schemes to create WUAs; (c) provide implementation support to smallholder beneficiaries of subprojects to ensure that the objectives of each subproject funded under the project are achieved ; and (d) strengthen the capacity of NGOs and agricultural input providers to respond to the smallholder demands.

56. To increase the local level capacity and sustainability of the project interventions over time, the service provider will also strengthen the capacity of NGOs and agricultural input providers to be able to respond promptly to the smallholder needs. Selected NGOs' capacity will be strengthened to help disseminate knowledge and identify appropriate farmers' organizations to prepare subproject proposals for seeking competitive funding under Component 2; private agricultural input suppliers will be strengthened in developing systems to supply critical agricultural inputs and services to smallholder farmers; and private enterprises' capacity will be strengthened in agricultural marketing, post-harvest management, specific value chains, and processing as well as in strengthening market linkages so that smallholders can easily access markets to sell their produce.

57. Specific capacity development activities in each of the three provinces will include (a) training for NGOs on how to prepare investment proposals for various subprojects for funding under the project; (b) information awareness-raising training for input suppliers and agricultural production service providers; and (c) support to service providers on how to undertake market assessments and studies or business plan development as well as support for managerial and business capacities of new and existing agribusiness entrepreneurs. Linking farmers'

organizations as producers with potential buyers of vegetables and other food crops will be extremely important to facilitate market linkages and marketing by smallholder farmers. In this context, farmers and farmers' organizations need to know the quality, packaging standards, and other requirements as well as the critical market timings of potential buyers (for example, sale of vegetables to supermarkets) so that they are able to easily access this potential market. It will also be important to strengthen the information base and negotiating skills of farmers' organizations in dealing with potential buyers.

58. Strengthening NGOs' capacity to support smallholder farmers' groups and organizations to prepare development plans and subproject proposals for investment support will be critical for modernizing and recapitalizing agriculture. This will include information, education, and communication regarding investment support and how access by rural communities and smallholder farmers' groups and organizations can be facilitated by these NGOs. The managerial and business capacities of local small, medium, and micro enterprises that support farming activities (small processors, craftsmen and local traders, agricultural input suppliers) will be strengthened, including their ability to properly handle contracts and money and learning how to keep accounts, create networks, and form professional organizations. The service provider may subcontract specialized companies for such training and related activities.

59. Regarding the eligibility and selection of NGOs and private agricultural service providers for training, preference will be given to those that have the relevant experience, skills, and mandate as well as willingness to work with local communities, smallholder farmers groups, and farmers' organizations.

60. In coordination with the PIU, PPIUs, and ADI, the service provider will organize at least three seminars per province per year for the following target audiences: NGOs, private sector input suppliers, and private sector value chain actors. These seminars will: raise awareness; provide training for NGOs interested in helping farmers' organizations prepare investment proposals; and strengthen small, medium, and micro agribusiness enterprises' managerial and business capacities related to agricultural input supply, provision of agricultural services, and value chain activities, including storage, transport, packaging, processing, and value chains for different food and vegetable crops.

61. The provision of technical support by the service provider is divided into three broad categories: (a) irrigation subprojects; (b) production subprojects; and (c) post-harvest management subprojects.

2.1.1. Technical Support for Irrigation Subprojects

62. The design and construction supervision for rehabilitation and/or development of pilot irrigation schemes will be done under Subcomponent 2.1 whereas actual construction and its funding will be done under Subcomponent 2.2. Investments in irrigation respond to a number of opportunities in high-potential agricultural areas. The economic rationale for investing in pilot SSI systems is that (a) existing SSI systems were destroyed during the civil war; (b) good potential exists for rehabilitation and expanded use of SSI in project areas; (c) low-cost, gravity-fed technologies are available and already being used; and (d) opportunity exists to intensify agricultural production with likely high-value, multiple cropping patterns and increased productivity.

63. In general, the PPP funding model used will be based on use of funds from the project and farmers' own resources (mainly labor and local materials) to create simple irrigation

systems. Currently such small-scale gravity-fed irrigation systems derive water from small streams by temporary weirs to a network of unlined earthen canals for irrigation. The efficiency and productivity of these systems will be improved by simple and cost-effective measures such as the construction of permanent weirs, the tubing and lining of canal stretches to reduce infiltration losses, and construction of culverts to cross roads and natural drainage streams. Management and operation of these systems generally require limited financial resources (the scarce resources of smallholders).

64. Initial data indicate that about 279 irrigation schemes covering about 5,500 ha require rehabilitation in the three beneficiary provinces. The level of rehabilitation required varies from one irrigation scheme to another. Given capacity constraints and the costs of rehabilitation, it is estimated that the project will only support the rehabilitation of SSI systems for about 1,000 ha on a pilot basis, benefiting about 2,000 farmers (on an average 0.5 ha each). Assuming an average of 32 ha per irrigation scheme, the project will cover approximately 32 schemes. The investment in irrigation schemes will adopt the following implementation framework.

65. **Integrated participatory planning and development process.** To respond to farmer demands, to promote efficiency and improved performance, and to contribute to the sustainability of irrigation schemes that will be rehabilitated or newly built under the SADCP, beneficiaries in each targeted irrigation scheme will follow an integrated participatory planning and development process. This process can be divided into four phases (more details will be provided in the PIM).

(a) Pre-identified sites will first undergo a pre-feasibility study to determine which sites should be considered for technical and investment support. Out of a long list, sites will be prioritized for the next phase.

(b) Participatory diagnosis and scheme development planning is an extensive phase to gauge community interest and commitment, development options, and constraints at the scheme level. The outputs of this phase include the organization of the smallholder beneficiaries of the irrigation schemes into WUAs and will be captured in a Matching Grant Agreement between project beneficiaries (that is, the WUAs), municipal authorities, and the PPIU. The agreement includes the commitments of the signing parties and clarifies the roles and responsibilities of and interactions among core stakeholders for irrigation development on a given perimeter.

(c) This Matching Grant Agreement will trigger the commitment, consolidation, and implementation phase, which includes capacity and infrastructure development, as well as production support and enhanced market linkages. An official notification about the transfer to and acceptance by the beneficiaries of the management functions of the scheme (including water management and infrastructure maintenance) will trigger the move to the final phase.

(d) Gradual phasing out of external project-based facilitation is implemented as the smallholder group matures and the production and marketing aspects improve beneficiaries' economic conditions. The group's managing well-functioning irrigation schemes will be eligible for agricultural production or value chain subproject support, which will help ensure the irrigation schemes' sustainability.

66. **Irrigation development and eligibility criteria.** Irrigation development will be restricted to schemes that are clearly feasible from a technical point of view; are economically

and financially viable; and have firm commitment from potential beneficiaries to scheme development and to O&M. Eligibility criteria for irrigation development proposals are summarized in Table 2.2.

Table 2.2. Eligibility Criteria for Project Support to Irrigation Scheme Development

Requirements	Eligibility Criteria
Pre-requirements	• Financial, economic, environmental, and social feasibility of the proposed investment • Availability of water of acceptable quantity and quality and of irrigable land (soils, topography)
Core requirements	• Beneficiary commitment to contribute to the O&M costs of the investment • Proven opportunities to link irrigation scheme with profitable cropping pattern and identified market outlets • Land surveyed and registered, allowing processing for secured access to land through, for example, *Direito de Uso e Aproveitamento da Terra*, *titulo provisório*, or *certidão de garantia de posse da terra* issued by the municipality or local authorities. • High number of potential direct beneficiaries (in particular women) and low average cost per beneficiary • Good physical access to irrigation perimeter • Willingness to make in-kind contribution of labor and materials
Additional requirements	• Women smallholder farmers among beneficiaries • High degree of organization and social capital among producers, and clear potential to evolve into a formal WUA • Reasonably low average cost per hectare (incl. investment and O&M costs) • Assurance to receive water rights from responsible local authorities • Rehabilitation of existing irrigation infrastructure will have preference over construction of new irrigation schemes

67. **Rehabilitation works.** The rehabilitation works will consist of: (a) upgrading of the area around the intake and the main canal; (b) construction of collecting structures for the accumulation of water to be distributed and/or rehabilitation of damaged embankments; (c) installation of control structures like water gates; (d) upgrading (digging) of the main canals and, where necessary, lining critical stretches of the distribution system; and (e) use of local plants/grass to control canal erosion. In places where the installation of buried pipes is feasible, the hand-dug earthen canals may be substituted by pipes if water losses warrant this. Considering the higher unit cost of installing gravity-buried pipe systems, the cost and benefits of this option will be evaluated and discussed with the community before the installation of any such system.

68. **O&M of irrigation schemes.** WUAs will be established in every irrigation scheme rehabilitated or newly constructed to ensure sustainability of the investment and to avoid possible future conflicts. The members of a WUA have rights (the use of water for irrigation) as well as obligations (such as to respect the irrigation rules and schedules and to contribute maintenance fees). The WUA will have a committee with a chairman, an O&M officer, and a treasurer. Preferably, at least one of these three committee members should be a woman.

2.1.2. Technical Support for Production and Value Chain Subprojects

69. The main service provider will be responsible, among other things, for (a) identifying the demand-driven but potentially critical subprojects for increasing crop productivity and

production as well as post-harvest value addition and marketing. The objective of this project is to increase productivity, production, and the share of crop production marketed by smallholder farmers, thereby accelerating the transition from subsistence agriculture to commercial agriculture; (b) supporting preparation of subproject proposals that meet the selection criteria for eligibility for investment support and have a good chance for competitive selection under Component 2; and (c) supervising the implementation of subproject proposals selected for funding under Component 2. It is extremely important that this component supports agricultural subprojects that are viable, sustainable, and likely to make a major contribution to increased productivity, production, and marketing, including value addition.

Subcomponent 2.2. Provision of Investment Support - US$35 million (US$30 million from IBRD and US$5 million equivalent by beneficiaries)

70. Under this subcomponent, three windows exist for providing investment support to subprojects: (a) small-scale gravity-fed irrigation systems; (b) agricultural production; and (c) marketing linkages, infrastructure, and value chains. The menu of investment support options will be flexible but the eligibility criteria will be strictly followed. Farmers' organizations and even some critical enterprises may be eligible for five different investment support options.

(a) Investment support for irrigation only (for those eligible farmers' organizations that get FFS training during the latter phase of the SADCP)

(b) Investment support for production only (for those eligible farmers' organization that get FFS training during the latter phase of the SADCP)

(c) Investment support for value chains/marketing only (for those eligible organizations and enterprises trained in FFSs in the latter phase of the SADCP)

(d) Investment support for production and value addition (possible under the SADCP for eligible organization and enterprises that received FFS training but no investment support under MOSAP but only for unirrigated project areas)

(e) Investment support for irrigation, production, and value chain/marketing (possible for eligible organizations and enterprises under the SADCP but only for those under project-supported irrigation schemes)

71. Funding for any follow-up phase of the investment proposal for any of the above categories is subject to satisfactory completion of the previous phase of the investment proposal. Verification will be the responsibility of the PPIUs and the PIU. The Bank will also randomly select projects for evaluation to verify satisfactory performance during implementation support missions. However, not all subprojects will be eligible for funding under the investment support component. The preliminary negative list of subprojects is summarized below and will be included in the PIM.

(a) Subprojects with negative impact on the environment or health

(i) Subprojects with any activity in protected areas

(ii) Earth dams greater than 8 m

(iii) Subprojects requiring the use of banned agrochemicals

(iv) Subprojects that will damage cultural property

(v) Subprojects involving logging in protected areas/natural forests

(vi) Subprojects using waters from international rivers

(b) Subprojects for private or nonagricultural use

(i) Private residential houses

(ii) Schools, libraries, and related facilities

(iii) Health centers/clinics

(c) Subprojects in which beneficiaries are members or staff of the following entities:

(i) MOSAP and/or SADCP implementation committees

(ii) MOSAP and/or SADCP PIU or PPIUs

(iii) Local governments (village, communes, municipalities)

2.2.1. Investments in Irrigation Systems and Support Infrastructure

72. The objective of this component is to finance, on a pilot basis, the irrigation and drainage infrastructure required to increase the productivity and profitability of irrigated smallholder agriculture while considering the environmental and social safeguards associated with the civil works. Irrigation infrastructure development will be based on clearly articulated investment proposals and commitment from beneficiaries in scheme development and O&M. No infrastructure investments will be made before critical issues like land user rights and water rights have been secured.

73. On the basis of the participatory designs developed above and the eligibility criteria in Table 2.2, the SADCP will finance the costs of irrigation scheme rehabilitation/construction (weir construction, main and secondary canal construction, scheme buildings, and so on). The project will also cover, where relevant, flood protection dykes, earth embankments for storage reservoirs, and road connectors to the rural road network. For the civil works on the schemes' irrigation and drainage infrastructure, beneficiaries will participate in the construction/rehabilitation, primarily through provision of labor and local materials. This contribution of beneficiaries will be quantified and itemized in the Matching Grant Agreement.

74. The SADCP will endorse a mix of construction methods, including both plant-based and labor-intensive construction methods that are designed to (a) build local capacity in irrigation construction and maintenance; (b) create local entrepreneurship for sustainable delivery of irrigation services; and (c) deliver planned irrigation construction investments on time, of high quality, and at potentially lower cost than contractor and equipment-based constructions experienced in past irrigation projects in Angola. The choice of construction method will be made on a case-by-case basis at the feasibility stage, as this will determine cost as well as subsequent stages of design, supervision, and tendering.

75. During field visits to the project areas, the cost of SSI development based on gravity-fed

systems was estimated to be between US$1,000–US$2,000 per ha. Specific procurement methods for the construction of SSI schemes are detailed in Annex 3. The procurement methods will be also detailed in the PIM to indicate ceilings for investment costs per hectare for the applicable irrigation technologies; these ceilings will need to be regularly reviewed and updated; the bidding documents will be critically reviewed and, when applicable, provisions granted in the World Bank's Procurement Guidelines will be used to reject all bids. Procurement guidelines will ensure that the contract management/supervision is diligently carried out by the service providers and the PIU/PPIUs.

76. A preliminary list of eligible expenditures for irrigation systems and support infrastructure includes: (a) SSI and drainage infrastructure; (b) small-scale drainage and flood control dykes and embankments; (c) small-scale earth dams of less than 8 m height; (d) shallow wells for irrigation; (e) weirs and culverts for irrigation and drainage systems; (f) irrigation canals, lining of canals, and use of pipes; (g) any building material such as cement, steel, PVC pipes, bricks, and so on that may be required for the construction of irrigation and drainage infrastructure; and (h) feeder access roads and irrigation-related buildings, if necessary.

2.2.2. Investments in Agricultural Production

77. The main objective of this activity is to support a sustainable increase in smallholder agricultural productivity and production. To achieve this objective, the subcomponent will provide matching grants to smallholder farmers' groups and organizations for investments in farm assets. The main economic rationale for agricultural production investment support is that (a) the agriculture sector was decapitalized during the civil war and productivity remains low and (b) adoption and use of improved agricultural practices and technology are limited. Specific activities likely to be considered for investment support are demand-based agricultural technology packages designed to increase agricultural productivity and production on a sustainable basis. The main focus will be on crops identified as a priority for the project area (that is, maize, beans, cassava, potatoes, and soybean and vegetable crops such as onions, carrots, tomatoes, and cabbage).

78. To access matching grants for investment subprojects, eligible farmers' organizations will need to submit subproject proposals. Subcomponent 2.1 will assist eligible participants in the preparation of detailed subproject proposals that will allow an informed decision about their feasibility from technical, economic, financial, social, and environmental perspectives. Subproject proposals can be submitted for any investment that will contribute to increasing crop production and productivity.

79. To stimulate ownership and to demonstrate commitment, the cost-sharing requirement will be at least 10 percent for grants to farmers' organizations and individual enterprises. Proposals will be evaluated and selected based on the evaluation criteria summarized above. A full set of criteria and procedures will also be defined in the PIM. Proposals will be evaluated and selected by an independent technical committee. Although the disbursement mechanisms and advances may vary, taking into consideration the type of matching grant, the eligible expenditures are for goods, works, and services. Only those subproject proposals that meet the eligibility criteria for investment support will be funded through a matching grant.

80. The preliminary list of eligible expenditures for investment subprojects for agricultural production includes the following:

(a) Seed multiplication

(b) Multiplication of vegetative planting material (cassava, sweet potatoes, fruits trees, and nurseries)

(c) Seeds of improved crop varieties

(d) Chemical fertilizers

(e) Approved pesticides (insecticides, fungicides, and weedicides, and so on)

(f) Draft animals and animal traction equipment (ploughs, disc harrows, rippers, seeders, and cultivators)

(g) Tillers and related equipment

(h) Small tractors and related traction equipment

(i) Plant protection equipment (sprayers and so on)

(j) Small farm tools for tillage, planting, weeding, and harvesting

(k) Biological and/or physical soil erosion control methods

(l) Cultivation of nitrogen fixing plants

(m) Reforestation

(n) Storage equipment and facilities for agricultural inputs

2.2.3. Investments in Post-harvesting and Value Addition Subprojects

81. The main objective of this activity is to promote investments aimed at increasing value addition, reducing post-harvest losses, and strengthening market linkages for priority food crops and vegetable crops. The main economic rationale for supporting subprojects under this activity is that (a) crop losses are high and appropriate packaging, storage, and small-scale processing and market infrastructure facilities are extremely limited in the project area; (b) an opportunity exists for supporting value addition activities, including facilitating the development or expansion of contract farming arrangements; and (c) farmers' organizations' involvement in collective marketing efforts is not only economically desirable and efficient but is also a very effective way to strengthen them.

82. The ultimate goal is to improve the performance and efficiency of the targeted value chains. This activity will support investments related to market linkages and commercialization of priority food and vegetable crops. In particular, it will address issues that include packaging, storage, transport, small-scale processing, grading, packaging, and other post-harvest management and marketing activities aimed at increasing value addition, marketing infrastructure, and contract farming (including means of transportation but excluding roads). All subprojects requesting financing under this subcomponent will prepare a project proposal and a business plan that will go through a complete appraisal process to determine its economic feasibility and sustainability as well as its environmental and social impacts.

