

AFRICAN DEVELOPMENT FUND

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REPUBLIC OF GHANA

CASHEW DEVELOPMENT PROJECT

APPRAISAL REPORT

NB: This document contains errata or corrigenda (see Annexes)

COUNTRY DEPARTMENT
WEST REGION

OCDW
SEPTEMBER 2000

TABLE OF CONTENTS

PROJECT INFORMATION SHEET, CURRENCY AND MEASURES, LIST OF TABLES, LIST OF ANNEXES, LIST OF ABBREVIATIONS, BASIC DATA SHEET, PROJECT LOGICAL FRAMEWORK, EXECUTIVE SUMMARY

1. ORIGIN AND HISTORY OF THE PROJECT

1.1	Origin and History of the Project	1
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2. THE AGRICULTURE SECTOR

2.1	Main Features	2
2.2	Land Tenure and Land Use.....	3
2.3	Institutional Framework	3
2.4	Agricultural Policy Framework	6
2.5	Donor Support Activities	7

3. THE CASHEW SUB-SECTOR

3.1	Cashew Agronomy	8
3.2	Cashew Production	9
3.3	Cashew Processing	10
3.4	Institutional Support	10

4. THE PROJECT

4.1	Project Concept and Rationale	10
4.2	Project Area and Beneficiaries.....	11
4.3	Strategic Context	12
4.4	Project Objective	13
4.5	Project Description	13
4.6	Markets and Prices.....	16
4.7	Environmental Impact	18
4.8	Social Impact	19
4.9	Project Costs	20
4.10	Sources of Finance.....	21

5. PROJECT IMPLEMENTATION

5.1	Executing Agency	22
5.2	Institutional Arrangements	22
5.3	Supervision and Implementation Schedule	23
5.4	Procurement Arrangements	24
5.5	Disbursement Arrangements	25
5.6	Monitoring and Evaluation	26
5.7	Financial Reporting and Auditing	27
5.8	Aid Co-ordination	27

6. PROJECT SUSTAINABILITY AND RISKS

6.1	Recurrent Costs	27
-----	-----------------------	----

6.2	Project Sustainability	28
6.3	Critical Risks and Mitigation Measures	29
7.	PROJECT BENEFITS	
7.1	Financial Analysis.....	29
7.2	Economic Analysis.....	30
7.3	Social Impact Analysis.....	30
7.4	Sensitivity Analysis.....	31
8.	CONCLUSIONS AND RECOMMENDATIONS	
8.1	Conclusions	31
8.2	Recommendations and Conditions for Loan Approval	32

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LIST OF TABLES

<u>TABLE</u>		<u>Page</u>
4.1	Summary of Project Costs by Component.....	20
4.2	Summary of Project Costs by Category of Expenditure.....	20
4.3	Local/Foreign Sources of Financing	21
5.1	Procurement Arrangements	25
5.2	Expenditure Schedule by Component	25
5.3	Expenditure Schedule by Source of Finance	26
6.1	Recurrent Cost Schedule by Source of Finance	28

LIST OF ANNEXES

<u>ANNEX</u>		<u>Number of Pages</u>
1.	Map of Project Area	1
2.	Project Organisational Chart	1
3.	Project Implementation Schedule	1
4.	Provisional List of Goods and Services	1
5.	Summary of Financial and Economic Analysis	3
6.	List of Annexes in Project Implementation Document	1