83. Financial support for farmers' organizations' and rural enterprises' value addition activities is crucial for the sustainability of the public investment in the development of SSI as

well as investments in agricultural production. Eligible beneficiaries for the value chain investment support will therefore include smallholder farmers' groups and organizations and rural enterprises that have proven capacities for market-oriented production and/or value chain activities. A key distinguishing feature of this activity will be more complex subprojects that may require greater focus on business development services.

84. The eligible list of expenditures for subproject investments in agricultural storage, processing, marketing, and value chain covers the following:

(a) Cassava processing mills

(b) Maize processing mills, hullers, and huskers

(c) Bean-shelling equipment

(d) Milk chillers

(e) Fruit and vegetable dryers

(f) Rural market/farmers' market facilities

(g) Small-scale storage equipment and facilities for commodities

(h) Transport equipment (ox cart, trailers, and motor trailers)

(i) Spot improvement of feeder roads

(j) River crossing points with small bridges

(k) Manual/mechanical weighing equipment (for example, scales)

(l) Packaging equipment and facilities for storage and marketing

(m) Bags, boxes, and other containers

(n) Fumigation material and equipment for storage

Component 3. Project Management, Monitoring, and Evaluation - US$10 million from IBRD

85. The objectives of this component are to manage the project effectively; ensure the use of resources in accordance with the project's objectives, procedures, and fiduciary guidelines; and monitor the status and performance of project implementation and achievement of project objectives. The project resources may also be used to prepare information related to a follow-up project and commercial agriculture in Angola.

Subcomponent 3.1. Project Management

86. The purpose of this subcomponent is to strengthening the capacity of the PIU for project management, coordination, M&E, including fiduciary (that is, financial and procurement management), environmental and social safeguard compliance, audits, and reporting support; and

strengthening the capacity of the PPIUs to assist in project management, coordination, M&E at the provincial level, including fiduciary (that is, financial and procurement management), environmental and social safeguard compliance, and reporting.

87. MINAGRI will be responsible for project implementation and has delegated project implementation to ADI, which will be accountable for management and oversight to attain the project's objectives. At the specific request of MINAGRI, a national-level PIU will be established within ADI's administrative framework and the director general of ADI will be the executive-level public manager of the project.

88. The PIU will be responsible for management of fiduciary issues in conformity with the standards and requirements contained in the legal agreement and agreed upon with the World Bank. The PIU will handle day-to-day management of all project activities, including technical supervision and coordination, overall project planning, quality oversight, communication, reporting, procurement, FM, monitoring of project activities, monitoring of its progress on a regular basis, and impact evaluation.

89. The PIU will include a PC, agricultural specialist, communication specialist, safeguards expert, M&E specialist, senior procurement specialist, FM specialist, accountant, and other relevant positions to support project implementation. A national-level PCC will monitor progress in project implementation and make necessary decisions that are in line with the project's objectives and institutional arrangements. The project will finance the operational cost, including salaries of externally hired staff, limited technical assistance and training, office equipment and vehicles, project M&E costs, and any other operational costs. The project will also finance the cost of periodic financial audits, both internal and external.

90. MINAGRI will establish three PPIUs within ADI to manage the project at the provincial level. Each PPIU will include a provincial PC, a financial accountant, a procurement officer, an M&E officer, and a communication specialist. A team of three technical staff, including an agronomist, an agribusiness specialist, and a rural infrastructure specialist, will be based at the provincial level (one team in each province), supplemented by short-term consultants according to needs. Three PPCCs will monitor progress in project implementation at the provincial level and make decisions in line with the project's objectives and institutional arrangements. As for the PIU, the project will finance the operational cost, including the salaries of externally hired staff, limited technical assistance and training, office equipment and vehicles, and any other operational costs. The project will also finance the costs of periodic financial audits.

91. At the start of the project, a communication strategy will be finalized to stimulate demand for project support and increase participation by farmers' organizations and vulnerable groups. The project will make use of affordable mass media such as community radio to pass key messages on agricultural best practices and technologies, nutrition, gender, and other social issues as well as CSA and other environmental good practices.

Subcomponent 3.2. Project Monitoring and Evaluation

92. This subcomponent is to support the establishment and implementation of an M&E system for the project, including establishment of an MIS within the project.

93. The M&E subcomponent focuses on data collection and reporting on key performance

input, output, and impact indicators, including targeted data collection, surveys, participatory assessments, and midterm and final evaluations. Relevant data related to beneficiaries will be gender-disaggregated and special attention will be given to social inclusion. A specialized M&E section as well as an MIS will be set up within the PIU, according to World Bank guidelines. Two evaluations of project output and impact indicators will be commissioned, at midterm and at project completion. The project will finance M&E costs, including costs associated with the MTR and project completion review, including preparation of the ICR.

III. PROJECT BENEFICIARIES, COST, AND LIKELY PRODUCTION IMPACT

Project Beneficiaries and Cost

94. The overall potential number of beneficiaries and likely preliminary costs for the SADCP by project component and subcomponent are summarized in Table 2.3.

Table 2.3. Number of Project Beneficiaries and Estimated Project Cost

Component/Subcomponent	Number of Beneficiaries	Project Cost (US$, millions)			
		World Bank	Government	Beneficiaries	Total
Subcomponent 1.1	125,000	10	15	—	25
Subcomponent 1.2	500	9	—	—	9
Subcomponent 1.3	100	4	5	—	9
Component 1 Subtotal	125,600	23	20	—	43
Subcomponent 2.1		7	—		7
Subcomponent 2.2		30	—	5	35
Component 2 Subtotal	50,000*	37	—	5	42
Component 3	—	10	—	—	10
Project Total	**175,600**	**70**	**20**	**5**	**95**

Note: *25,000 from MOSAP and 25,000 from the SADCP; the latter will also go through FFS training but will be counted only under Component 2 to avoid double accounting.

Likely Production Impact on Crop Yields

95. The proposed project is expected to have a large economic impact on increase in crop yields and hence crop production at the end of project implementation. Based on the experience under MOSAP, data from MINAGRI, and data collected by FAO from various sources in Angola, crop yields are reported in Table 2.4 for three scenarios: (a) baseline crop yields; (b) crop yields following FFS training interventions; and (c) crop yields following FFS training and investment support in irrigation, production, and value chain interventions. The crop yields under these three scenarios were used to estimate the crop production impact of the project as well as to conduct the economic and financial analyses.

Table 2.4. Estimated Average Crop Yields Before and After Project Interventions

Crop	Average Yields Before Project Interventions (Baseline)	After FFS Training (Year 5 End)		After FFS Training and Investment Support (Year 5 End)	
		Average Yields (t/ha)	% Increase over Baseline	Average Yields (t/ha)	% Increase over Baseline
Priority Crops					
Cassava	10.4	13	25	18.2	75
Beans	0.300	0.375	25	0.525	75
Maize	0.57	0.855	50	1.71	300
Potatoes	4	5	25	8	100

Soybean	0.53	0.663	25	0.928	75
Vegetable Crops					
Cabbage	10.41	13	25	20.8	100
Carrots	6	7.5	25	10.5	75
Onions	12.27	15.3	25	21.4	75
Tomatoes	12.65	15.8	25	25.3	100

Table 2.5. Estimated Project Area under Crops

	Estimated Project Area under Crops (ha)	
	Baseline	**Year 5**
Priority Crops	**206,490**	**206,900**
Beans	53,690	53,638
Cassava	37,170	37,134
Maize	107,380	107,456
Potatoes	6,195	6,609
Soybean	2,055	2,063
Horticulture	**3,300**	**5,030**
Cabbage	425	579
Onions	760	1,566
Tomatoes	2,116	2,885
Total	**209,790**	**211,930**

Table 2.6. Estimated Production with Project Interventions

	Crop Production with Project Interventions (Tons)			
	Baseline	**Year 5**	**Incremental Production/Year**	
Priority Crops				**Percentage**
Beans	16,107	21,059	4,952	31
Cassava	386,568	505,408	118,840	31
Maize	61,207	105,811	44,605	73
Potatoes	24,780	36,767	11,987	48
Soybean	1,089	1,471	382	35
Vegetable Crops				
Cabbage	4,420	9,617	5,197	118
Onions	9,322	27,269	17,947	193
Tomatoes	26,763	58,230	31,467	118

Project Provinces, Municipalities, and Communes

96. Table 2.7 lists the project provinces, municipalities, and communes and their associated population data.

Table 2.7. Population Data of the Targeted Provinces, Municipalities, and Communes

Province		**Municipality**	**Commune**	**Population of Commune**
Bié	1	Andulo	Sede (municipality capital)	108,104
	2		Cassumbe	16,301
	3		Caluncinga	74,148

Province		Municipality	Commune	Population of Commune
	4		Chivaulo	36,238
	5	Catabola	Sede	56,079
	6		Sande	15,167
	7		Caiuera	13,403
	8		Chiuca	13,157
	9		Chipeta	20,479
	10	Chinguar	Sede	36,353
	11		Cangote	33,762
	12		Cutato	47,355
	13	Camacupa	Sede	68,850
	14		Ringoma	14,505
	15		Umpulo	9,875
	16		Muinha	17,876
	17		Kuanza	30,654
	18	Kuito	Kunje	127,088
	19		Chicala	8.69
	20		Cambandula	45,125
	21		Trumba	8,150
	22	Nhareia	Sede	47,805
	23		Gamba	7,873
	24		Cayeye	18,390
	25	Chitembo	Sede	33,318
	26		Cachingues	11,929
	27		Mumbue	13,456
	28		Mutumbo	5,493
Sub-total project area Bie Province		**7**	**28**	**930,942**
Huambo	29	Bailundo	Bimbe	21,470
	30		Hengue	39,200
	31		Luvemba	40,692
	32		Comuna Sede Bailundo	121,570
	33		Lunge	59,218
	34	Londuimbali	Comuna Sede Londuimbali	33,776
	35		Cumbila	14,653
	36		Galanga	32,525
	37		Alto Hama	28,810
	38		Ussoque	14,684
	39	Mungo	Comuna Sede Mungo	69,838
	40		Cambuengo	40,291
	41	Cachiungo	Comuna Sede Catchiungo	52,928
	42		Chiumbo	23,587

Province		Municipality	Commune	Population of Commune
	43		Chinhama	39,148
	44	Chicala Cholohanga	Comuna sede Chicala Cholohanga	36,690
	45		Sambo	26,497
	46		Samboto	20,382
	47	Huambo	Chipipa	37,372
	48		Calima	75,473
	49	Caála	Comuna sede	132,479
	50		Calenga	37,120
	51		Cuima	58,123
	52		Catata	31,761
	53	Ekunha	Comuna Sede Ecunha	53,617
	54		Tchipeio	25,231
Sub-total project area Huambo Province		**8**	**26**	**1,167,135**
Malanje	55	Cacuso	Cacuso	27,738
	56		Lombe	13,683
	57		Quizenga	10,120
	58		Soqueco	8,000
	59	Kalandula	Kuale	14,257
	60		Kota	18,621
	61		Kalandula	23,310
	62		Cateco Kangola	9,899
	63		Quale	14,257
	64		Kinge	7,486
	65	Caculana	Caculama	17,700
	66		Caxinga	6,250
	67		Muquixe	5,087
	68	kiwaba-Nzoji	Mufuma	5,100
	69		Kiwaba-Nzoji	9,303
	70	Malanje	Cambaxe	2,164
	71		N’gola-Luije	6,990
	72	Cahombo	Sede	9,103
	73		Cambo Sunginge	4,048
	74	K. Katembo	Sede	21,663
	75		Talamungongo	3,131
	76	Kangandala	Sede	27,857
	77	Kunda dia base	Sede	27,857
	78	Massango	Sede	12,332
	79	Queda	Sede	9,263
	80		Xandel	8,004

Province		Municipality	Commune	Population of Commune
Sub-total project area Malanje Province		**11**	**26**	**323,223**
TOTAL project area		**26**	**80**	**3,066,212**
Total in the three target Provinces		**34**	**141**	**4,203,205**

Source: Population Census 2014.

Annex 3: Implementation Arrangements

ANGOLA: Smallholder Agriculture Development and Commercialization Project

Project Institutional and Implementation Arrangements

1. **PCC.** The project will establish a PCC, chaired by the minister of agriculture (or by the secretary of state, to whom he delegates this task). The PCC will (a) provide strategic guidance; (b) promote inter-ministerial coordination; (c) review and approve the annual plan and budget prepared by the PIU; (d) review and approve the annual reports of the project and decide on corrective measures to solve project-related implementation problems and issues; (e) review decisions made by the PISC and the PPISCs; and (f) issue directives to guide future project interventions, methods, and criteria. The director general of the ADI will be the secretary of the PCC. The PCC will be composed of the national directors and the director generals of the MINAGRI, and representatives of the following ministries: Planning, Finance, Commerce, and Environment, Family and Women. The composition and tasks of the PPCCs will reflect those of the PCC, including the provincial-level representatives of MINAGRI and other ministries represented on the PCC.

2. **PIU.** MINAGRI will establish a PIU at the national level that will (a) be responsible for project coordination and management of fiduciary issues in conformity with the standards and requirements agreed upon with the World Bank; and (b) manage the project in accordance with the legal Loan Agreement and other project documents such as the Project Appraisal Document and the PIM. The project will have a total of one PIU at the national level and three PPIUs.

3. The PIU will be accountable to the director general of ADI. The PIU will include a PC, agricultural specialist, communication specialist, safeguards expert, M&E specialist, senior procurement specialist, FM specialist, accountant, and other relevant positions to support project implementation. If these positions are filled by international consultants, each international consultant must have a local counterpart to improve local capacity, project sustainability, and continuity after the international consultant has completed his/her assignment.

4. **PPIUs.** The three PPIUs will be accountable to the provincial directors of ADI. Each PPIU will include a provincial PC, a financial accountant, a procurement officer, a communication specialist, and an M&E officer, all recruited locally. It is proposed that the provincial PC also take up the role of training coordinator. In addition, a team of three locally recruited technical specialists, consisting of an agronomist, an agribusiness specialist, and a rural engineer, will be hired. Additional short-term consultants will be hired as required.

5. **PISC.** The PISC is a small executive and technical subcommittee of the PCC that will consist of (at least) the ADI director general, the PC, and the financial manager. Its task will be to (a) speed up decisions and procedures; (b) approve subprojects under Component 2 (support for increased production and commercialization) that require national-level decision making (between US$50,000 and US$100,000); (c) propose the agenda for PCC meetings and prepare support documents; (d) propose the annual plan and annual budget to the PCC for analysis and decision; and (e) submit the project's annual report. The PISC will, in addition, include an NGO or civil society representative and a representative of the private sector when deciding on the approval of investment subprojects.

6. **PPISCs.** Each PPISC will include the provincial director of agriculture, the provincial director of ADI, and the provincial PC. Its task will be to (a) speed up decisions and procedures;

(b) approve subprojects under Component 2 that require provincial-level decision making (less than US$50,000); (c) recommend for approval to the central level those subprojects that require national-level decision making; (d) approve the provincial-level annual plan and annual budget prepared by the PPIU for submission to the PIU; and (e) approve the provincial-level annual report prepared by the PPIU for submission to the PIU. The PPISC will, in addition, include a civil society or NGO representative and a representative of the private sector when deciding on the approval of investment subprojects.

7. **EDAs at the municipal level.** Agricultural activities and marketing take place on farms and in villages at the commune and municipal level. Given the nature of the project, implementation at the field level is the most important. However, as the administrative and technical capacities at these levels are generally weak, the project will provide both capacity building and targeted technical assistance. To effectively implement the project, local EDAs will have to carry out their work in accordance with their usual functions (training, extension, technical advice, fertilizer program, and so on), but many or most EDAs will require substantial capacity building before they are actually capable of doing so. To speed up and facilitate this process, the project will (a) assist in capacity building of EDAs; (b) provide technical assistance to EDAs; and (c) where necessary or desirable, engage service providers (including NGOs) to assist EDAs in their work.

Project Administration Mechanisms

8. The project will be implemented at four levels: national, provincial, municipal, and commune/local. The project is fully integrated in MINAGRI's ADI, from the national to the municipal level, and strong coordination and consultation mechanisms will be in place with the relevant government stakeholders and authorities at these different levels.

(a) At the national level, MINAGRI will be responsible for overall project implementation, in full consultation with the other relevant national-level ministries involved in the project, to ensure that project activities are consistent with national policies.

- A PCC, chaired by the minister of agriculture (or by delegation, the secretary of state of agriculture), will have overall decision-making responsibility regarding project management, including approval of work plans and budgets.

- The director general of ADI (within MINAGRI) will be the executive-level head responsible for strategic direction of the project.

- A PIU, headed by a PC, will be established within ADI (within MINAGRI) and will be responsible for day-to-day management of the project.

- A small executive PISC, under the PCC, will be established to speed up decisions and procedures.

(b) At the provincial level, the provincial delegation of ADI will be responsible for project implementation, in coordination with the DPA and in consultation with other provincial government and province-level representatives of the other ministries involved.

- A PPCC, chaired by the vice-governor of economic development, will oversee project implementation, including monitoring local project progress and making decisions in line with the objectives and institutional arrangements that are consistent with project documents and legal agreements. The provincial director of ADI (within the provincial government) will be responsible for strategic direction of the project at the provincial level.

- A PPIU, headed by a provincial PC, will be established within the provincial ADI (within the provincial government) and will be responsible for day-to-day management of the project at the provincial level.

- A small executive PPISC, under the PPCC, will be established to speed up decisions and procedures.

(c) At the municipal level, ADI's local EDAs will be responsible for project implementation, in coordination and consultation with the municipal administration. EDAs will obtain the consent of the municipal administration before forwarding subproject proposals to the provincial level.

(d) At the commune/local level, rural communities/villages (*aldeias*) and smallholder farmers' groups and organizations will be the main implementers of subprojects.

Financial Management, Disbursement, and Procurement

Financial Management

9. The SADCP's FM arrangements will be the same as those of the under MOSAP. In line with the FM policies of OP/BP 10.00 - Investment Project Financing, the FM arrangements were assessed to determine whether they are acceptable to the World Bank.

10. The objective of the assessment was to determine whether (a) the PIU has adequate FM arrangements to ensure that project funds are used for intended purposes in an efficient and economical way; (b) the financial reports will be prepared accurately, reliably, and on time; and (c) the project's assets will be safeguarded.

11. The assessment concluded that the PIU's FM system is adequate and the existing arrangements comply with the World Bank's FM requirements under OP/BP 10.00, as (a) qualified staff well conversant with World Bank procedures are in place (one FM specialist and two accountants at the national level); (b) an acceptable Financial Procedures Manual is in use; (c) an appropriate accounting system combined with an acceptable internal control system are in place; and (d) the PIU's handling of MOSAP's FM arrangements is satisfactory.

12. Considering the risk of additional work load, the overall FM risk is assessed as Substantial. To enhance the FM system, the assessment proposes as mitigation measures: (a) amendment of the existing Financial Procedures Manual to integrate SADCP specificities; (b) upgrade of the current information system to integrate the proposed project; (c) recruitment of three additional accountants at provincial level (Bié, Malanje, and Huambo); and (d) recruitment of an external financial auditor.

13. **FM conditions and FM covenants**

(a) Amendment of the existing Financial Procedures Manual to include the new project as an effectiveness condition

(b) Upgrade of the existing accounting software to handle the new project no later than three months after effectiveness

(c) Recruitment of three additional accountants at provincial level (Bié, Malanje, and Huambo) no later than three months after effectiveness

FM Risk Assessment and Mitigation

14. Table 3.1 summarizes the key FM-related risks the project may face and their corresponding mitigation measures.

Table 3.1. FM Risks and Mitigation Measures

Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness	Residual Risk
Inherent Risk				
Country Level Country FM systems will not be adequate to encourage use of country systems.	H	The Government is undertaking a number of public FM reform initiatives, including roll-out of the state Financial management System (*Sistema Integrado de Gestão Financeira do Estado*, SIGFE), but the country's public PFM system remains weak.	—	H
Entity Level Entity will not have project implementation capacity (including inadequate FM systems) to manage the project.	S	MINAGRI will be responsible for overall project implementation. A national PIU and three PPIUs will be established within MINAGRI's ADI. A qualified and experienced FM specialist and one accountant will be appointed to the PIU before credit becomes effective, and the national PIU will be responsible for overall FM operations of the project.	Implementation	S
Project Level The project may not have adequate FM systems to manage project funds.	S	The FM specialist recruited for the national PIU will be required to update, document (in an FM procedures manual), and implement a satisfactory FM system acceptable to the World Bank for use by the project.	Effectiveness	S
Control Risk	S			
Budgeting Annual budget may not cover all project activities and its execution might not be adequately reported.	M	The manual of procedures will be amended to include the procedures for annual budget preparation, execution, and reporting.	Implementation	M
Accounting Accounting policies and procedures may not be fully	S	The accounting policies and procedures, including chart of accounts, in the Financial Procedures Manual will be amended. Three additional staff will be recruited at provincial level.	Effectiveness	S

Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness	Residual Risk
adapted.		Existing accounting software will be upgraded to manage phase II of the project.	Implementation	
Internal Control Project management and implementation procedures may not follow Committee of Sponsoring Organizations of the Treadway Commission's requirement.	H	Policies and procedures to be employed by the PIU in accounting and managing the project funds will be documented in the project Financial Procedures Manual and a PIM.	Effectiveness	S
Funds Flow Disbursements may be slow because of delayed submission of withdrawal applications.	S	The management of funds will be centralized in the national PIU. Transfers will eventually be made to PPIUs.	—	S
Financial Reporting Quarterly interim unaudited financial reports (IUFRs) may not be submitted on time.	S	The financial reporting system will be documented in the Financial Procedures Manual and formats of IUFRs were agreed during negotiations.	Implementation	S
Auditing Audit reports may delay	M	TORs will be developed to select independent auditors with relevant qualifications. Selection of auditors is a dated covenant and should take place within six months after effectiveness.	No later than six months after effective date.	M
Overall Risk	**S**			**S**

15. In view of the general country FM issues and the issues peculiar to the project, the overall FM risk rating for the project is Substantial. The overall residual FM risk remains Substantial as well.

Staffing

16. The overall responsibility for the project's FM will rest with the project's FM specialist who will report to the PC. To build capacity within ADI/MINAGRI, the project's FM specialist will also train ADI/MINAGRI accounting staff, to whom project FM responsibilities will be allocated.

17. For each participating province, an accountant will be appointed for the project. The provincial accountants will report to the provincial PC and will be supervised by the project's FM specialist. They will benefit from training under the project.

Budgeting

18. The annual budget will be prepared based on the procedures for preparation that are documented in the Financial Procedures Manual to be updated by the project.

Accounting

19. The project's accounting records will be maintained using the international accounting standards (as promulgated by the International Federation of Accountants) or national accounting standards, if acceptable. The accounting policies and procedures, including chart of accounts, will be documented in the Financial Procedures Manual. The PIU will update the existing accounting information system within three months after effectiveness.

Internal Controls

20. The accounting systems, policies, and procedures to be used by the PIU in accounting and managing the project funds will be documented in the Financial Procedures Manual. The manual will describe the accounting system, internal control procedures, basis of accounting, standards to be followed, authorization procedures, financial reporting process, budgeting procedures, financial forecasting procedures, and contract management. In addition, the manual should document procedures to be undertaken for the replenishment of the designated accounts and auditing arrangements. This manual will be an update of MOSAP's existing Financial Procedures Manual.

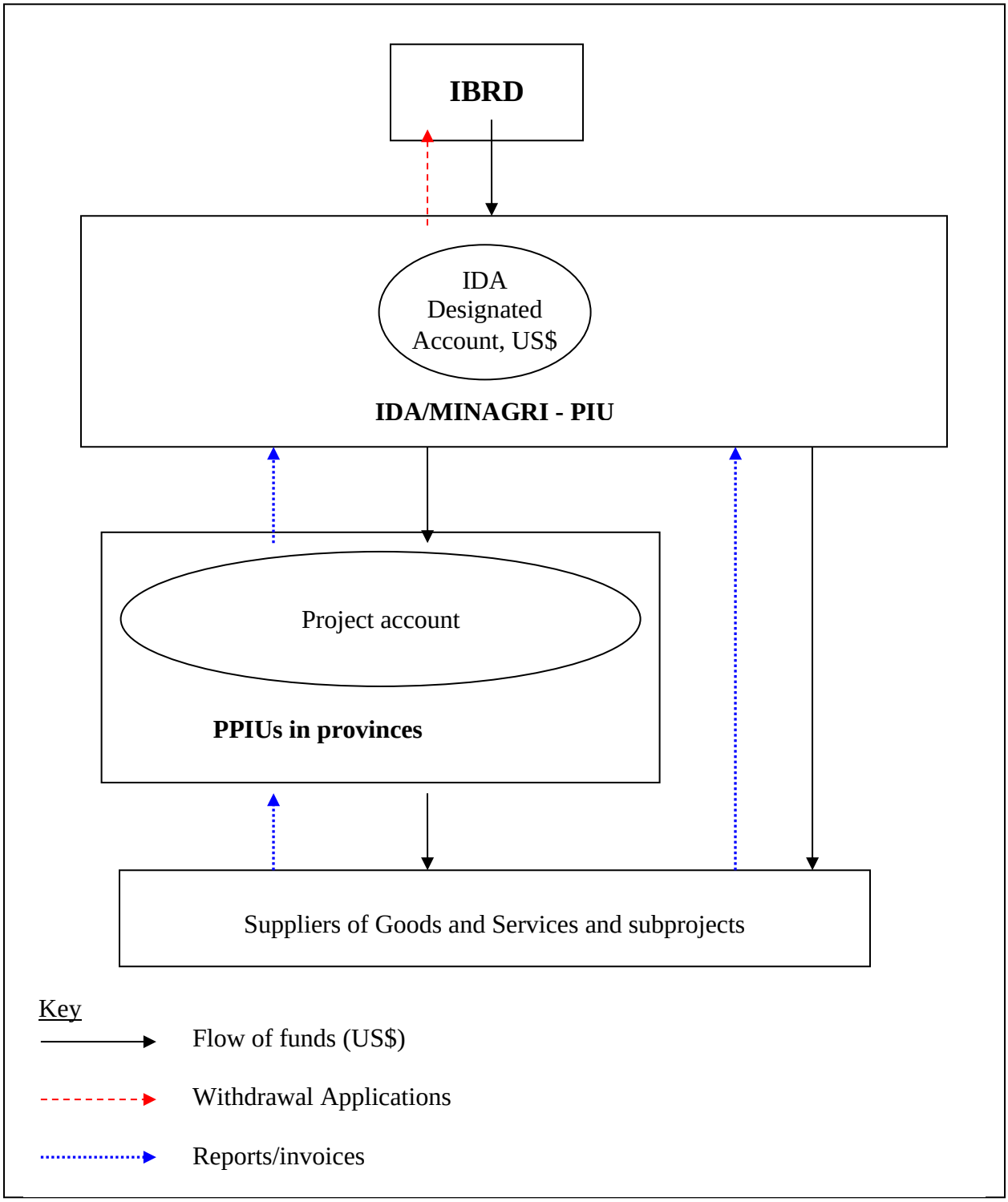
Internal Auditing Function

21. The internal audit function in Angola is mostly carried out by the National Inspectorate of Finance (*Inspeção Nacional de Finanças*, INF). As the INF is weak, the impact on the internal controls mechanism of the project may be limited. Given weak INF capacity, the overall FM risk of the project, and widely dispersed spending units, a strong internal control mechanism and a quality control assurance system need to be established at all levels. The project will strengthen the INF to oversee project activities.

Disbursement

22. Figure 3.1 depicts the fund flow mechanism that will be deployed for the project.

Figure 3.1. Fund Flow Mechanism for the Project



Note: All payments will be made by the PIU to suppliers of all goods and services and no funds will be advanced to the PPIU bank accounts until such time that each PPIU is staffed with an accountant and has been assessed by the Bank as ready to handle its own FM requirements.

23. Funds will flow from IBRD to designated accounts to be opened in U.S. dollars and managed by the PIU within ADI/MINAGRI. IBRD funds will finance all three project components.

24. The PIU will handle payments for project expenditures incurred at both the national and provincial level. Some menu expenditures agreed in the annual budget and work plan will be managed at the PPIU level, which will report the use of these funds to the national level. To that end, a project bank account will be opened at provincial level under the joint signatory of the provincial PC and accountant.

25. Concerning fund flow arrangements for matching grants, the PIU will either make direct payments to providers of goods and services on behalf of the beneficiary organization or funds will be transferred to specific institutions, such as NGOs and local associations, that will manage resources on behalf of the community. For all envisaged alternatives, funds will be made available to the organizations based on an agreement to be signed between them and the project. Details of FM arrangements for matching grants will be documented in the PIM.

Disbursement Arrangements

26. Table 3.2 summarizes the financing plan and disbursement categories for the project.

Table 3.2. Disbursement Categories

Category	Amount of the Loan Allocated (Expressed in US$)	Percentage of Expenditures to be Financed (Inclusive of Taxes)
(1) Goods, non-consulting services, consultants' services and training for subcomponent 1.1 of the project	10,000,000	100
(2) Goods, works, non-consulting services, consultants' services, operating costs and training for subcomponent 1.2 of the project	9,000,000	100
(3) Goods, works, non-consulting services, consultants' services, operating costs and training for subcomponent 1.3 of the project	4,000,000	100
(4) Non-consulting services and consultants' services for subcomponent 2.1 of the project	7,000,000	100
(5) Matching grants under subcomponent 2.2 of the project	30,000,000	100% of amounts disbursed by the borrower under the matching grant
(6) Goods, works, non-consulting services, consultants' services, operating costs and training for component 3 of the project	9,825,000	100
(7) Front-end fee	175,000	Amount payable pursuant to Section 2.03 of the Loan Agreement in accordance with Section 2.07 (b) of the General Conditions
(8) Interest rate cap or interest rate collar premium	0	Amount due pursuant to Section 2.08(c) of the Loan Agreement
Total Amount	**70,000,000**	

27. Disbursement of IBRD funds will be done on a transaction basis. The project will have the option to move to report-based disbursement once the FM system and the project's forecasting capacity have been assessed as satisfactory for that mode of disbursement. Once in

report-based disbursement mode, quarterly IUFRs will be acceptable as the basis for disbursements. These reports will include information under three main categories: (a) project financial statement, which includes a summary of sources and uses of funds, an updated six-month forecast, designated account activity, and reconciliation statements, and statements of eligible expenditures by disbursement category for contacts/other expenditures above/below the procurement prior review thresholds; (b) a project progress report explaining variances between actual physical and financial progress versus forecasts; and (c) a procurement management report showing procurement status and contract commitments.

28. At the inception of the project, an advance will be made into a project designated account to be maintained by the PIU. The advance will be used for eligible project expenditures financed by the Government and IBRD, in sufficient amount to execute project activities.

Financial Reporting

29. The project will establish an FM system capable of producing the required financial reports to manage and monitor the project. IUFRs will be produced on a quarterly basis. The contents of these reports should consist of at least the following: a statement of sources and uses of funds, a statement of uses of funds by project components and activities, and a summary variance report explaining financial performance for the period.

30. The PIU will also produce annual project financial statements, which will comprise the following:

(a) A statement of sources and uses of funds/cash receipts and payments that recognizes all cash receipts, cash payments, and cash balances controlled by the entity for this project and separately identifies payments by third parties on behalf of the entity.

(b) **The accounting policies adopted and explanatory notes.** The explanatory notes should be presented in a systematic manner with items on the statement of cash receipts and payments cross-referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets.

(c) A management assertion that IBRD funds have been expended in accordance with the intended purposes, as specified in the relevant World Bank legal agreement.

31. Each PPIU will produce, on a monthly basis, financial reports required to manage and monitor implementation of project activities at the provincial level. PPIUs will produce and submit monthly financial reports to the PIU. The financial reports produced by the PPIUs will be used to produce consolidated IUFRs to be submitted to the World Bank within 45 days after the end of each calendar quarter. The formats and contents of quarterly financial reports produced by the PPIUs will be documented in the Financial Procedures Manual.

External Audit

32. The project's financial statements will be audited by independent auditors in accordance with International Standards on Auditing as promulgated by the International Federation of Accountants and the audit report will be submitted to IBRD within six months after the financial year-end. The costs incurred for the audit will be borne by the project. The arrangements for the

appointment of the external auditors of the project financial statements shall be communicated to IBRD through agreed TORs.

33. The auditors will be required to express a single opinion on the project financial statements and the audit report will be submitted to IBRD within six months after the financial year-end. In addition, a detailed management letter containing the auditor's assessment of the internal controls, accounting system, and compliance with financial covenants in the IBRD Financing Agreement and suggestions for improvement will be prepared and submitted to management for follow-up.

Action Plan

34. To establish an acceptable control environment and to mitigate FM risks, the following measures should be taken by the due dates indicated in the FM action plan in Table 3.3.

Table 3.3. FM Action Plan

	Action	Responsibility	Completion Date
1	Prepare IUFR formats	ADI/MINAGRI	Agreed during negotiations
2	Prepare external audit TORs	ADI/MINAGRI	Agreed during negotiations
3	Update the Financial Procedures Manual acceptable in form and substance to the World Bank	ADI/MINAGRI	Effectiveness
4	Update the FM and accounting system	ADI/MINAGRI	Three months after effectiveness
5	Hire an external auditor	ADI/MINAGRI	Not later than six months after effectiveness
6	Hire provincial accountants	ADI/MINAGRI	Not later than three months after effectiveness

Supervision Plan

35. FM supervision will be risk-based and conducted by the World Bank's FM specialist, initially at the rate of two field visits per year given the Substantial risk rating. The FM specialist will also:

- conduct an initial FM field visit to confirm the successful disposal of effectiveness/disbursement conditions;
- review the financial component of the quarterly IUFRs; and
- review the audit reports and management letters from the external auditors and follow up on material accountability issues by engaging with the task team leader, client, and/or auditors.

Procurement

36. Procurement activities for the SADCP will be carried out in accordance with the World Bank's 'Guidelines: Procurement of Goods, Works, and Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014, and 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA

Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014, and the provisions stipulated in the Financing Agreement for the project.

37. Further, the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, and revised in January 2011, will apply.

38. The following project activities are subject to World Bank procurement procedures:

(a) **Works.** This activity will include rehabilitation of irrigation systems, rehabilitation of roads, construction of bridges/drifts, construction of technical staff housing and office complexes, construction of warehouses and market infrastructure, and rehabilitation and/or construction of critical agricultural extension facilities at local level. Specific activities for irrigation are (i) upgrading of the area around the intake and the main canal; (ii) construction of collecting structures for the accumulation of water to be distributed and/or rehabilitation of damaged embankments; (iii) installation of control structures like water gates; (iv) upgrading (digging) of the main canals and, where necessary, lining critical stretches of the distribution system; and (v) use of local plants/grass to control canal erosion. Works will also include any activities included in the selected subproject proposals.

(b) **Goods.** This activity will include procurement of vehicles and motorcycles, agricultural implements, IT equipment, and furniture. Goods will also include any activities included in the selected subproject proposals.

(c) **Consultancies.** This activity will include (i) recruitment of service providers for capacity building of community associations, agricultural statistics, market information systems, agricultural policy analysis, irrigation-related services, and agricultural research that will include improving soil diagnostics services; multiplication of seeds and planting materials; strengthening national research and extension systems; and scaling up testing and demonstration of improved technologies at the international and regional levels; and (ii) recruitment of project staff. FAO will be hired on an SSS basis. An international service provider for Component 2 is another important consultancy.