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PROJECT INFORMATION SHEET

1. **COUNTRY** : Republic of Ghana
2. **TITLE OF PROJECT** : Cashew Development Project
3. **LOCATION** : Ten districts located in five regions, namely Northern, Upper West, Brong Ahafo, Volta and Greater Accra regions of Ghana.
4. **BENEFICIARY** : The Republic of Ghana
5. **EXECUTING AGENCY** : Ministry of Food and Agriculture, Crop Services
Directorate, P. O. Box M37, Accra, Ghana
Tel: (233) 21 665066 ; Fax: (233) 21 780326
6. **PROJECT DESCRIPTION** : The project will increase the production of cashew to generate rural incomes, enhance living standards and contribute to poverty reduction. The project components are: i) Production Development; ii) Extension and Training; iii) Credit; iv) Project Management and Technical Assistance.
7. **TOTAL COST** : **UA 11.54 million**
of which - Foreign exchange : UA 8.69 million
Local cost : UA 2.85 million
8. **ADF LOAN** : **UA 9.89 million**
9. **OTHER SOURCES OF FINANCE**
Government of Ghana : **UA 1.65 million**
10. **DATE OF APPROVAL** : October 2000
11. **PROBABLE COMMENCEMENT DATE AND PROJECT DURATION**
Commencement : January 2001
Duration : Six Years
12. **PROCUREMENT OF GOODS, WORKS AND SERVICES**

Procurement of goods, works and services financed by the ADF resources will be in conformity with Bank Group Rules of Procedure. About 48 person months of senior level long-term international technical assistance and 240 person-months of long-term national technical assistance in agronomy, horticulture, agricultural economics, accounting, cashew marketing and processing will be required during project implementation. Short-term consultancy services estimated at 135 person-months, in various fields of specialisation including auditing, will be required.

CURRENCY AND MEASURES

Currency Equivalents (March 2000)

Currency Unit = Ghanaian Cedi (GHC)

UA 1 = GHC 4,732.79

UA 1 = US\$ 1.34687

Fiscal Year

1 January - 31 December

Weights and Measures

Metric system

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
ADF	African Development Fund
AAGDS	Accelerated Agricultural Growth Development Strategy
AgSSIP	Agricultural Sub-Sector Investment Project
AgDB	Agricultural Development Bank
CRI	Crop Research Institute
CRIG	Cocoa Research Institute of Ghana
CSD	Crop Services Directorate
CSIR	Council for Scientific and Industrial Research
EIRR	Economic Internal Rate of Return
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organisation of the United Nations
FLS	Front Line Staff
FRD	Feeder Roads Department
GDP	Gross Domestic Product
GEPC	Ghana Export Promotion Council
GOG	Government of Ghana
ICB	International Competitive Bidding
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
MIS	Management Information Systems
M&E	Monitoring and Evaluation
MOF	Ministry of Finance
MOFA	Ministry of Food and Agriculture
NGO	Non-Governmental Organisation
NPV	Net Present Value
OCC	Opportunity Cost of Capital
PMU	Project Management Unit
PPMED	Policy Planning Monitoring and Evaluation Department
PPRSD	Plant Protection and Regulatory Services Department
SARI	Savannah Agricultural Research Institute
UA	Unit of Account
UNDP	United Nations Development Programme
UDS	University for Development Studies, Ghana