Particular Methods of Procurement of Goods, Works, and Non-consulting Services

39. **International competitive bidding (ICB).** Except as otherwise provided in the paragraph below, Goods, Works, and Non-consulting Services shall be procured under contracts awarded on the basis of ICB.

40. **Other methods of procurement of goods, works, and non-consulting services.** The following methods, other than ICB, may be used for procurement of goods, works, and non-consulting services for those contracts specified in the Procurement Plan.

Table 3.4. Other Procurement Methods

Procurement Method
(a) National Competitive Bidding (NCB), subject to the provisions of the paragraph below on NCB.
(b) Shopping
(c) Direct contracting
(d) Community participation procedures acceptable to the Bank

41. For NCB, Angolan regulations will apply. All bid documents will need to be satisfactory to the World Bank and subject to the additional procedures and modifications stipulated below and to be reflected in the Financing Agreement.

42. **General.** The procedures followed for NCB shall be those set forth in '*Lei No. 20/10 da Contratação Pública'* of the Republic of Angola of September 7, 2010, ('the Law'), with the modifications described in the following paragraphs.

43. **Eligibility.** The eligibility of bidders shall be as defined under Section I of the Procurement Guidelines; therefore, no bidder or potential bidder shall be declared ineligible for contracts financed by the World Bank for reasons other than those provided in Section I of the Procurement Guidelines. Bidding shall not be restricted to domestic bidders. No restriction based on nationality of bidders and/or origin of the goods shall apply other than those imposed by primary boycotts as contemplated in Section I of the Procurement Guidelines. Foreign bidders shall be allowed to participate in NCB without restriction and shall not be subject to any unjustified requirement that will affect their ability to participate in the bidding process such as, but not limited to, the submission of evidence of good standing with regard to taxes paid to the Angolan Government and with regard to social security contributions made in Angola.

44. Prior registration or obtaining a license or authorization shall not be a requirement for any bidder to participate in the bidding process.

45. Government-owned enterprises or institutions of Angola shall be eligible to participate in the bidding process 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.

46. **Bidding documents.** Standard bidding documents acceptable to the World Bank shall be used.

47. **Participation by joint ventures.** Participation shall be allowed from joint ventures on condition that such joint venture partners will be jointly and severally liable for their obligations under the contract.

48. **Preferences.** No domestic/regional preference or any other kind of preferential treatment shall be given for domestic/regional bidders, for domestically/regionally manufactured goods, and/or for domestically/regionally originated related services.

49. **Applicable procurement method.** Subject to these provisions, procurement shall be carried out in accordance with the 'Public Competitive Bidding' method (*Concurso Público*) set forth in the Law.

50. **Qualification.** Qualification criteria shall entirely concern the bidder's capability and resources to perform the contract considering objective and measurable factors. The qualification criteria shall be clearly specified in the bidding documents, and all criteria so specified and only such criteria so specified shall be used to determine whether a bidder is qualified. Qualification criteria shall be assessed on a 'pass or fail' basis, and merit points shall not be used. Bidders' qualifications shall be assessed by post-qualification and such an assessment shall be conducted separately from the technical and commercial evaluation of the bids.

51. **Advertisement.** A shorter version of the advertisement text, including the minimum relevant information, may be published in a national newspaper of wide circulation provided that

the full text is simultaneously published in the official gazette (*Diário da República*) or on a widely used website or electronic portal with free national and international access.

52. **Bid preparation time.** Bidders shall be given at least 28 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.

53. **Bids submission and bid opening.** Bids may be submitted by electronic means only provided that the World Bank is satisfied with the adequacy of the system, including, among other things, that the system is secure, maintains the integrity, confidentiality, and authenticity of the bids submitted, and uses an electronic signature system or equivalent to keep bidders bound to their bids.

54. Bids shall be opened in public, immediately after the deadline for their submission in accordance with the procedures stated in the bidding documents. The public bid opening shall take place in only one session. At the public bid opening, the names of the bidders and the total amount of each bid and of any alternative bids if they have been requested or permitted, shall be read aloud and recorded when opened. Bids shall not be evaluated as part of the bid opening process, and no bid shall be rejected during the public bid opening session, except for late bids. Bidders shall not be allowed to complete their bids after the deadline for submission of bids has expired.

55. **Bid validity.** No automatic extension of the bid validity shall apply. If justified by exceptional circumstances, an extension of the bid validity may be requested in writing from all bidders before the original bid validity expiration date and it shall cover only the minimum period required to complete the evaluation and award of the contract. The extension of the bid validity requires the World Bank's no objection for those contracts subject to prior review.

56. **Bid evaluation**

(a) Evaluation of bids shall be made in strict adherence to the evaluation criteria declared in the bidding documents. Evaluation criteria other than price shall be quantified in monetary terms and the manner in which they will be applied for the purpose of determining the lowest evaluated bid shall be established in the bidding documents. A weighting/scoring system shall not be used.

(b) A contract shall be awarded to the qualified bidder offering the lowest-evaluated and substantially responsive bid. No negotiations shall be permitted.

(c) Bidders shall not be eliminated on the basis of minor, non-substantial deviations.

(d) Requests for clarification and the bidder's responses shall be made in writing and they shall not be notified to other bidders.

(e) After the public opening of bids, information relating to the examination, clarification, and evaluation of bids and recommendations concerning the awards shall not be disclosed to bidders or other persons not officially concerned with this process until publication of the award of the contract.

57. **Rejection of all bids and re-bidding.** All bids shall not be rejected, the procurement process shall not be cancelled, and new bids shall not be solicited without the World Bank's prior concurrence.

58. **Securities.** Bid securities shall not exceed 3 percent of the estimated cost of the contract; and performance securities shall not exceed 10 percent of the contract price. The successful bidder shall be given at least 15 days from the receipt of notification of contract award to submit a performance security. No advance payment shall be made without a suitable advance payment security.

59. **Publication of contract award.** Information on contract award shall be published at least in a national newspaper of wide circulation within two weeks of receiving the World Bank's no objection to the award recommendation for contracts subject to prior review and within two weeks from the award decision for contracts subject to post review. The publication shall include the following information: (a) the name of each bidder who submitted a bid; (b) bid prices as read out at bid opening; (c) evaluated prices of each bid that was evaluated; (d) the names of bidders whose bids were rejected and the reasons for their rejection; and (e) the name of the winning bidder, the final total contract price, and the duration and summary scope of the contract.

60. **Complaints by bidders and handling of complaints.** The borrower shall establish an effective and independent protest mechanism allowing bidders to protest and to have their protest handled in a timely manner.

61. **Contract and contract modifications.** Contracts shall be in writing and the bid of the successful bidder shall become part of the contract documents without any modification introduced by the contracting authority. In the case of contracts subject to prior review, the World Bank's no objection shall be obtained before agreeing to (a) a material extension of the stipulated time for performance of a contract; (b) any substantial modification of the scope of services or other significant changes to the terms and conditions of the contract; (c) any variation order or amendment (except in cases of extreme urgency) which, singly or combined with all variation orders or amendments previously issued, increases the original contract amount by more than 15 percent; or (d) the proposed termination of the contract. A copy of all contract amendments shall be furnished to the World Bank for its record.

62. **Right to inspect/audit.** In accordance with the Procurement Guidelines, each bidding document and contract financed from the proceeds of the financing shall provide that bidders, suppliers, and contractors, and their subcontractors, agents, personnel, consultants, service providers or suppliers, shall permit the World Bank, at its request, to inspect their accounts, records, and other documents relating to the submission of bids and contract performance and to have them audited by auditors appointed by the World Bank. Acts intended to materially impede the exercise of the World Bank's inspection and audit rights constitute an obstructive practice as defined in the Procurement Guidelines.

63. **Fraud and corruption.** In accordance with the Procurement Guidelines, each bidding document and contract financed from the proceeds of the financing shall include provisions on matters pertaining to fraud and corruption. The World Bank will sanction a firm or individual, at any time, in accordance with prevailing World Bank sanctions procedures, including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (a) to be awarded a World Bank-financed contract; and (b) to be a nominated subcontractor,

consultant, supplier, or service provider of an otherwise eligible firm being awarded a World Bank-financed contract.

64. **Debarment under the national system.** The World Bank may recognize, if requested by the borrower, 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 World Bank confirms that the particular debarment process afforded due process and the debarment decision is final.

65. **Particular methods of procurement of consultants' services**

(a) **Quality- and Cost-Based Selection (QCBS).** Except as otherwise provided in the next paragraph, consultants' services shall be procured under contracts awarded on the basis of QCBS.

(b) **Other methods of procurement of consultants' services**. The following methods, other than Quality- and Cost-Based Selection, may be used for procurement of consultants' services for those contracts specified in the Procurement Plan:

Table 3.5. Other Procurement Methods for Consulting Services

Procurement Method
(a) Quality-Based Selection (QBS)
(b) Selection under a Fixed Budget (FBS)
(c) Least-Cost Selection (LCS)
(d) Selection Based on the Consultants' Qualifications (CQS)
(e) SSS
(f) Selection of Individual Consultants
(g) Single source procedures for the selection of Individual Consultants
(h) Selection of UN agencies
(i) Well-established private sector procurement methods or commercial practices which have been found acceptable to the Bank

World Bank Review of Procurement Decisions

66. The review thresholds are shown in Table 3.6. The Procurement Plan shall set forth those contracts that shall be subject to prior review by the World Bank. All other contracts shall be subject to post review by the World Bank. The World Bank may, at its own discretion, require that a sample of contracts below the threshold be subject to prior review, at any time or when the Procurement Plan is updated.

Table 3.6. Thresholds for Procurement and Review Methods

Expenditure Category	Contract Value Threshold (US$)	Procurement/Selection Method	Contracts Subject to Prior Review
Works	≥ 10,000,000	ICB	All
	≥ 3,000,000 < 10,000,000	NCB	All
	< 3,000,000	NCB	None (Post Review)
	< 100,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Goods	≥ 1,000,000	ICB	All
	≥ 250,000 < 1,000,000	NCB	All
	< 250,000	NCB	None (Post Review)
	< 75,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Consulting Services - Firms	≥ 200,000	QCBS/Other (QBS/FBS/ LCS)	All
	< 200,000	CQS/Other (QCBS/QBS/ FBS/LCS)	None (Post Review)
	All values	SSS UN Agencies	All
Consulting Services - Individuals (IC)	≥ 100,000	IC - Qualification	All
	< 100,000	IC - Qualification	None (Post review)
	All Values	IC - SSS	All

Procurement Plan

67. MINAGRI through the PIU has developed a Procurement Plan for the first 18 months of project implementation. This plan was agreed between the borrower and the World Bank during negotiations. The plan will be made available at the project's database and on the World Bank's external website after loan approval. The Procurement Plan will be updated annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

68. The frequency of procurement supervision missions will be once every six months. Special procurement supervision for post-procurement reviews will be carried out at least once every 12 months.

69. Procurement Plan for the first 18 months:

- Works Procurement Packages with Methods and Time Schedule
- Goods Procurement Packages with Methods and Time Schedule
- Consultancy Assignments with Selection Methods and Time Schedule

PROCUREMENT PLAN

For the 1st Eighteen (18) Months

I. General

1. **Project:** The project aim is to increase smallholder agriculture productivity, production, and marketing for selected crops in the project areas.
2. **Country:** Angola
3. **Borrower:** Republic of Angola
4. **Project Name:** Smallholder Agriculture Development and Commercialization Project (SADCP)
5. **Loan No**. 8626
6. **Project Implementing Agency (PIU):** MINAGRI/ADI. **Implementing Partners:** IBRD (World Bank)
7. **World Bank's Approval Date of the Procurement Plan:** April 20, 2016
8. **Date of General Procurement Notice**: TBD
9. **Period Covered by this Procurement Plan**: July 6, 2016–September 30, 2017

II. Goods and Works and Non-consulting Services

1. **Prior Review Threshold**: Procurement decisions subject to prior review by the World Bank as stated in Appendix 1 to the Procurement Guidelines.

Expenditure Category	Contract Value Threshold (US$)	Procurement/Selection Method	Contracts Subject to Prior Review
Works	≥ 10,000,000	ICB	All
	≥ 3,000,000 < 10,000,000	NCB	All
	< 3,000,000	NCB	None (Post Review)
	< 100,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Goods	≥ 1,000,000	ICB	All
	≥ 250,000 < 1,000,000	NCB	All
	< 250,000	NCB	None (Post Review)
	< 75,000	Shopping	None (Post review)
	All values	Direct Contracting	All

2. **Prequalification.** n.a.

3. **Proposed Procedures for CDD Components (as per paragraph. 3.17 of the Guidelines:**

4. **Reference to (if any) Project Operational/Procurement Manual:** Procurement related to goods, works and services, consultants' services will be carried out, by PIU/PPIU of SADCP, following procedures as laid down in the Operational Manual to be approved by the World Bank

5. **Any Other Special Procurement Arrangements:** PIU and PPIU shall comply strictly with procurement provisions as indicated in the manual for subprojects.

6. Procurement packages with methods and time.

A. GOODS

1	2	3	4	5	6	7	8	9
Proc. Ref. No.	**Contract (Description)**	**Estimated Cost US$**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by World Bank (Prior /Post)**	**Expected Bid-Opening Date**	**Comments**
001/C3/G/SADCP/15	Supply of computers equipment and communication system (TC/IT) for ten (10) EDAs in Bié, Malanje, and Huambo Provinces	75,000	NCB	No	No	Post	March 3, 2017	
002/C1/G/SADCP/15	Supply of computers equipment and communication systems for 18 provinces - GEPE/Statistics)	169,000	NCB	No	No	Post	September 30, 2016	
003/C3/G/SADCP/15	Procurement of 10 pickup vehicles (4x4) for EDAs Procurement of 5 pickup vehicles (4x4)—2 for GEPE and 3 for Bié, Huambo and Malanje—to support the agro-statistics survey and inquiries Procurement of 9 SUVs (4x4) for PIU and PPIUs	900,000	NCB	No	No	Prior	September 30, 2016	
	Sub Total Goods	**1,144.000**						

B. WORKS (Rehabilitation/Construction Activities)

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$)**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by World Bank (Prior /Post)**	**Expected Bid-Opening Date**	**Comments**
001/C3/W/ SADCP/15	PIU minor rehabilitation Luanda	12,000	Shopping	No	No	Post	January 31, 2017	
002/C3/W/ SADCP/15	Minor rehabilitation of PPIU office in Bié	26,000	Shopping	No	No	Post	September 30, 2016	
003/C3/W/ SADCP/15	Minor rehabilitation of PPIU office in Malanje	12,000	Shopping	No	No	Post	September 30, 2016	
	Total Works	**50,000**						

III. Selection of Consultants

1. Prior Review Threshold: Selection decisions subject to prior review by the World Bank as stated in Appendix 1 to the Consultant Guidelines. In addition, all TOR's for consultant's services, irrespective of value of the contract, will be reviewed by the World Bank.

Expenditure Category	Contract Value Threshold (US$)	Procurement/Selection Method	Contracts Subject to Prior Review
Consulting Services -Firms	≥ 200,000	QCBS/Other (QBS/FBS/ LCS)	All
	< 200,000	CQS/Other (QCBS/QBS/ FBS/LCS)	None (Post Review)
	All values	SSS UN Agencies	All
Consulting Services - Individuals (IC)	≥ 100,000	IC - Qualification	All
	< 100,000	IC - Qualification	None (Post review)
	All Values	IC - SSS	All

2. Short list comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than US$300,000 equivalent per contract for construction supervision and US$200,000 equivalent per contract, for all other types of assignments, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

3. Any Other Special Selection Arrangements: n.a.

4. Consultancy Assignments with Selection Methods and Time Schedule

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$)**	**Selection Method**	**Review by World Bank (Prior/Post)**	**Expected Proposals Submission Date**	**Comments**
001/C1/C/SADCP/15	Strengthening the FFSs and extensive agriculture services to be undertaken by FAO	10,000,000	SSS	Prior	September 15, 2016	
002/C2/C/SADCP/15	Value chain services provider for investment feasibility and design of small-scale earth dams and irrigation systems in Bié, Huambo, and Malanje Provinces	3,000,000	QCBS	Prior	December 20, 2016	
003/C2/C/SADCP/15	Consultant to design the markets information system for SADCP	60,000	ICS	Post	October 24, 2016	
004/C1/C/SADCP/15	Consultant to develop the TORs for the study and update the design of houses for extension officers S and	25,000	ICS	Post	December 20, 2016	

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$)**	**Selection Method**	**Review by World Bank (Prior/Post)**	**Expected Proposals Submission Date**	**Comments**
	design of 200 km of feeder roads and rivers crossing points with small bridges spot improvements, including respective work supervision in the provinces of Bié, Huambo, and Malanje					
005/C1/C/SADCP/15	Consultant to study and update the design of houses for extension officers and 200 km of feeder roads and rivers crossing points with small bridges spot improvements study and design, including respective work supervision in the provinces of Bié, Huambo, and Malanje	1,200,000	QCBS	Prior	November 24, 2016	
006/C1/C/SADCP/15	Consultant do develop technical specification for IIA Malanje and Huambo lab equipment	25,000	ICS	Post	August 12, 2016	
007/C1/C/SADCP/15	Consultant to train extension officer on integrated management of pests and safe and secure use of chemical pesticides	40,000	ICS	Post	August 7, 2016	
008/C3/C/SADCP/15	Consultant to assess project indicators outcomes	60,000	ICS	Post	September 23, 2016	
009/C3/C/SADCP/15	Consultant to promote SADCP marketing (short-term - 3 months)	15,000	ICS	Post	August 16, 2016	
010/C3/C/SADCP/15	Consultant to develop SADCP communication strategies	85,000	ICS	Post	August 22, 2016	
011/C1/C/SADCP/15	Computer training consultant to train ADI technicians in Bié, Huambo, and Malanje.	50,000	ICS	Post	October. 24, 2016	
012/C1/C/SADCP/15	Specialist consultant to undertake local trainings in methodologies and organization of the agricultural production inquiries	12,000	ICS	Post	Septemeber 9, 2016	
013/C1/C/SADCP/15	Specialist consultant to undertake local trainings in methodologies and organization of the agricultural production	12,000	ICS	Post	September 09, 2016	

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$)**	**Selection Method**	**Review by World Bank (Prior/Post)**	**Expected Proposals Submission Date**	**Comments**
	inquiries					
014/C1/C/SADCP/15	Specialist consultants to undertake local trainings in methodologies and organization of the agricultural production inquiries	12,000	ICS	Post	September 09, 2016	
015/C1/C/SADCP/15	Specialist consultants to undertake local trainings marketing linkages	12,000	ICS	Post	September 9, 2016	
016/C1/C/SADCP/15	Consultant for the survey and inquiries on agricultural statistics (monitoring of crops, production, productivity, prices and markets)	380,000	QCBS	Prior	September 23, 2016	
017/C1/C/SADCP/15	Consultant to assess MINAGRI's capacity in surveys and development	50,000	ICS	Post	August 16, 2016	
018/C1/C/SADCP/15	Consultant to prepare action plan to serve as the basis for the MOU between ADI and IIA.	50,000	ICS	Prior	September 21, 2016	
019/C3/C/SADCP/15	Financial external audits 2016–2017	120,000	LCS	Post	March 20, 2017	
020/C3/C/SADCP/15	Financial internal auditor 2016–2017	60,000	ICS	Post	December 19, 2016	
021/C3/C/SADCP/15	PC PIU	300,312	SSS	Prior	August 30, 2016	
022/C3/C/SADCP/15	Senior procurement specialist for PIU	180,000	ICS	Prior	August 30, 2016	
023/C3/C/SADCP/15	Procurement specialist for PIU	187,506	SSS	Prior	August 30, 2016	
024/C3/C/SADCP/15	Finance management specialist	187,506	SSS	Prior	August 30, 2016	
025/C3/C/SADCP/15	Senior M&E specialist	95,000	ICS	Post	August 30, 2016	
026/C3/C/SADCP/15	M&E specialist	90,000	ICS	Post	August 30, 2016	
027/C3/C/SADCP/15	Information communication management specialist	108,000	ICS	Prior	August 30, 2016	
028/C3/C/SADCP/15	Agronomy specialist	108,000	ICS	Prior	August 30, 2016	
029/C3/C/SADCP/15	Provincial coordinator UPIP/Bié (2016–2018)	126,000	SSS	Prior	August 30, 2016	

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$)**	**Selection Method**	**Review by World Bank (Prior/Post)**	**Expected Proposals Submission Date**	**Comments**
030/C3/C/SADCP/15	Provincial coordinator UPIP/Malanje	126,000	SSS	Prior	August 30, 2016	
031/C3/C/SADCP/15	Provincial coordinator UPIP/Huambo	126,000	SSS	Prior	August 30, 2016	
032/C3/C/SADCP/15	Project accountant for PIU	90,000	SSS	Prior	August 30, 2016	
033/C3/C/SADCP/15	Assistant project accountant - Bié	72,000	ICS	Post	August 30, 2016	
034/C3/C/SADCP/15	Assistant project accountant - Malanje	72,000	ICS	Post	August 30, 2016	
035/C3/C/SADCP/15	Assistant project accountant - Huambo	72,000	ICS	Post	August 30, 2016	
036/C3/C/SADCP/15	Procurement assistant PIU - Luanda	86,400	SSS	Prior	August 30, 2016	
037/C3/C/SADCP/15	Procurement assistant PPIU - Bié	72,000	ICS	Prior	August 30, 2016	
038/C3/C/SADCP/15	Procurement assistant PPIU - Malanje	72,000	ICS	Prior	August 30, 2016	
039/C3/C/SADCP/15	Procurement Assistant PPIU - Huambo	72,000	ICS	Prior	August 30, 2016	
040/C3/C/SADCP/15	Finance assistant PIU	99,000	SSS	Prior	August 30, 2016	
041/C3/C/SADCP/15	Information and communication management officer - PPIU Bié	54,000	ICS	Post	December 20, 2016	
042/C3/C/SADCP/15	Information and communication management officer - PPIU Malanje	54,000	ICS	Post	December 20, 2016	
043/C3/C/SADCP/15	Information and communication management officer - PPIU Huambo	54,000	ICS	Post	December 20, 2016	
044/C3/C/SADCP/15	M&E officer - UPIP Bié	79,200	SSS	Prior	December 20, 2016	
045/C3/C/SADCP/15	M&E officer - UPIP Malanje	79,200	SSS	Prior	December 20, 2016	
046/C3/C/SADCP/15	M&E officer - UPIP Huambo	79,200	SSS	Prior	December 20, 2016	
047/C3/C/SADCP/15	IT technical assistant to support PIU and PPIUs	63,000	SSS	Prior	December 20, 2016	
048/C3/C/SADCP/15	Environmental and social safeguard senior specialist	70,000	ICS	Post	December 20, 2016	
049/C3/C/SADCP/15	Environmental and social safeguard assistant - UPIP Bié	54,000	ICS	Post	December 20, 2016	
050/C3/C/SADCP/15	Environmental and social safeguard assistant - UPIP Huambo	54,000	ICS	Post	December 20, 2016	

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$)**	**Selection Method**	**Review by World Bank (Prior/Post)**	**Expected Proposals Submission Date**	**Comments**
051/C3/C/SADCP/15	Environmental and social safeguard assistant - UPIP Malanje	54,000	ICS	Post	December 20, 2016	
052/C3/C/SADCP/15	Consultant for MTR	65,000	ICS	Post	December 20, 2016	
Total Consulting Assignments		**18,369,324**				

IV. Training Seminars and Workshops

Ref. No.	Training, workshop and study tours	Estimated Cost (US$)	Estimated Duration	Start Date	Comments
001/C3/T/SADCP/15	Training of ADI managers at national and provincial level	75,000	15 days	To be indicated	15 persons X 15 days
002/C3/T/SADCP/15	Workshop with ADI leaders	80,000	5 days	To be indicated	10 persons X 5 days
003/C3/T/SADCP/15	Workshop with local leaders	15,000	6 days	To be indicated	10 persons X 5 days
004/C3/T/SADCP/15	Works and consultancy services program	35,000	3 weeks	To be indicated (2016–-2017)	3 participants
005/C3/T/SADCP/15	Good and consultancy services program	35,000	3 weeks	To be indicated	3 participants
00//C3/T/SADCP/15	Workshop on social and environmental safeguards with project stakeholders	50,000	6 sessions per province	To be indicated	120 persons X 3 days
007/C3/T/SADCP/15	Project accounting and financial audit	15,000	2 weeks	To be indicated	3 participants
008/C3/T/SADCP/15	Contract management and disbursement monitoring	15,000	3 weeks	To be indicated	3 participants
009/C1/T/SADCP/15	Training of small farmers on the management of irrigation systems	20,000	5 days	To be indicated	18 Persons
010/C1/T/SADCP/15	Training of EDAs' technicians on the management of integrated management of pests and safe and secure use of chemical pesticides	40,000	5 days	To be indicated	20 Persons
011/C3/T/SADCP/15	Workshop on progress evaluation of project	20,000	3 days	To be indicated	30 persons

Ref. No.	Training, workshop and study tours	Estimated Cost (US$)	Estimated Duration	Start Date	Comments
0012/C3/T/SADCP/15	Quarterly review meetings and project monitoring	60,000	16 days	To be indicated	Quarterly review one-day workshop meetings for members of steering committee in each province
0013/C3/T/SADCP/15	Attendance to national and international workshops for experience exchange	50,000	Upon Invitation	To be indicated	To be indicated
0014/C3/T/SADCP/15	PIU supportive supervision missions to PPIU offices	30,000	To be indicated	To indicated	Project Coordination
0015/C3/T/SADCP/15	PPIU supportive supervision missions to municipalities and communes	20,000	To be indicated	To indicated	Project Coordination
0016/C3/T/SADCP/15	Several training in M&E with different partners in the project target provinces	35,000	To be indicated	To indicated	Project Coordination
0017/C3/T/SADCP/15	Attendance to EMSF training courses	60,000	To be indicated	To indicated	Project coordination
0018/C1/T/SADCP/15	Training on sampling, experience for agricultural surveys and censuses for GEPE staff at both central and provincial levels (Bié, Huambo, and Malanje	49,000,00	To be indicated	To indicated	6 persons [3 from GEPE and 3 from provincial level (1 Bié, 1 Huambo and 1 Malanje)]
0019/C1/T/SADCP/15	Trainings on methodologies and organization of the agricultural production inquiries	40,000	To be indicated	To be indicated	
	Total	**655,000**			

Environmental and Social (including safeguards)

70. The proposed project's social and environmental implications are expected to be minimal, mostly site specific, and thus easily manageable. However, because of the rehabilitation of SSI and likely use of pesticides by farmers, the project was rated as Category B, requiring a partial social and environmental assessment. Four safeguard policies are triggered, namely Environmental Assessment (OP/BP 4.01), Pest Management (OP 4.09), Involuntary Resettlement (OP/BP 4.12), and Safety of Dams (OP/BP 4.37). To ensure compliance with World Bank safeguards policies relative to the envisaged potential negative risks and/or impacts related to construction and/or rehabilitation works, and given that subprojects' nature, scope, scale, location, and footprints will not be known before implementation , the Government updated MOSAP's ESMF, RPF, and IPMF. The ESMF and IPMF were disclosed in country on December 11, 2015 and the RFP was disclosed in-country on December 16, 2015.

71. These standalone safeguards instruments were extensively consulted upon and designed to (a) assess the environmental and social impacts of expected subprojects; (b) outline environmental management procedures and provide requisites tools, including a screening process with subproject assessment forms and guidelines for mitigating impacts; (c) integrate environmental considerations into each phase of the subproject cycle; (d) develop and implement the IPMF; (e) provide guidelines for preparation of RAPs; and (f) determine the capacity-building needs of the PIU, key stakeholders (civil society organizations, service providers, and so on), and beneficiary communities inclusive of women and vulnerable groups. Apart from formal public disclosure both in-country and on the World Bank's InfoShop, before appraisal, the contents of these documents (that is, executive summaries) were disseminated in Angola through a series of stakeholder workshops, particularly in the project's targeted areas. Both the ESMF and RPF provide a framework to manage all potential negative environmental and social risks and impacts incurred during implementation of the project. The ESMF, RPF, and IPMF, along with their screening processes and social and environmental clauses for contractors, including an annex with a social and environmental check list, will be integrated into the PIM.

72. The safeguards policies triggered for this project are summarized below:

Table 3.7. Safeguard Policies Triggered

Safeguards Policies Triggered	Yes	No
Environmental Assessment (OP/BP 4.01)	X	
Natural Habitats (OP/BP 4.04)		X
Forests (OP/BP 4.36)		X
Pest Management (OP 4.09)	X	
Physical Cultural Resources (OP/BP 4.11)		X
Indigenous Peoples (OP/BP 4.10)		X
Involuntary Resettlement (OP/BP 4.12)	X	
Safety of Dams (OP/BP 4.37)	X	
Projects on International Waterways (OP/BP 7.50)		X
Projects in Disputed Areas (OP/BP 7.60)		X

73. Unlike under MOSAP, the Government intends to strengthen its capacity under the SADCP, particularly through recruiting new environmental and social focal point staff, technical assistance, and trainings (in situ and abroad) paid by the project. A series of regional training workshops will be organized for all actors involved in the implementation of social and

environmental safeguards policies upon project effectiveness. More specifically, a small two-person safeguards unit will be established at the PIU comprising a social safeguards specialist (to look at gender and social inclusion aspects) and an environmental safeguards specialist (in charge of natural resources management issues). These social and environmental Safeguards specialists (SESSs) will be assisted in each province by a social and environmental safeguards focal point (SESFP), who will oversee implementation of and compliance with safeguards policies. The PIU SESSs will initially be trained by the World Bank's SESSs; and whenever required, a one-on-one additional training will be organized to deepen their technical grasp of the World Bank's social and environmental safeguards policies and standards.

74. The PIU SESSs and provincial SESFPs will work closely with the World Bank's SESSs, and will be responsible for: undertaking and monitoring the social and environmental screening of subprojects; preparing site-specific TORs for the preparation and review of related safeguards instruments, namely the ESMP/ESIA, RAP, and so on; and monitoring the use and implementation of social and environmental clauses embedded in contractors' contracts. In addition to providing specific capacity-building modules to provincial SESFPs and beneficiary communities, the PIU SESSs will be responsible for collecting information and data and reporting to the PIU coordinator on the level of compliance with the World Bank's social and environmental safeguards policies.

75. Adequate funds will be provided under the project for hiring SESSs, for training and technical assistance, and for studies, as required. Budget funds are also anticipated to cover preparation and implementation of site-specific safeguards instruments (that is, ESMPs and RAPs) as needed.

Annex 4: Implementation Support Plan

ANGOLA: Smallholder Agriculture Development and Commercialization Project

Strategy and Approach for Implementation Support

1. The ISP for the proposed project was developed based on lessons learned from MOSAP, and with the aim of providing timely assistance to the client. The World Bank team will monitor implementation progress through (a) the project results framework and monitoring and project reports against the key performance indicators; (b) surveys undertaken by the project; (c) verification of project activities during the implementation support missions; (d) fiduciary management of all activities implemented by the project; and (e) monitoring of key legal covenants. The ISP will be reviewed at least once a year and revised as required to ensure that it continues to meet the implementation support needs of the project.

2. Project implementation will be supported by the task team based in the World Bank office in Maputo. Selected international staff and consultants will provide additional support out of Washington, D.C., on a needs basis. The ISP envisages two implementation support missions per year, but in the first year the team will undertake three missions.

Implementation Support Plan

3. The task team will conduct two annual implementation support missions and field visits to the target provinces. The missions will be in principle in March and September of every year. In September, the mission will support the project to prepare the annual plan for the following year and in March the mission will assess the progress in annual activities. The Government will be required to prepare the formal documents for the mission's consideration at least one month before the mission takes place.

4. The World Bank's procurement, FM, and social and environmental and safeguards specialists will provide regular, timely implementation support and technical assistance to the counterpart teams during project implementation. These team members will also identify capacity-building needs to strengthen procurement, FM, and safeguard capacity of the PIU and PPIUs.

- **Procurement.** In addition to carrying out an annual ex post review of procurement that falls below the prior review thresholds, the procurement specialist will provide focused procurement support including: (a) reviewing procurement documents and providing timely feedback to the counterparts; (b) providing detailed advice and guidance on the application of the World Bank's Procurement Guidelines; and (c) monitoring procurement progress against the Procurement Plan.

- **FM.** The FM specialist will review all FM reports and audits and take necessary follow-up actions according to the World Bank procedures. The World Bank will conduct risk-based FM supervisions, at appropriate intervals, in the following ways: (a) by reviewing the project's quarterly financial reports, the project's annual audited financial statements, and the auditor's management letter and remedial actions, if any; and (b) during the World Bank's on-site supervision missions,

reviewing the following key areas: (i) project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) disbursement management and financial flows, including counterpart funds, as applicable; and (iv) any incidences of corrupt practices involving project resources. As required, a World Bank-accredited FM specialist will assist in the supervision process.

- **Environment and social safeguards.** Semiannual inputs from the environmental and social specialists will be required throughout the project to ensure compliance with project safeguards requirements. The safeguards specialists will closely monitor that the ESMF, RPF, and IPMF are implemented in accordance with the World Bank's operational safeguards policies, both through support missions and routine field visits, and will advise on corrective measures, as needed.

5. Table 4.1 and Table 4.2 indicate the level of inputs that will be needed from the World Bank to provide implementation support for the proposed project.

Table 4.1. Implementation Support Plan

Time Year	Focus	Primary Skills Needed	Number of Trips	Estimated Budget (US$)
Year 1	• Project launch • Initialization of project components • FM systems functioning effectively • Procurement practices following World Bank norms • ESMF in place	• Team lead • FM, procurement • Environmental specialist • Social safeguards specialist • Irrigation specialists • Value chain specialist • Agricultural economist • M&E specialist	3	150,000
Year 2	• Monitor implementation on project activities • FM, procurement, safeguards	• Team lead • FM, procurement • Environmental specialist • Social safeguards specialist • Irrigation specialist • Value chain specialist • Agricultural economist • M&E specialist	2	100,000
Year 3	• Monitor implementation of project activities • FM, procurement, safeguards • MTR	• Team lead • FM, procurement • Environmental specialist • Social safeguards specialist • Irrigation specialists • Value chain specialist • Agricultural economist • M&E specialist	2	100,000

Time Year	Focus	Primary Skills Needed	Number of Trips	Estimated Budget (US$)
Year 4	• Monitor implementation of project activities • FM, procurement, safeguards	• Team lead • FM, procurement • Environmental specialist • Social safeguards specialist • Irrigation specialists • Value chain specialist • Agricultural economist • M&E specialist	2	100,000
Year 5	• Project withdrawal and closure • ICR	• Team lead • FM, procurement • Environmental specialist • Social safeguards specialist • Irrigation specialists • Value chain specialist • Agricultural economist • M&E specialist	2	100,000

Table 4.2. Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Task team leader	42	11	Mozambique country office-based
FM specialist	15	7	Country office-based
Procurement specialist	15	7	Country office-based
Environmental specialist	15	7	Country office-based
Social safeguard specialist	15	7	Country office-based
Irrigation specialist	15	7	Washington, D.C.
M&E specialist	15	**7**	Washington, D.C.
Value chain specialist	15	**7**	Washington, D.C.
Agricultural economist	15	**7**	Mozambique country office-based

Annex 5: Economic and Financial Analysis

ANGOLA: Smallholder Agriculture Development and Commercialization Project

1. Annex 5 presents the methodology, assumptions, and results of the economic and financial analyses conducted to assess the impact and viability of the SADCP.