GHANA : BASIC DATA SHEET

COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Ghana	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		239	30,061	80,976	54,658
Total Population (millions)	1998	19.2	748.0	4,718.9	1,182.2
Urban Population (% of Total)	1998	36.9	38.2	39.6	75.6
Population Density (per Km ²)	1998	80.3	24.9	58.3	21.6
GNP per Capita (US \$)	1998	390	687	1,250	25,890
Labor Force Participation - Total (%)	1998	47.0	43.7
Labor Force Participation - Female (%)	1998	23.8	37.0
Gender -Related Development Index Value	1997	0.5	0.5	0.6	0.9
Human Development Index (Rank among 174 countries)	1997	133	n.a.	n.a.	n.a.
Population Living Below \$ 1 a Day (% of Population)	1989-94	...	45.0	32.2	...
Demographic Indicators					
Population Growth Rate - Total (%)	1998	2.7	2.4	1.6	0.3
Population Growth Rate - Urban (%)	1998	4.2	4.3	3.1	0.6
Population < 15 years (%)	1998	43.9	42.9	33.2	18.8
Population >= 65 years (%)	1998	3.0	3.2	19.7	26.7
Dependency Ratio (%)	1998	82.8	86.9	61.7	48.8
Sex Ratio (per 100 female)	1998	99.0	99.3	103.3	94.8
Female Population 15-49 years (millions)	1998	4.5	176.2	1,213.4	296.8
Life Expectancy at Birth - Total (years)	1998	61.2	52.7	64.0	75.4
Life Expectancy at Birth - Female (years)	1998	63.0	53.4	65.8	79.1
Crude Birth Rate (per 1,000)	1998	36.2	37.7	23.8	11.0
Crude Death Rate (per 1,000)	1998	8.8	13.7	8.4	10.3
Infant Mortality Rate (per 1,000)	1998	61.2	80.7	58.9	9.0
Child Mortality Rate (per 1,000)	1998	88.4	116.1	76.2	10.4
Maternal Mortality Rate (per 100,000)	1996	740	698	488	30
Total Fertility Rate (per woman)	1998	4.9	5.0	2.9	1.6
Women Using Contraception (%)	1995	28.0	...	56.0	70.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	1990-96	4	23	76	253
Nurses (per 100,000 people)	1988-96	28	89	85	780
Births attended by Trained Health Personnel (%)	1983-88	40	...	54	99
Access to Safe Water (% of Population)	1990-97	56	55	72	100
Access to Health Services (% of Population)	1995	60	60	80	100
Access to Sanitation (% of Population)	1990-97	55	45	43	100
Percentage of Adults (aged 15-49) Living with HIV/AIDS	1997	2.4	5.7
Incidence of Tuberculosis (per 100,000)	1995	222	201	157	24
Child Immunization Against Tuberculosis (%)	1996	72	77	88	93
Child Immunization Against Measles (%)	1996	59	63	79	90
Underweight Children (% of children under 5 years)	1990-97	27	26	31	...
Daily Calorie Supply	1996	2,598	2,406	2,650	3,222
Public Expenditure on Health (as % of GDP)	1995-97	1.6	1.4	1.8	6.3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	1991	75.1	79.5	100.0	103.0
Primary School - Female	1991	68.9	73.0	93.8	103.2
Secondary School - Total	1991	36.4	28.3	50.4	100.3
Secondary School - Female	1991	28.4	25.7	45.3	101.8
Primary School Female Teaching Staff (% of Total)	1991	35.2	45.0	51.0	82.0
Adult Illiteracy Rate - Total (%)	1997	33.6	43.5	28.2	1.3
Adult Illiteracy Rate - Male (%)	1997	23.5	33.0	19.6	1.0
Adult Illiteracy Rate - Female (%)	1997	43.5	51.6	35.8	1.5
Percentage of GDP Spent on Education	1995	...	3.5	3.9	5.9
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	1996	12.5	5.9	9.9	11.6
Annual Rate of Deforestation (%)	1990-95	1.3	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	1980-90	2.0	4.0
Per Capita CO2 Emissions (metric tons)	1996	0.2	1.1	2.1	12.5

Source : Compiled by the Statistics Division from ADB databases; UNAIDS; World Bank Live Database and United Nations Population Division.