Introduction

2. The objective of this annex is to analyze the relationship between the project's costs and expected benefits, first from the viewpoint of project participants (financial analysis) and then from the standpoint of the national economy as a whole (economic analysis). A cost-benefit analysis was used to estimate the project's costs and benefits in monetary terms.

Project Objective and Components

3. PDO. The objective of the Project is to increase smallholder agriculture productivity, production and marketing for selected crops in the Project areas.

4. **Components.** The project comprises three components: (a) Capacity Building and Institutional Development; (b) Support for Increased Production and Commercialization; and (c) Project Management, Monitoring, and Evaluation.

Target Areas and Beneficiaries

5. The MOSAP project area consists of 12 municipalities in the provinces of Bié, Huambo, and Malanje. Huambo, and Bié Provinces are located in the west central part of Angola. Malanje Province is located in the northern part of the country. The proposed project (SADCP) will also operate in these three provinces, but will increase the number of municipalities covered from 12 to 26 (including all those already targeted under MOSAP).

6. **Direct beneficiaries.** The primary beneficiaries of the SADCP are smallholder farmers cultivating 0.5 ha to 2 ha (on average 1.37 ha[9]) of cropland and living in areas with a high potential for agricultural growth, given favorable agroecological and climatic conditions and market access. The overall number of direct beneficiaries is estimated at 175,600, of which 175,000 are smallholder farmers and 600 are government staff at central, provincial, municipal, communal levels. A total of 150,000 households new beneficiaries under this proposed SADCP and 25,000 households will have already received training from the previous project (MOSAP).

7. **Additional beneficiaries.** The project will reach a significant number of additional beneficiaries, as it will provide training in agricultural extension and research, improve overall public agricultural services, and increase access to markets. As such, private agribusinesses (agro-industries, wholesalers, and so on), financial institutions (commercial banks, microfinance institutions), and public and private service providers supporting targeted smallholders are additional project beneficiaries. Agribusinesses might benefit from an increased and more regular supply of raw material, more organized marketing by farmers' organizations, and therefore a reduced bulking cost and an improved traceability of supply. The project will also

[9] According to the MOSAP baseline study (1.37 ha is a weighted average).

positively impact other beneficiaries, including: (a) the whole population living in the targeted areas benefiting from increased access to agricultural products; and (b) other actors along the value chains such as traders, transporters, and consumers benefiting from increased quality and quantity of products and organization of bulking and marketing.

8. The project will particularly target women farmers so as to reduce the productivity gap between female and male farmers. For example, in the project area, female-headed farms produce 11 percent less maize per hectare (with regard to gross value of output) than male-headed farms, on average.

Economic Justification

9. This section aims to address three main questions, as recommended by the new Operational Policy and World Bank Procedure (OP/BP) on Investment Project Financing and the Guidance Note on Economic and Financial Analysis:[10]

(a) **What is the project's development impact?** This is the traditional question underlying the World Bank's approach to cost-benefit analysis. It requires careful consideration of the expected stream of project benefits and costs, grounded in an explicit causal framework linking project activities to targeted outcomes.

(b) **Is public sector provision or financing the appropriate vehicle?** This question probes the rationale for public involvement with respect to financing and/or implementation and should explicitly consider alternative modes of provision.

(c) **What is the World Bank's value added?** This question examines the World Bank's contribution to the project. It seeks to determine the benefit from World Bank staff involvement and whether the proposed project maximizes the development impact of staff effort.

Project Development Impact and Economic Benefit

10. The project will (a) improve the livelihoods (notably cash incomes, food security, nutrition, resilience to shocks) of the direct, indirect, and additional beneficiaries described above; (b) create further employment at farm and farmers' organization level as well as in the rest of the agricultural value chain; and (c) increase tax revenue due to increased output of the organizations strengthened by the project and higher turn-over of the buyers and processors of targeted crops.

11. The expected benefits will extend beyond the PDO indicators and intermediate results indicated in the results framework (see Annex 1). The main economic benefits generated by the project will be as follows:

(a) Increased agricultural production in the targeted value chains, stemming from: adoption of improved technologies for rain-fed crops; enhanced access to and efficiency of water use as a result of support to irrigation development; and improved marketing and increased business opportunities for smallholders

[10] World Bank, Investment Project Financing Economic Analysis Guidance Note, OPSPQ, 9 October 2014.

(b) Increased cash income for participating smallholders

(c) Improved food security and nutrition status at household level and reduced vulnerability to external shocks, notably climate change and rising food prices

(d) Reduced transaction costs (notably bulking, transport, marketing, and financial costs) and production losses thanks to the organization of bulking and marketing by farmers' organizations and other value chain actors and enhanced access of members of organizations to finance—including matching grants and enhanced creditworthiness and links with financial institutions

(e) Increased value added by smallholders within targeted value chains

(f) Enhanced market/business opportunities and economies of scale benefiting actors of the supply chain (smallholders and their organizations, transporters, traders, agro-industries) following the enhancement of market linkages between smallholders and buyers/processors

(g) Enhanced bargaining power, understanding of markets, and management capacity of smallholders and their organizations

(h) Incremental on and off-farm employment generated through increased productivity and production and the increased share of production that is marketed/processed

(i) Foreign exchange savings/increased earnings through reduced importation of foodstuffs

(j) Improved natural resources protection, enhanced biodiversity, and greater resilience to climate change

(k) Improved social stability, overall well-being, and livelihoods in targeted areas.

12. The project will also have a positive impact on participating women, youth, and female-headed households.

Rationale for Public Sector Provision/Financing

13. Most of Angola's critical public investments and institutions were destroyed or de-capitalized during the civil war. This project will support the rebuilding, rehabilitation, and development of public goods, including agricultural value chain infrastructure, institutions, and production capacity. The benefits generated by this support will be reinvested in part in the creation of new infrastructure and production capacity, thus serving as a catalyst for the development of additional private assets even after the project has ended.

14. The rationale for public sector financing lies in the following reasons: (a) Most of Angola's rural population relies on agriculture as the main source of livelihood (food, income, and employment); (b) Without public sector support, the private sector will not invest in improving the technical and managerial capacity of smallholder farmers and their organizations; (c) The proposed project will build on the work started under MOSAP and further expand those

activities in critical areas; and (d) The Strategy for Poverty Reduction (*Estrategia de Combate da Pobreza*) highlights agriculture and rural development as one of the priority areas, and increased importance will be given to enhancing food security and the revitalization of the rural economy. The objectives for the agriculture sector, as stated in the strategy, are to: (a) increase production and productivity, particularly of food crops; (b) promote agro-industry; (c) promote sustainable development of natural resources; and (d) create employment and income for rural communities.

15. The SADCP will address a number of market failures.

(a) The difficulties of smallholders and their organizations to gain access to improved inputs, to technologies/best practices, and to investment financing and value chain financing products (enhanced technical and managerial capacities of farmers' organizations/value chains actors combined with matching grants and market linkage activities will increase their creditworthiness and likeliness to receive adequate finance from buyers/financial institutions and in the long term to secure bulking of production from smallholders and sales to agribusinesses).

(b) The deficient or insufficient links between smallholders and formal agribusinesses/wholesalers in many targeted value chains.

(c) The deficiencies in food crop seed markets, and so on.

16. The project has a redistributive role as it targets smallholder farmers (some of whom have the potential to progressively become commercially oriented farmers and to specialize in production) and their organizations that are not fully mainstreamed in the financial and business advisory markets. It has a political dimension as it fits perfectly into the new policy paradigm for agricultural development promoted by the government, which aims at transforming agriculture to diversify the economy given the decrease in oil prices.

17. Therefore, public intervention is fully justified to:

- strengthen direct economic partnerships between households and farmers' organizations, formal buyers, and food processors to overcome market barriers;
- promote value chain development;
- support the modernization of targeted crops and marketing including facilitated access to improved technologies (technical knowledge, improved seeds, mechanization services, organized bulking and marketing, product quality enhancement, and so on);
- kick start and co-finance youth/women's groups and subprojects through matching grants combined with capacity building of these organizations,
- facilitate smallholders' access to short- and medium-term financing credit and value chain finance products; and

- support reforms and modernization of the seed sector as well as key investment and adaptive research in the targeted value chains.

Value Added of Bank Support

18. The project is well aligned with the priority themes of the Angolan NDP and the overall goals/strategic themes of the Agriculture Global Practice in Sub-Saharan Africa, which seeks to provide financing and advice to address critical constraints to agriculture sector growth, and will contribute to key areas of growth. This notably covers: enhanced access to markets for smallholders, linking them to large food buyers/processors and to financial institutions; capacity building and infrastructure to reduce post-harvest losses; access to improved technologies and technology transfer; promotion of CSA; and due consideration of nutrition-sensitive agriculture. Ultimately, the project will contribute to the World Bank's ambitious twin goals of ending extreme poverty and promoting shared prosperity.

19. Beyond these World Bank-centered arguments, the project has significant added value from the standpoint of the government and the development community. Beyond financing, the added value arises mainly from the World Bank's technical input based on international experience for similar smallholder and value chain development projects (and that of FAO, which participated in the preparation under the FAO/World Bank Cooperative Programme); introduction of innovative financing mechanisms with enhanced linkages of smallholders with financial institutions; support for capacity development of farmers' organizations and other value chain actors during implementation through training-of-trainers methodologies (notably for the ex-ante preparation and financial analysis of subprojects/business plans); and knowledge sharing and communication. By providing this important support, the World Bank will complement—and aim to correct deficiencies of—national sources of expertise and business advisory support services to farmers, resulting in increasing the project's development impact in ways that go beyond what could be realized by exclusive reliance on the Government's own institutions or existing national consulting firms.

20. In addition, as an important development partner in promoting economic and agricultural development in Angola, the World Bank's involvement will help formulate a harmonized framework among development partners for supporting smallholder agriculture. Because of its convening power, the World Bank can maintain a dialogue and work with other development agencies that are active in smallholder agriculture in Angola. For example, the International Fund for Agricultural Development co-financed MOSAP and worked within the same framework to reduce duplication and improve the impact of the development assistance provided.

Financial Analysis

21. The financial analysis is only applied to those project activities that are amenable to it and where sufficient data are available. The capacity-building activities were not separately analyzed insofar as their impact is, to some extent, accounted for in the analyzed activities' output. The analysis is mainly based on data collected in the field during the preparation mission, the MOSAP baseline indicator report (2012), and MOSAP performance evaluation indicator survey reports (2013 and 2014).

Crop and Farm Models

22. The purpose of elaborating typical crop and farm models is to assess whether the proposed improved technologies with the associated risks linked to their adoption under the 'with project' situation are likely to attract targeted smallholders' interest and participation by enabling them to generate enough additional income and to increase their food security and resilience to shocks.

Methodology

23. Typical crop models (on a 1 ha basis) were developed for the following main crops currently cultivated by targeted smallholders in the three provinces:

- Cereals: maize
- Pulses: bean and soybean
- Vegetables: onion, tomato, and cabbage
- Tubers: Irish potato and cassava

24. It should be kept in mind that these crops are retained only for the purpose of assessing the project's financial and economic viability, as they are the main crops cultivated in the project area. The final decision on what crop to grow will continue to depend largely on each household's own preference.

25. Calculations made in Excel were used to:

- compare the future 'without project' and the expected 'with project' situations (that is, adoption of improved technologies);
- detail, for each crop budget (expenses and revenue): unit, quantities (number of units), cost per unit (in Angolan kwanza), value (in Angolan kwanza) for both 'without project' and 'with project' situations;
- detail cropping and cultivation practices—and notably labor use, which can be a bottleneck in some operations/farming systems (family labor or hired labor);
- calculate total revenue as well as cash income (cash derived from the share of the production that is sold);
- detail input, services, and equipment replacement as well as financial services (if any) costs (including or excluding own input costs such as family labor);
- calculate production costs (per ha and per kg), gross margins, and net cash income (sales—cash input costs).

26. In developing such models, it is important to take into account the following considerations:

- **Typical 'without project' situation.** This situation could be represented by the current average situation of most smallholders in the target area. Typically, smallholders who have not yet adopted any of the improved 'crop extension packages' follow a traditional cropping pattern/practice characterized by the following: (a) use of locally/own-produced seeds/seedlings and inadequate placement techniques; (b) no or little use of fertilizer; (c) no or little use of pesticide; (d) some use of manure (but at inappropriate rates to maintain soil fertility in the long run as these smallholders generally have insufficient livestock for their cropped area, however limited). In the 'without project' situation, the unit area cropped by a target smallholder ranges from 0.5 ha to 2.0 ha, with an average of 1.37 ha (MOSAP baseline study). The data used for yields were derived from the MOSAP baseline study (December 2012) for maize, cassava, beans, and Irish potato, and the results of the 2013/2014 crop year (MINAGRI) for soybean and vegetables.

- **Typical 'with project' situation.** In this situation, smallholders will increase their production by improving yields, area cultivated, or both. A distinction was made between the impact of FFS support and investment support. The FFS support will likely reach a larger number of smallholders (125,000 smallholders) but will have less impact on yield as the improved cropping techniques will not often be accompanied by increased use of inputs. The yield increases expected are mostly around 25 percent compared to the 'without project' situation. Conversely, the investment support is expected to reach fewer smallholders (around 50,000) but will have a more significant impact on yield and area cultivated, because of rehabilitation and development of SSI schemes and increased access to agricultural assets (for example, draft animals and implements) and inputs (fertilizer and seed), in addition to the benefits of FFS training. Smallholders benefiting from investment support should be beneficiaries of FFS, either from the proposed SADCP or the MOSAP. Out of the 50,000 beneficiaries targeted by the SADCP for the investment support, 25,000 are assumed to have received support under the previous project. Given the current low level of crop yields in Angola, the expected increases from the investment support are mostly around 75–100 percent. The levels of yields forecast are largely consistent with expectations in case of intensification and are already achieved by some farmers supported by MOSAP who have the capacity to acquire enough inputs.

- **Estimate of total revenue and sales**

    - Post-harvest losses (on farm, during threshing and transport from farm to home storage, then during home storage before consumption or sale) have to be considered as they can reach 5–10 percent for cereals and pulses (sometimes more) and much more for vegetables (up to and over 20 percent). Omitting post-harvest losses will inevitably overestimate production and incomes in the crop models.

    - **Self-consumption**

        - Self-consumption is particularly important for SADCP beneficiaries as the project targets smallholders who typically cultivate small areas and

are often food-insecure (particularly during bad rainfall years, considering most of them have no access to irrigated land).

- For a typical smallholder household of about five members (preliminary results of the 2014 population census), yearly consumption of maize and cassava (main consumed crops) is estimated at 455 kg and 1,090 kg, respectively. For a typical household that is cropping 1.37 ha, this corresponds to an estimated self-consumption of 639 kg per ha of maize and 4,420 kg per ha of cassava. Smallholders who do not reach such production levels from their farms are net buyers of food. They need to sell their labor to others and use income derived from off-farm activities to help meet their food needs. For vegetable producers, given the often very low proportion of self-consumption, it was considered negligible.

- In the 'with project' situation it can be assumed that (a) household consumption of food crops will remain identical as in the 'without project' situation (that is, implicitly assuming that most SADCP households are already more or less self-sufficient/food secure in the 'without project' situation and are meeting their basic needs/recommended caloric intake standards); and (b) the increased production—after self-consumption—in the 'with project' situation will be sold on the market.

- **Output prices**

  - Using a single figure for output price for each crop could result in overestimating the revenue/cash income under each crop model.

  - In both the 'without project' and 'with project' situations, it is more appropriate to assume that surpluses are sold at different times and prices after harvest, as smallholders will be supported to link with buyers and will also receive capacity building and funding to increase their bulking capacity.

  - In both the 'with project' and 'without project' situations, a varying share of the production surplus (over self-consumption) will be marketed: (a) the largest share of surplus will be sold at harvest (at the lowest price according to available market data); (b) a lower share after short storage of 1–2 months (at medium price); and (c) a limited share after 2–5 months storage—depending on crop types—at a peak price during the lean season.

  - In view of increased marketing opportunities offered to smallholders, increased cash incomes and savings capacity, less dependence on collectors, and pressure to sell at harvest to meet urgent expenses, it is assumed that the share of surpluses sold at higher prices after storage will increase in the 'with project' situation.

- **Family labor**

  - In the 'without project' and 'with project' situations for rain-fed crops, it is assumed that in most SADCP households, the available family labor is enough to carry out most farming operations due to the limited size of land holdings (0.5–2.0 ha; 1.37 ha on average). The situation is likely to be different for small-scale irrigated crops although irrigated land per household will be limited (0.5 ha per household). The emphasis put on cultivating vegetables can increase the workload and will translate, in most cases, into labor requirements per farm that go beyond the available family labor. Thus daily hired labor (or sometimes permanent labor, notably for watering and crop maintenance) should be factored into the small-scale irrigated crop models.

Summary of Crop Models Assumptions

27. The crop models were developed on the basis of extensive discussions with smallholders in the provinces and with the FAO staff in charge of FFS and on secondary data.

28. **Input and output prices.** Prices of agrochemicals, improved seeds, animal traction services (oxen-plough), hired labor, and transport costs are based on farm gate prices, which can vary quite considerably according to the remoteness of the municipality considered. Output prices considered in the financial analysis take into account inter-annual and intra-annual variation between harvest period and the lean season. They are based on discussions with producers and are much lower than the prices collected on provincial markets by ADI.

29. The crop models took into consideration a change in the sales pattern acknowledging that (a) in the 'with project' situation, targeted smallholders will fully meet their self-consumption and sell surpluses on the market through various channels including local traders/collectors, cooperatives, and others; (b) self-consumption—which is particularly high for smallholders in comparison to total farm production and production per hectare—was estimated as well as net sales of surplus to estimate cash income (net of self-consumption) in both the 'with project' and 'without project' situations. Detailed crop models for rain-fed and HHI models are presented below.