Notes: n.a. Not Applicable
... Data Not Available

PROJECT LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
<p><u>Sector Goals</u> 1. Living standards of the rural population increased; 3. Rural employment generated; and 4. Foreign exchange earnings for the country increased.</p>	<ol style="list-style-type: none"> 1. Rural incomes increased by at least 52%, by Year 9. 2. 1,120 full time & 40,000 seasonal jobs created by Yr 9. 3. Potential foreign exchange earning of US\$19.2million in Yr.9 after commencement of project implementation. 	<ol style="list-style-type: none"> 1. Household income surveys 2. Natl. sample survey of agric. 3. Employment statistics 4. Export/Import statistics 	
<p><u>Objective</u> Cashew production increased in targeted districts.</p>	<ol style="list-style-type: none"> 1. Approximately 15,000 MT of raw nuts produced annually, starting 4 years after end of project. 2. Cashew yield increased from 200 kg/ha to 800kg/ha by Year 10 (after project completion). 3. 40 nurseries established 	<ol style="list-style-type: none"> 1. Quarterly and annual progress reports 2. Supervision reports 3. Mid-term review report 4. District Assembly annual reports 	<ol style="list-style-type: none"> 1. Macro-economic conditions remain favourable. 2. Cashew prices remain favourable.
<p><u>Outputs</u> 1. Area and number of farmers producing cashew increased. 2. Institutional capacity strengthened 3. Credit scheme established and operational 4. Project Management Unit (PMU) established</p>	<ol style="list-style-type: none"> 1.1 20,000 smallholders adopt cashew in their farming system by EOP. 1.2 18,000 ha under cashew plantation. 1.3 1,500ha of canopy-substituted cashew plantations. 1.4 32 cashew processing units established. 1.5 A 20-ha clonal garden producing grafting materials Established 2.1 20,000 cashew growers; 32 processors and 40 nursery operators managing their operations efficiently by EOP; 2.2 10 growers associations and one national umbrella association for stakeholders operating; 2.3 240 agric. extension agents and SMS providing efficient extension services to farmers; 2.4 3 senior staff of MOFA and CRIG efficiently responding to farmers' constraints. 3.1 UA 4.18 million credit facility available to cashew producers, processors and nursery operators. 4.1 All procurement done in accordance with Bank Rules of Procedure 	<ol style="list-style-type: none"> 1. Quarterly and annual progress reports 2. Supervision reports 3. Mid-term review report 4. Project completion report 	<ol style="list-style-type: none"> 1. Farmers continue to be willing to allocate land to cashew production. 2. Cashew research remains a priority at CRIG 3. Project is implemented as designed

PROJECT LOGICAL FRAMEWORK (Cont'd)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS																												
<p><u>ACTIVITIES</u></p> <p>1. Production Development 1.1 Sourcing of planting materials 1.2 Import high yielding clonal material 1.3 Establish clonal garden at CRIG 1.4 Establish 40 nurseries 1.5 Extend research laboratory at CRIG. 1.6 Spot improvement to 200 km of feeder roads in project districts.</p> <p>2. Extension and Training 2.1 Conduct training workshops, seminars and farm-visits; 2.2 Study tours organised for senior staff; 2.3 Develop cashew production and processing technical packages 2.4 Mobilise and train nursery operators 2.5 Mobilise and train cashew growers 2.6 Mobilise and train cashew processors</p> <p>3. Credit 3.1 Establish credit facility.</p> <p>4. Project Management 4.1 Establish PMU and recruit staff 4.2 Undertake all procurements (vehicles, motor cycles and office equipment); 4.3 Recruit technical assistance and local consultants and sign contracts; 4.4 Conduct base-line survey 4.5 Conduct mid-term review</p>	<p><u>RESOURCES</u></p> <p>1. Finances</p> <table border="0"> <thead> <tr> <th><u>Source</u></th> <th><u>Amount</u></th> </tr> </thead> <tbody> <tr> <td>ADF Loan</td> <td>UA 9.89 million</td> </tr> <tr> <td>GOG contribution</td> <td>UA 1.65 million</td> </tr> <tr> <td>Total</td> <td>UA 11.54 million</td> </tr> </tbody> </table> <p>2. Budget</p> <table border="0"> <thead> <tr> <th><u>Component</u></th> <th><u>Amount</u></th> </tr> </thead> <tbody> <tr> <td>Production Development</td> <td>UA 4.00 million</td> </tr> <tr> <td>Extension and Training</td> <td>UA 1.31 million</td> </tr> <tr> <td>Credit</td> <td>UA 4.18 million</td> </tr> <tr> <td><u>Project Management</u></td> <td><u>UA 2.05 million</u></td> </tr> <tr> <td>Total</td> <td>UA 11.54 million</td> </tr> </tbody> </table> <p>3. Human Resources</p> <table border="0"> <thead> <tr> <th><u>Source</u></th> <th><u>Person months</u></th> </tr> </thead> <tbody> <tr> <td>International Technical Assistance</td> <td>48</td> </tr> <tr> <td>National Technical Assistance</td> <td>240</td> </tr> <tr> <td>Short-term Consultancy Services</td> <td>135</td> </tr> </tbody> </table>	<u>Source</u>	<u>Amount</u>	ADF Loan	UA 9.89 million	GOG contribution	UA 1.65 million	Total	UA 11.54 million	<u>Component</u>	<u>Amount</u>	Production Development	UA 4.00 million	Extension and Training	UA 1.31 million	Credit	UA 4.18 million	<u>Project Management</u>	<u>UA 2.05 million</u>	Total	UA 11.54 million	<u>Source</u>	<u>Person months</u>	International Technical Assistance	48	National Technical Assistance	240	Short-term Consultancy Services	135	<p>1. Disbursement ledgers</p> <p>2. Bank supervision mission reports</p> <p>3. Project quarterly and annual reports</p> <p>4. Project M&E reports</p>	<p>1. Government provides budgeted counterpart funds as planned</p> <p>2. Farmers, processors and nursery operators participate in project activities.</p> <p>3. Expertise to undertake the technical assistance and consultancy activities exist.</p>
<u>Source</u>	<u>Amount</u>																														
ADF Loan	UA 9.89 million																														
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EXECUTIVE SUMMARY