30. **Yields and cropping patterns.** The 'without project' situation considers current yields/cropping patterns as obtained/practiced by smallholders constituting the main SADCP target group. With project support, these smallholders will organize themselves into producer groups and/or become members of cooperatives and/or suppliers of agribusinesses/assemblers. The project will enhance the provision of extension and adaptive research services and enhance smallholders' access to (a) improved technologies (use of improved seeds, higher doses of fertilizers, and use of chemicals); (b) output markets (because of organized bulking and marketing services offered by cooperatives and closer links with large buyers agents/wholesalers/agribusinesses); (c) financial services (linking them and their producers' organizations with financial institutions and providing them capital through matching grants); and (d) higher average farm gate prices (because of improved quality and standards of production to meet buyers/agribusinesses demand, improved negotiation skills, higher incomes, and lower dependence on a few buyers).

Summary of Farm Models

31. On the basis of the crop models described above, two farm models were developed: one related to rain-fed crops (including Irish potato) and a second concerning family horticulture. It should be kept in mind that these models are only indicative, as crops that can be produced may vary considerably according to site-specific conditions (rainfall, altitude, soil type, water availability); farmers' preferences and mastery of cultivation techniques; the main objective pursued (commercial or crop/diet diversification); availability of and access to inputs (notably improved seeds/seedlings); access to financial services, agro-industries, and crop buyers/wholesalers; local/regional/export market demand; and condition of roads to markets. It is assumed that in most cases, the infrastructure and technologies supported under the SADCP will aim not only at diversifying the household diet but also at generating income.

32. The rain-fed crop model uses a cropped area of 1.37 ha, the weighted average area cropped by households in the project area. The distribution of this area between crops is based on the overall weight of each crop in the total area cultivated in the three project provinces. Maize is cultivated on more than half of the total area (52 percent), followed by beans (26 percent), cassava (18 percent), Irish potato (3 percent), and soybean (1 percent). The total area cropped per household was kept constant in the 'with project' situation, as the main impact of the project is the yield increase. This assumption seems realistic because most project beneficiaries will benefit chiefly from FFS training, which will not necessarily have a direct impact on the area cropped. Because some limited area increase may occur, this assumption will probably underestimate the impact of the project on overall crop yields, making the results of the financial and economic analysis more robust.

33. The HHI model aims at capturing vegetable production on small individual plots, on lowland, or close to a river, using basic technologies such as small irrigation canals or hand-dug wells. The area assumed per smallholder (0.1 ha) is within the capacity of a typical household to manage. Although a large variety of vegetables could be cropped, the model only considers the three main crops grown in the area: (a) onions (in high and growing demand, relatively perishable but they can be stored); (b) tomatoes (also in high demand but sensitive to pest attacks, very perishable, and therefore quite risky); and (c) cabbage. Apart from yield increases, it is assumed that smallholder will increase the area cropped by 20 percent, as the incremental income generated will help them buy more inputs and thus extend the area under cultivation. For the purpose of model calculations, it was assumed that onions will be cropped on the additional land, given their easy storage.

Financial Results

Rain-fed Model

34. The financial results of the rain-fed farm model (1.37 ha) are presented in Table 5.1 and Table 5.2.

35. The typical farm model shows substantial increases in both total net income (before self-consumption) and cash income (after self-consumption): the net income per household derived

from rain-fed crops[11] will increase by 71 percent for investment support and 50 percent for FFS support, increasing from about AOA 36,000 (US$327) per year in the 'without project' situation to AOA 61,500 (US$559) and AOA 54,000 (US$490) per year, respectively, in the 'with project' situation.

Table 5.1. Financial Results Summary – Rain-fed Farm Model (1.37 ha) - Investment Support

Item	Unit	'With Project' situation					
		Maize	**Cassava**	**Irish Potato**	**Bean**	**Soybean**	**Total**
Share of cropped area	%	52%	18%	3%	26%	1%	100%
Area	Ha	0.71	0.25	0.04	0.36	0.01	1.37
Yield (net of post-harvest losses)	kg	579	1,923	185	127	9	2,823
Self-consumption	Kg	455	1,090	(-)	88	3	1,636
Total Revenue	AOA	15,334	40,778	11,763	12,106	914	80,895
Total Sales (net of self-consumption)	AOA	3,277	17,670	11,763	3,723	556	36,988
Variable & Fixed Costs	AOA	10,713	7,160	2,994	5,822	229	26,918
Net Income	**AOA**	**4,621**	**33,618**	**8,768**	**6,284**	**685**	**53,976**
Family labor	Person-day	32	23	5	21	1	82
Return to Family Labor	AOA/person-day	144	1,491	1,662	294	1,086	659
Net Cash Income	AOA	-7,436	10,510	8,768	-2099	326	10,070
Item	**Unit**	**'Without Project' situation**					
		Maize	**Cassava**	**Irish Potato**	**Bean**	**Soybean**	**Total**
Share of cropped area	%	52%	18%	3%	26%	1%	100%
Area	ha	0.71	0.25	0.04	0.36	0.01	1.37
Yield (net of post-harvest losses)	kg	386	1,539	148	102	7	2,181
Self-consumption	Kg	455	1,090	(-)	88	3	1,636
Total Revenue	AOA	9,837	31,391	9,055	9,319	704	60,306
Total Sales (net of self-consumption)	AOA	-1,766	9,155	9,055	1,253	359	18,056
Variable & Fixed Costs	AOA	10,641	4,907	2,702	5,804	229	24,284
Net Income	**AOA**	**-804**	**26,484**	**6,353**	**3,515**	**475**	**36,022**
Family Labor	Person-day	28	24	6	19	1	78
Return to Family Labor	AOA/person-day	28	1,096	1,145	183	866	462
Net cash Income	AOA	-12,407	4,248	6,353	-4,552	130	-6,227

36. The 'without project' situation indicates that households are self-sufficient in cassava and sell about one-third of their production, while maize producers cannot even meet their consumption requirements due to low yields. Overall sales do not offset input costs, thus generating a cash income deficit (AOA 6,000 per year) that has to be financed through revenue from off-farm activities.

[11] Income derived from other activities (for example, off-farm) are not accounted for in these calculations.

37. In the 'with project' situation, households are able to meet their self-consumption needs pertaining to each crop, generate enough overall revenue from sales to offset total input costs, and make a net cash income of more than AOA 10,000 (US$90), even with FFS training alone. These results confirm the financial soundness of activities identified under the SADCP.

Table 5.2. Financial Results Summary – Rain-fed Farm Model (1.37 ha) - FFS Support

Item	Unit	'With Project' situation					
		Maize	**Cassava**	**Irish Potato**	**Bean**	**Soybean**	**Total**
Share of cropped area	%	52%	18%	3%	26%	1%	100%
Area	Ha	0.71	0.25	0.04	0.36	0.01	1.37
Yield (net of post-harvest losses)	Kg	579	1,923	185	127	9	2,823
Self-consumption	Kg	455	1,090	(-)	88	3	1,636
Total Revenue	AOA	15,334	40,778	11,763	12,106	914	80,895
Total Sales (net of self-consumption)	AOA	3,277	17,670	11,763	3,723	556	36,988
Variable & Fixed Costs	AOA	10,713	7,160	2,994	5,822	229	26,918
Net Income	**AOA**	**4,621**	**33,618**	**8,768**	**6,284**	**685**	**53,976**
Family labor	Person-day	32	23	5	21	1	82
Return to Family Labor	AOA/person-day	144	1,491	1,662	294	1,086	659
Net Cash Income	AOA	-7,436	10,510	8,768	-2099	326	10,070
Item	**Unit**	**'Without Project' situation**					
		Maize	**Cassava**	**Irish Potato**	**Bean**	**Soybean**	**Total**
Share of cropped area	%	52%	18%	3%	26%	1%	100%
Area	ha	0.71	0.25	0.04	0.36	0.01	1.37
Yield (net of post-harvest losses)	kg	386	1,539	148	102	7	2,181
Self-consumption	Kg	455	1,090	(-)	88	3	1,636
Total Revenue	AOA	9,837	31,391	9,055	9,319	704	60,306
Total Sales (net of self-consumption)	AOA	-1,766	9,155	9,055	1,253	359	18,056
Variable & Fixed Costs	AOA	10,641	4,907	2,702	5,804	229	24,284
Net Income	**AOA**	**-804**	**26,484**	**6,353**	**3,515**	**475**	**36,022**
Family Labor	Person-day	28	24	6	19	1	78
Return to Family Labor	AOA/person-day	28	1,096	1,145	183	866	462
Net cash Income	AOA	-12,407	4,248	6,353	-4,552	130	-6,227

Household Horticulture Model

38. The financial results of the HHI farm model (0.1 ha) are presented in Table 5.3 and table 5.4.

Table 5.3. Financial Results Summary - HHI Farm Model (0.1 ha) - Investment Support

Item	Unit	**'With Project' situation**			
		Onion	**Tomato**	**cabbage**	**Total**
Share of cropped area	%	37%	52%	10%	**100%**
Area	Ha	0.046	0.064	0.013	**0.12**
Yield (net of post-harvest losses)	Kg	600	811	142	**1,554**
Total Revenue	AOA	37,097	45,943	7,329	**90,370**
Total Sales (net of self-consumption)	AOA	37,097	45,943	7,329	**90,370**
Variable & Fixed Costs /a	AOA	7,137	4,360	854	**12,351**
Net Income /b	**AOA**	**29,960**	**41,584**	**6,475**	**78,019**
Net Cash Income /b	AOA	29,960	41,584	6,475	**78,019**
Item	**Unit**	**'Without Project' situation**			
		Onion	**Tomato**	**Cabbage**	**Total**
Share of cropped area	%	23%	64%	13%	**100%**
Area	ha	0.023	0.064	0.013	**0.10**
Yield (net of post-harvest losses)	kg	240	649	114	**1,003**
Total Revenue	AOA	14,695	36,398	5,806	**56,899**
Total Sales (net of self-consumption)	AOA	14,695	36,398	5,806	**56,899**
Variable & Fixed Costs /a	AOA	3,539	4,036	854	**8,429**
Net Income /b	**AOA**	**11,156**	**32,362**	**4,952**	**48,470**
Net Cash Income /b	AOA	11,156	32,362	4,952	**48,470**

Table 5.4. Financial Results Summary - HHI Farm Model (0.1 ha) - FFS Support

Item	Unit	**'With Project' situation**			
		Onion	**Tomato**	**cabbage**	**Total**
Share of cropped area	%	37%	52%	10%	100%
Area	Ha	0.046	0.064	0.013	0.12
Yield (net of post-harvest losses)	Kg	600	811	142	1, 554
Total Revenue	AOA	37, 097	45, 943	7, 329	90, 370
Total Sales (net of self-consumption)	AOA	37, 097	45, 943	7, 329	90, 370
Variable & Fixed Costs /a	AOA	7, 137	4, 360	854	12, 351
Net Income /b	AOA	29, 960	41, 584	6, 475	78, 019
Net Cash Income /b	AOA	29, 960	41,584	6, 475	78, 019
Item	**Unit**	**'Without Project' situation**			
		Onion	**Tomato**	**cabbage**	**Total**
Share of cropped area	%	23%	64%	13%	100%
Area	ha	0.023	0.064	0.013	0.10
Yield (net of post-harvest losses)	kg	240	649	114	1, 003
Total Revenue	AOA	14, 695	36, 398	5, 806	56, 899
Total Sales (net of self-consumption)	AOA	14, 695	36, 398	5, 806	56, 899
Variable & Fixed Costs /a	AOA	3, 539	4, 036	854	8, 429
Net Income /b	AOA	11, 156	32, 362	4, 952	48, 470
Net Cash Income /b	AOA	11, 156	32, 362	4, 952	48, 470

a/ value of the output (excluding labor); and b/ value at the opportunity cost

39. The typical HHI model shows substantial increases in both total net income and cash income from the land to be utilized under HHI (0.1 ha): the net income per household will more than double in the case of investment support, increasing from about AOA 48,500 (US$440) per year in the 'without project' situation to around AOA 116,200 (US$1,050) per year in the 'with project' situation. In the case of FFS support, households will increase their income by 60 percent, from AOA 48,500 (US$440) per year in the 'without project' situation to around AOA 78,000 (US$710) per year in the 'with project' situation.

40. These financial results highlight the attractiveness and profitability of horticulture compared to rain-fed farming and confirm the soundness of the proposed project in supporting horticulture in addition to the food crops targeted under MOSAP.

Small-scale Irrigation

Methodology and Assumptions

41. Under the SADCP, SSI schemes will be constructed (target area of 1,000 ha), the most common type being partial river diversion.

42. **Criteria for irrigated crops selection.** As for HHI, the crop range that can be cultivated under SSI is large. The choice of the cropping pattern under each SSI scheme will depend on many factors, including the following:

(a) **Agro-climatic conditions in the project site.** The major environmental factors that determine the growth and productivity of crops include mean/minimum/maximum temperature, rainfall, humidity, wind, day-length, soil type, and characteristics including potential for maintenance of soil fertility (pulse crops should have priority given their role in soil fertility maintenance, provided they also grant high economic returns).

(b) **Availability of high yielding varieties and other improved inputs.** For irrigated agriculture, which is characterized by high investment costs, it is recommended to apply improved farm inputs packages to generate high returns. Such inputs are not easily accessible in some locations, which may constitute a constraint.

(c) **Potential of the irrigation water source.** Accessibility of irrigation water varies across the country and the potential of the identified water source should be duly taken into consideration to optimize the benefits from the use of such a scarce resource and reduce environmental and social impacts downstream. Crops requiring less water should be selected for drier areas; in areas where water sources are abundant, this criterion will not be a major selection factor.

(d) **Market value and potential for markets.** If the SSI scheme is designed mostly for commercial farming, crops with high value/demand on domestic (or even export) markets and with higher crop margin should be prioritized. The long-term marketability of crops should be taken into consideration.

(e) **Market access and infrastructure.** Existence of a good access road or feeder road to connect the SSI scheme to local or regional markets as well as storage facilities will be key to the viability of the project as it will directly impact warehousing and transport costs, presence of buyers, and transport of produce, particularly during the rainy season.

(f) **Potential for agro-processing and other value addition.** The potential of selected crops for further processing and value addition should be considered in the selection process. Before selecting such crops geared to processing, the presence and offered conditions (with regard to quality, price, and bulking frequency) of agro-processing enterprises need to be carefully assessed and consultation with such potential business partners is of paramount importance.

(g) **Length of growing period (LGP) suitable for the proposed crop intensity.** Crop varieties characterized by a short LGP should be preferred for double cropping. LGPs of different varieties of a given crop should be considered to include short- and long-cycle varieties that could be grown in different growing periods. Varying LGPs also give opportunities to include more crops in the cropping pattern.

(h) **Prevalence of pest infestation.** History of pest infestation incidence in the project area should be taken into consideration to propose less risky crops. Crops that have been severely affected by certain diseases should not be selected for production unless the project includes appropriate control measures.

(i) **Suitability to irrigation technology.** The envisaged irrigation system in the SSI scheme influences the type of crops that can be cropped. For example, the cropping pattern under surface irrigation will not be the same as under sprinkler or drip irrigation.

(j) **Farmers' preference and experience.** Farmers' experience and existing cultivated crops are often given priority in proposing cropping patterns as long as they are consistent with other selection criteria.

(k) **Consumption habit and food security status in the community.** In most cases, consumption habits and main staple crops determine household decision making regarding cropping pattern choices. Depending on the objective of the SSI scheme and on the food security level of the concerned farmers, staple crops could be more or less privileged and occupy a significant share of the irrigation scheme area to meet beneficiaries' food needs.

43. **Cropping intensity.** While it is desirable to reach a cropping intensity of 200 percent or more, this needs to be carefully designed, taking into consideration the agricultural calendar and labor requirements for the remaining land belonging to smallholders benefiting from a plot in the SSI scheme, which will continue to be cropped under a rain-fed cropping system or with supplementary irrigation. Achieving the optimum cropping intensity often requires using short-cycle varieties that might not always be available or adapted to site-specific conditions. To be on the safe side, a cropping intensity of 180 percent was considered in the typical SSI scheme model elaborated.

44. **Cropping pattern.** Depending on each particular situation and SSI scheme objective, the cropping pattern used in the 'with project' situation will vary considerably. It is thus quite difficult to build a typical cropping pattern representative of the most likely situation of smallholders that will benefit from SSI schemes construction and rehabilitation. Therefore, for the sake of constructing an SSI scheme model, a mix of the most commonly cropped cereals and vegetables was included (excluding seed production, fruit, and industrial crops meant for agro-processing that might represent less frequent cases). Table 5.5 presents the cropping pattern used in the typical SSI scheme model (based on an irrigated perimeter of 25 ha) used for the financial and economic analyses.

Table 5.5. SSI Scheme Model - Cropping Pattern 'With Project' and 'Without Project'

Irrigated Area (ha) **25.00**

'With project' Cropping Pattern						
Crop	Wet Season		Dry Season		Total	
	Area (%)	Area (ha)	Area (%)	Area (ha)	Area (%)	Area (ha)
Maize	21%	5.2	9%	2.3	30%	7.5
Cassava	7%	1.8	0%	(—)	7%	1.8
Irish Potato	1%	0.3	21%	5.3	22%	5.6
Bean	10%	2.6	0%	(—)	10%	2.6
Soybean	0.4%	0.1	0%	(—)	0%	0.1
Onion	12%	2.9	14%	3.5	25%	6.3
Tomato	32%	8.0	38%	9.6	71%	17.6
Cabbage	6%	1.6	8%	1.9	14%	3.5
Uncultivated	10%	2.5	10%	2.5	20%	5.0
Total	100%	25.0	100%	25.0	200%	50.0
'Without project' Cropping Pattern						
Crop	Wet Season		Dray Season		Total	
	Area (%)	Area (ha)	Area (%)	Area (ha)	Area (%)	Area (ha)
Maize	26%	6.5	0%	(—)	26%	6.5
Cassava	9%	2.3	0%	(—)	9%	2.3
Irish Potato	2%	0.4	0%	(—)	2%	0.4
Bean	13%	3.3	0%	(—)	13%	3.3
Soybean	0.5%	0.1	0%	(—)	1%	0.1
Onion	2%	0.6	9%	2.3	12%	2.9
Tomato	6%	1.6	26%	6.4	32%	8.0
Cabbage	1%	0.3	5%	1.3	6%	1.6
Uncultivated	40%	10.0	60%	15.0	100%	25.0
Total	100%	25.0	100%	25.0	200%	50.0

45. **Yield 'with project' build-up.** In most cases, targeted smallholders will have limited exposure to SSI and to cropping vegetables on a large scale, so a progressive yield buildup over five years was assumed (starting from the start of each SSI scheme operation before being stabilized at 90 percent of target yield). This assumption avoids overestimating project benefits by recognizing that some smallholders will achieve the target yield while others will not because they do not fully apply best practices for one reason or another. In parallel, it is assumed that full input and operational costs per hectare will be met by smallholders as from the first year of operation of the scheme. This will translate into a progressive increase of net income over five years before reaching 90 percent of the targeted yield. The assumed progression of yields by crop type is presented in Table 5.6.

Table 5.6. SSI Scheme Model - Yield Build-up (Years 1 to 5) 'With Project'

Crops	Yield (net of post –harvest losses) by Year (Kg/ha					
	1st year	2nd year	3rd year	4th year	5th year	Target yield
% of target yield	80%	85%	90%	90%	90%	100%
Maize	1,300	1,381	1,462	1,462	9,828	1,625
Cassava	8,736	9,282	9,828	9,828	6,480	10,920
Irish Potato	5,760	6,120	6,480	6,480	449	7,200
Bean	399	424	449	449	793	499
Soybean	705	749	793	793	16,426	881
Onion	14,601	16,426	16,426	16,426	18,216	18,252
Tomato	16,192	18,216	18,216	18,216	15,927	20,240
Cabbage	14,158	15,927	15,927	15,927	9,828	17,697

46. **Technical assumptions and main financial results by irrigated crop.** Expected yields for food crops and vegetables are in line with those assumed for the rain-fed and HHI models; the main difference in assumptions lies in a higher share of hired labor as compared to the HHI model to cater for the larger area cropped by household and the resulting limitations in family labor availability. The main technical assumptions (gross yield, post-harvest losses, net yield after post-harvest losses, byproduct yields per hectare) and financial results (gross revenue, production costs, and net income per hectare) for each irrigated crop envisaged in the SSI model are presented in Table 5.7.

Table 5.7. SSI Scheme Model - Technical Assumptions and Financial Results by Crop 'With Project'

ITEMS	Unit of Measurement	Maize			Cassava			Irish Potato			Bean			
		Quantity	Price (AOA/unit)	Amount (AOA)	Quantity	Price (AOA/unit)	Amount (AOA)	Quantity	Price (AOA/unit)	Price (AOA/unit)	Quantity	Price (AOA/unit)	Amount (AOA)	Quantity
Revenue Gross Yield Post-harvest losses Yield (net of post-harvest losses)	Kg	1,710			12,133			8,000			525			928
	%	5%			10%			10%			5%			5%
		1,625	26.50	43,049	10,920	21.20	231,504	7,200	63.50	457,920	499	95.40	47,581	881
				43,049			231,504			457,920			47,581	
	(-)	(-)		34,300	(-)		68,050	(-)		226,000	(-)		34,450	(-)
	AOA/ ha	(-)		8,749	(-)		163,454	(-)		231,920	(-)		13,131	(-)
		Onion			Tomato			Cabbage						
		Quantity	Price (AOA/unit)	Amount (AOA)	Quantity	Price (AOA/unit)	Amount (AOA)	Quantity	Price (AOA/unit)	Amount (AOA)				
	Kg													
	%													
	Kg	18,252	61.80	1,127,950	20,240	56.65	1,146,596	17,697	51.50	911,396				
				1,127,950			1,146,596			911,396				
	(-)	(-)		345,650	(-)		208,600	(-)		182,700				
	AOA/ ha	(-)		782,300	(-)		937,996	(-)		728,696				

Financial and Economic Results

47. The financial and economic results of the elaborated SSI model (25 ha) are presented in Table 5.8.

Table 5.8. SSI Scheme Model (100 ha) - Main Financial and Economic Results

			TOTAL (AOA Thousand)
A. Costs			
Investment Costs	US$/ha	AOA/ha	
Civil Works	1,500	165,000	4,125
Feasibility studies	150	15,500	413
Supervision and control works	150	16,500	413
Capacity building	10,000	1,100,000	27,500
Sub-total			32,450
Recurrent Costs	2.5%		
Maintenance of Infrastructure (% of investment costs per ye			103
Financial Internal rate of return	%		**37%**
Economic Internal rate of return			**42%**
Economic Net present value	AOA Million		**94.5**

48. Under the assumptions used, the elaborated model shows that SSI—in particular, partial river diversion—is profitable from both a financial point of view and the national economic standpoint. The financial internal rate of return is estimated at 37 percent although feasibility studies, civil work control and supervision, and capacity-building costs were all accounted for in addition to civil works costs and maintenance of the scheme infrastructure. In economic terms, the SSI model is even more profitable, as the EIRR is 42 percent. This confirms the soundness of investing in SSI for both smallholders and the country as a whole.

Economic Analysis

49. The cost-benefit analysis aims to assess the economic viability of the proposed project from an overall national economic standpoint. The economic analysis is based on the aggregation of additional net profits derived from all types of operating models developed in the financial analysis.

Methodology and Assumptions

50. The analysis was conducted for a 20-year period in constant 2015 prices. Financial prices and cost and benefit streams were transformed into economic values by calculating economic import/export parity prices at farm gate, applying conversion factors for each category of costs, eliminating taxes and transfers, and considering incremental costs after the project implementation period (maintenance of SSI schemes). In the 'without project' situation, it was assumed that the economic benefits remain constant. In the 'with project' situation, it was assumed that the economic benefits derived from rain-fed and irrigated agriculture are progressive, starting from 60 percent (of the target benefits) after the first year of cropping to 80–

90 percent after the fifth year and subsequently. The average benefits achieved are thus always kept below the targeted ones, which are achievable only when best practices are fully applied.

51. **Import and export parity prices and conversion factors.** Import parity prices were calculated for maize, soybean, and fertilizers on the basis of World Bank projections for the year 2025—considered as the middle year for the period of the analysis—and expressed in 2015 constant prices using the July 2015 Manufactures Unit Value index as published on the World Bank website.

52. **Economic benefits considered in the analysis.** Quantified economic benefits are mainly those derived from increased value of main rain-fed and irrigated crops (maize, cassava, Irish potato, bean, soybean, onion, tomato, cabbage) at smallholder level as a combined effect of increase in productivity, increase in area cultivated, and two cycles per year with SSI, as well as higher prices paid to producers due to a larger share of production surplus sold after storage.

53. After transforming financial crop, farm, and irrigation models into economic values, the economic benefits of each model type were aggregated to calculate the net incremental economic benefit stream (difference between the 'with project' and 'without project' economic benefit streams) derived from improved technology adoption. A key assumption influencing the outcome of the calculation of economic benefits is the number of participating smallholders/households (by project-year) that will adopt the improved technologies proposed by the project. The following assumptions were made:

(a) **Benefits from rain-fed/HHI crops/farms.** The project FFS and investment support will translate into a yearly increase of the target population adopting improved technologies as follows: 0 percent at the first year, 5 percent at the second year, 20 percent at the third year, 50 percent at the fourth year, and 80 percent at the fifth year and beyond. This corresponds to about an additional 2,000 smallholders adopting improved packages in the second year, 8,000 smallholders in the third year, and 20,000 smallholders in the fourth year, and 32,200 smallholders in the fifth year and beyond. By the end of the project implementation period (project-year 5), an estimated 80 percent of target smallholders will have adopted new technologies. This objective is not out of reach as MOSAP achieved an adoption rate of 66 percent in two years. The benefits derived from rain-fed agriculture and HHI represent 62 percent and 15 percent, respectively, of the total economic benefits stream considered in the analysis.

(b) **Benefits from SSI.** The aggregation of economic benefits from SSI takes into account the number of hectares developed every project-year, which enables calculation of the number of schemes of 25 ha constructed each year. Multiplying the latter by the incremental economic benefit per SSI model allows calculation of the yearly stream of total economic benefits derived from SSI construction. The benefits derived from SSI represent nearly 23 percent of the total economic benefits stream considered in the analysis.

Economic Analysis Results

54. The economic analysis assessed the incremental aggregated crop production expected from investment and FFS support. The project will result in an increase in crop production ranging from 118–193 percent for vegetables and from 31–78 percent for food crops. From the fifth year, the project will generate a yearly incremental production of 44,000 tons of maize, 118,000 tons of cassava, 12,000 tons of Irish potato, 5,000 tons of beans, 382 tons of soybean, 18,000 tons of onion, 31,500 tons of tomato, and 5,000 tons of cabbage.

55. The project will yield an EIRR of 19 percent and a net present value of US$50 million (at a 10 percent discount rate). The project is therefore profitable from an economic standpoint.

56. **Sensitivity analysis.** A sensitivity analysis was carried out to assess the likely impact of a variation in some key factors on the economic return of the project.

57. The sensitivity analysis indicates resilience to an increase in costs and a reduction in benefits. The EIRR is 17 percent and 13 percent if benefits are reduced by 10 percent and 30 percent, respectively. If the benefits lag by two years, the EIRR is still 14 percent. Table 5.9 summarizes the sensitivity analysis results.

Table 5.9. Sensitivity Analysis Summary

Indicators	Base case	Increase in project costs			Increase in benefits			Decrease in benefits			Delay of benefits	
		10%	20%	50%	10%	20%	30%	-10%	-30%	-50%	1 year	2 years
EIRR	19%	17%	16%	13%	21%	22%	23%	17%	13%	8%	16%	14%
VPV (US$ M)	50	43	37	18	61	72	84	38	16	-7	36	24

58. **Fiscal impact.** In the short term, the impact of the project on the budget will be slightly negative, since the Government has to contribute to the financing up to US$20 million (cash and in-kind) over a period of five years. But in the medium to long term, the potential fiscal impact will be positive, mainly due to (a) increased output, income, and employment, resulting in increased tax revenues; and (b) multiplier effects due to increased economic activities in targeted production areas, resulting in a sustained demand for goods and services that is expected to generate additional income and employment effects.

Annex 6: Greenhouse Gas Account Estimates

ANGOLA: Smallholder Agriculture Development and Commercialization Project

Project Objectives and Components

1. The PDO is to increase smallholder agriculture productivity, production, and marketing for selected crops in the project areas. The primary project beneficiaries are expected to be about 175,600 beneficiaries of which 175,000 are smallholder farmers in the project areas expected to cover 80 communes, which are part of 26 municipalities in the three provinces of Bié, Huambo, and Malanje. The project areas have a warm-temperate moist climate, with highly acidic soils with low activity clay. The project implementation phase is 5 years, and the capitalization phase is assumed to be 15 years.

2. The key outcome indicators that will be used to measure performance at the end of the five-year project period are: (a) increased average crop yields; (b) increased crop production; and (c) increased proportion of crop production that is marketed.

3. Project activities will be clustered around the following components: Component 1. Capacity Building and Institutional Development; Component 2. Support for Increased Production and Commercialization; Component 3. Project Management, Monitoring, and Evaluation.

Project Planned Interventions

4. A range of CSA practices will be applied on 239,750 ha of cropland. The interventions are summarized in Table 6.1.

Table 6.1. Climate-smart Agriculture Intervention Practices

Crop	Improved agronomic practices	Nutrient management	No tillage/residues management	Water management	Manure application	No residue burning	Area (ha)
Maize	✓	✓	✓	✓	✓	✓	107,456
Cassava	✓		✓		✓	✓	37,134
Potatoes	✓	✓	✓	✓	✓	✓	6,609
Beans	✓	✓	✓	✓	✓	✓	53,638
Soybean	✓	✓	✓	✓	✓	✓	2,063
Onion	✓	✓		✓	✓	✓	1,566
Tomato	✓	✓		✓	✓	✓	2,885
Cabbage	✓	✓		✓	✓	✓	579

5. In addition, input intensification is planned as follows:

(a) **Application of limestone to reduce soil acidity.** Currently 13,700 tons of limestone are used on 6,850 ha of land per year. The target is to increase this 10-fold, to 137,000 tons per year on 68,500 ha.

(b) Application of fertilizers. Urea use will increase from 368 tons of nitrogen per year on 6,850 ha to 3,679 tons of nitrogen per year on 68,500 ha. Other chemical fertilizer use will increase from 360 tons of nitrogen per year on 6,850 ha to 3,596 tons of nitrogen per year on 68,500 ha. Compost use will increase to 27 tons of nitrogen per year on 6,850 ha 'without project' to 685 tons of nitrogen per year on 68,500 ha 'with project'. Taken together, nitrogen application will increase from 110.2 kg of N per year per ha to 116.2 kg of nitrogen per year per ha. Phosphorus application will also increase from 1,713 tons of P_2O_5 per year on 6,850 ha to 17,125 tons per year on 68,500 ha. Similarly, potassium fertilization will increase from 1,713 tons of K_2O per year on 6,850 ha 'without project' to 8,563 tons per year on 68,500 ha 'with project.'

(c) **Application of pesticides.** Currently no insecticides are used. The target is to apply about 809 tons of active ingredient of Ambush, Actelic, Basudine, Decis, and Mesurol (combined) per year on 68,500 ha.

(d) **Electricity consumption.** Pre-project electricity consumption for agricultural production is 97.2 MWh per year and is expected to increase to 277.2 MWh per year.

(e) **Fuel consumption.** Currently 52 m^3 of diesel and 10.4 m^3 of petrol are consumed annually. These consumption rates will increase to 218.4 m^3 and 135.2 m^3 per year, respectively.

(f) **Construction of water storage and canals for gravity irrigation.** Baseline = 0 ha; with project = 1,000 ha.

(g) **Houses and offices construction.** Baseline = 30 m^2; with project = 50 m^2.

Greenhouse Gas Analyses Results

6. The expected GHG fluxes from project activities are summarized in Table 6.2.

Table 6.2. GHG Fluxes in Agriculture from Project Interventions

	Gross Fluxes		GHG Balance in tCO_2eq	
	Without Project	With Project		
	GHG in tCO_2eq			
	Positive = source/Negative = sink			
1. Improved crop production practices	-55,330	-10,354,399		-10,299,069
2. Inputs intensification				
a) Limestone	2,496,597	2,496,597	0	
b) Fertilizers	731,443	731,443	0	
Urea	615,233	615,233	0	
Other Chemical N	23,446	58,484	35,038	
Compost	219,771	219,771	0	
Phosphate	164,828	82,414	-82,414	
Potassium				

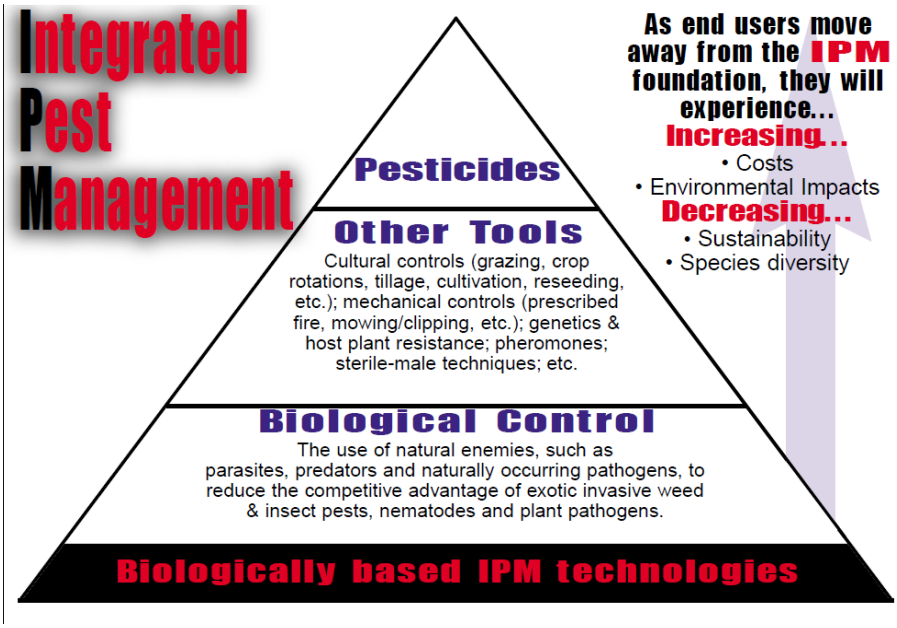
	Gross Fluxes		GHG Balance in tCO_2eq	
	Without Project	**With Project**		
	GHG in tCO_2eq			
	Positive = source/Negative = sink			
c) Insecticides	0	264,796	264,796	
Subtotal (2)				217,420
3. Energy consumption	4,156	19,387		15,231
4. House and irrigation construction	12	56		44
Grand total (1+ 2 + 3 + 4)	4,200,156	-5,866,217		**-10,066,373**
Per hectare	20	-28		**-47**
Per hectare per year	1.0	-1.4		**-2.4**

7. The planned project intervention will result in a net GHG sink of 10 $mtCO_2eq$, corresponding to a sink of 47 tCO_2eq per ha, or 2.4 tCO_2eq per hectare per year. The sink results largely from improved crop and water management practices that create a net carbon sink of 10.3 $mtCO_2eq$. Inputs intensification will generate about 0.2 $mtCO_2eq$ emissions, mostly from insecticides.

8. Integrated Pest Management (IPM) may help reduce GHG emissions and other ecological impacts. IPM in the project (Figure 6.1) should seek to promote

- judicious selection and reduced application of chemical pesticides;
- biological control (conservation and augmentation of natural enemies); and
- herbicide tolerant and pest resistant crops with proven productivity and environmental safety benefits.

Figure 6.1. Integrated Pest Management in Practice



Source: U.S. Department of Agriculture.

Annex 7: MAP

ANGOLA: Smallholder Agriculture Development and Commercialization Project