Project Background.

In 1998 the Ministry of Food and Agriculture (MOFA) commissioned and funded a study to investigate the status of the cashew industry, particularly with regard to potential production areas and levels, and the performance and problems hindering the development of the industry. The study concluded that the country has tremendous potential to increase the area under cultivation and the production of cashew nuts and kernels for domestic and export markets. The study also indicated that cashew production has the potential of generating significant additional income for the rural population, and hence contribute to poverty reduction. It is in this regard that the Government of Ghana requested the Bank Group to consider financing a Cashew Development Project. The Bank Group responded by sending a mission to Ghana in March 2000 to prepare the project, followed by another mission in July 2000 to appraise it for financing by ADF. The present report is based on these two missions and on the background information that was collected during the 1998 study. A second working document, Volume II, is available and will be used for reference during project implementation.

Purpose of the Loan

The total ADF contribution, representing 85.7% of the total cost, will be utilised to cover 100% of the foreign exchange costs and 42.2% of local costs.

Sector Goal and Project Objective

The project will contribute towards achieving the following sector goals: improve living standards of the rural population by generating rural employment in order to contribute to poverty reduction, and earn foreign exchange for the country. The objective of the Cashew Development Project is to increase cashew production in five regions.

Brief Description of the Project Outputs

The main project outputs will include: i) trained cashew farmers, nursery tree growers and processors; ii) expansion of area under cashew production from 18,000 ha to about 36,000 ha; iii) 1,500 ha of old plantations canopy-substituted iv) 40 cashew nurseries established and producing 500,000 seedlings annually; v) 20 ha clonal garden established; vi) the number of small scale cashew producers increased from 6,500 to 20,000; vii) micro cashew processing units increased from seven to an estimated thirty-two units, which will increase the capacity for cashew nut processing in Ghana from the present capacity of 210 metric tonnes to about 2,000 metric tonnes per year; viii) capacity for cashew research enhanced and delivery of extension services to beneficiaries improved; ix) improvement of 200 km of feeder road network in the ten districts covered by the project; x) creation of 1,120 in processing, 20,000 farm holders and 40,000 seasonal jobs on cashew plantations xi) generation of US\$19.2 million per year of foreign exchange starting from year nine after the start of project implementation.

Project Cost

The total project cost is estimated at UA11.54 million, out of which UA8.69 million (75.3%) will be foreign currency and UA2.85 million (24.7%) will be in local currency.

Sources of Finance

The project will be financed by the African Development Fund (ADF) and the Government of Ghana. The ADF loan (UA9.89 million) will be utilised to finance civil works, research activities and training of nursery operators, farmers, processors, extension agents, and research staff, and to procure equipment, materials and vehicles for research and the PMU. The Government of Ghana's contribution totalling UA1.65 million will cover cost of providing office space and utilities for the PMU and the Regional and District Offices that will be involved in the project implementation, as well as meeting associated recurrent costs.

Project Implementation

The Ministry of Food and Agriculture (specifically, the Food Crops Directorate) is the implementing agency. The Fund will support the establishment of a PMU under the Crop Services Directorate (CSD). The PMU will be responsible for implementing project activities. A Project Manager will be appointed by CSD to head the PMU, and an internationally recruited Technical Assistant will provide advisory services to the Project Manager.

In all its research, extension and training activities, the project will use the farmer/processor demand-driven approach where farmers and potential processors will request the services and later participate in its implementation. The participatory approach will be adopted throughout the implementation process. During the 1998 study, and the project preparation and appraisal missions, selected existing and potential cashew farmers and processors in the five regions and other stakeholders were involved in discussions to identify specific areas of intervention for the project. The beneficiaries who participated in the project formulation and preparation emphasised the need for credit and training in cashew cultivation, in order to achieve the project objectives. Through workshops, and extension activities, the participation of primary beneficiaries and other stakeholders will continue during project implementation. Extension and training programmes after project implementation will be carried out under the existing structure where overall supervision is done by the respective District Directors of Agriculture, assisted by district staff from MOFA.

The Project Steering Committee established under the Food Crops Project will provide the necessary policy and management guidance to the Cashew Development Project. Major stakeholders in the cashew industry will be appointed into the steering committee. Stakeholders will include but not be limited to representatives of cashew growers, processors, NGOs involved in the cashew industry, AgDB, MOFA, CRIG, Feeder Roads Department, key research institutions in the cashew industry, EPA and GEPC.

A number of measures to ensure sustainability and beneficiary ownership of project activities have been incorporated in the project design. The main ones are: involving primary beneficiaries (smallholder farmers) and other stakeholders at the preparation stage and throughout the implementation process; and keeping to the minimum the additional recurrent cost to the GOG after project implementation. Total recurrent costs under the project are UA2.0 million. The cost items under ADF financing comprise operating costs for the PMU, operation and maintenance of equipment at regional, district levels and at CRIG, and field allowances, valued at UA0.396 million. The year by year expenditure of ADF operating costs exhibit a decreasing trend.

Conclusion and Recommendations

It is recommended that a loan not exceeding UA9.89 million from ADF resources be granted to the Government of the Republic of Ghana for the purpose of implementing the project as described in this report, subject to conditions specified in the loan agreement.

1. ORIGIN AND HISTORY OF THE PROJECT

1.1 According to the Development Strategy for Poverty Reduction published in March 2000 by the Ministry of Finance, poverty is widespread in the country, with 42.6% living below the poverty line. Poverty levels are substantially higher in rural areas, at 62.4% compared to 27.5% in urban areas. The incidence of poverty on the population is disproportionate from region to region: Urban Coastal (26.8%); Urban Forest (24.8%); Urban Savannah (42.2%); Rural Coastal (46.3%); Rural Forest (41.4%); Rural Savannah (70.5%). These statistics exhibit poverty concentration in the savannah regions in the north of the country (notably the Northern, Upper East and Upper West regions). These regions have benefited very little from the overall poverty reduction programmes which have been implemented in the country.

1.2 Poverty is also directly related to the economic activities in which households are engaged. At the national level, almost 58% of those identified as poor are from households for which food crops cultivation is the main activity. Considering the intensity of poverty of the rural populations in the savannah regions where more than half are classified as extremely poor, the cashew development project is one of the priority development undertakings for the Government in its efforts to tackle poverty in the selected districts of the Savannah and transitional zones.

1.3 Against this portrait of dire poverty in the country, in 1995, the Government of Ghana (GOG) launched a 25-year perspective plan for national development, the Vision 2020, which aims at transforming Ghana from a poor low-income into a middle-income country by the year 2020. To attain the rates of economic growth required to make such a transformation, the agricultural sector would have to play a key role. Consequently, the Ministry of Food and Agriculture (MOFA) formulated a medium term (1997-2007) Accelerated Agricultural Growth and Development Strategy (AAGDS) designed to increase the sector's annual growth rate from 2-3% (1990-96) to 5-6 percent in order to achieve rapid, sustainable and equitable growth. These rates of growth would result in an increase in the annual agricultural contribution to GDP from an average of US\$2.9 billion to about US\$5.5 billion, within the context of an overall GDP of about US\$15 billion.

1.4 During 1998 and 1999, agricultural contribution to GDP declined from 47% to 41%. To a large extent this has been due to the falling international commodity prices of the country's traditional export crop, cocoa. In order to reverse this trend, the GOG, in line with the AAGDS, has focused on promoting selected non-traditional agricultural commodities for which Ghana has or can develop comparative advantage to produce for the domestic market (food and industrial raw materials), and for export into regional and international markets. Cashew was identified as one such crop.

1.5 In 1998 the Ministry of Food and Agriculture (MOFA) commissioned and funded a study to investigate the status of the cashew industry, particularly with regard to potential production areas and levels, as well as performance and problems hindering the development of the industry. The study established that the crop can and is grown in most parts of the country, albeit with minimal or no agricultural service support. It concluded that there is tremendous potential to increase the area under cultivation and consequently increase the production of cashew nuts and kernels for local consumption and for export. Furthermore, the study indicated that cashew production has the potential of generating significant additional income for the rural populations, hence contributing to poverty reduction.

1.6 It is in this regard that the Government of Ghana requested the Bank Group to consider financing a Cashew Development Project. The Bank Group responded by sending a mission to Ghana in March 2000 to prepare the project, followed by another mission in July 2000 to appraise it for financing by ADF. This appraisal report is based on these two missions and on the background

information that was collected during the 1998 GOG commissioned study. As well, further details of the appraisal are available in volume II of this report.

2. THE AGRICULTURE SECTOR

2.1 Main Features

2.1.1 The agricultural sector is dominant in the Ghanaian economy, as evidenced from recent statistics. In 1998, the sector employed about 70% of the labour force, contributed about 41% to GDP and accounted for 57% of foreign exchange earnings. The agricultural sector is made up of 5 sub-sectors namely: crops other than cocoa (63% of agricultural GDP), cocoa (14%), livestock (7%), fisheries (5%) and forestry (11%).

2.1.2 On the basis of climatic factors, soils, water availability, vegetation and other physical and biotic factors, Ghana is divided into five agro-ecological zones. These are coastal savannah, deciduous and rain forest, transitional zone, guinea savannah and Sudan savannah. Each agro-ecological zone is further characterized by variations in population density, cropping patterns, and other socio-economic attributes. Maize is the most important food crop grown in most parts of the country, followed by yam, cassava, sorghum, plantain, pulses, millet and rice. Domestic production of cereals (maize, sorghum, millet, and rice) is estimated at 1.5 – 1.8 million tons per year; starchy staples and plantain at about 12.5 – 12.8 million tons per year. Vegetables (tomatoes, pepper, onion, okra, cabbages, and garden egg), spices and condiments are an important source of cash income. Areas under pineapple and fruit trees (especially mango, orange, cashew) have increased in recent years even within small holder farming systems, due to their income generating potential.

2.1.3 Livestock is an important component of the farming systems, especially in the northern regions. Crop residues are utilised to feed the animals while animal manure is used to restore and improve soil fertility. Livestock population has remained stable and comprises an estimated two million sheep, 2.1 million goats, 1.1 million cattle, 0.4 million pigs and 13.1 million poultry. Permanent pastureland is estimated to be 8.4 million ha. The fisheries sub-sector accounts for an annual production of 400,000MT mainly of marine source.

2.1.4 Ghana's agricultural production is predominantly rain-fed and is estimated to operate at 20% of its potential, thus it has failed to make a significant effect on poverty reduction and food security. In almost all parts of the country, farming systems are based on mixed cropping, small-scale operations. Crops in the farming system are mainly food crops such as maize, soybeans, yam, cassava, pepper, millet and sorghum. For a long time, farmers in various parts of the country have traditionally grown tree crops such as palm oil, cocoa and coffee. The experience from tree crop husbandry practices will be useful in the production and management of cashew.

2.1.5 Most recent available statistics (1996) show that out of the two million farm holdings, 60% are under 1.2ha size plots, another 25% are between 1.2ha and 2.0ha plots per holder, and the remaining 15% are over 2.0ha. At the national level, males operate approximately 62% of the farm holdings while females operate the remaining 38%. An estimated 30% of the farm holders are 50 years or older. Within the northern regions, the percentage of female operated farms is much less, about 10%. The majority of rural households (70%) are involved either in agricultural production or agriculture-related activities. Small holder farmers operate family farms using rudimentary technology and producing about 80% of the total agricultural production in the country. Use of fertiliser averages 6kg/ha with variation across crops, which is one of the lowest in Africa.

2.2 Land Tenure and Land Use

2.2.1 *Land Use:* Out of a total land area of 23.8 million hectares, 13 million hectares are suitable for agricultural production. Land use in Ghana can be grouped into eight major categories, namely; i) forest reserves (approximately 11% of the total land area); ii) wildlife reserves (5%); iii) unreserved high forest (2%); iv) savannah woodlands (30%); v) tree crops (7%, of which 18,000 ha are under cashew plantations); vi) annual crops (25%); vii) unimproved pasture (15%); and viii) bush fallow and other uses (5%).

2.2.2 *Land Tenure:* Most of the agricultural land in Ghana is under communal ownership. Communal land is controlled by lineage or clan based land-owning groups and allocated to individuals or households on a usufructuary basis. In most parts of the country, particularly in the northern regions, women generally have difficulties in accessing such land except where there is a male guarantor, or where there is group ownership of land. The districts that have been selected for project intervention have abundant land and there are less, if any, restrictions on female land ownership. The major constraint to women operating their own farms is largely lack of capital.

2.2.3 The national Land Policy published in June 1999 provides a framework for free access to land by all Ghanaians provided that a) land is available for disposal in any part of the country where a male or female operator seeks to have it; b) the individual agrees with land owners to adhere to the covenants and other customary practices governing the disposal of the land; c) the individual undertakes to put the land to a use which conforms to land use plans for the area and to principles of sound land use and management. The policy document also stipulates that all traditional sources of land tenure and rights are recognised as legitimate sources of land titles and such tenure rights are protected by law. In practice, not much has changed to the traditional methods of accessing land, particularly in the rural areas.

2.3 Institutional Framework

2.3.1 The institutional framework required to implement the project is in place in Ghana. Selected institutions will receive capacity strengthening under the project, after which they will be able to deliver the required services effectively. At the national level, the Ministry of Food and Agriculture (MOFA) is responsible for the management of crop, fisheries and livestock sub-sectors. Although the cashew tree is part of several agro-forestry programmes of the Ministry of Lands and Forestry, the primary responsibility for cashew as a crop lies with MOFA. The day to day implementation and co-ordination of project activities that will be carried out by the various Government, private sector, and beneficiary agencies will require the services of a co-ordinating body with administrative management, and procurement skills as well as technical knowledge on cashew production and processing. As a result, a separate Project Management Unit (PMU) has been incorporated in the project implementation structure. The need for a separate PMU is due to the inadequate skills and manpower in MOFA to effectively co-ordinate activities specific to cashew production and processing.

2.3.2 *Ministry of Food and agriculture (MOFA):* MOFA is mandated to formulate, plan, implement, co-ordinate, monitor and evaluate national agricultural programmes in the country. In 1997, MOFA was reorganised in line with the framework of the decentralisation policy which aims to transfer functional powers, means and competences to districts, closer to the farming communities. The restructuring is envisaged to facilitate accelerated growth and development of the agricultural sector as stipulated in the country's Vision 2020.

2.3.3 Ghana is divided into ten Administrative Regions and 110 Districts. MOFA is decentralised at national, regional and district levels. Within this framework, 10 Regional Agricultural

Development Units (RADUs) and 110 District Agricultural Development Units (DADUs) have been established. The re-organization is structured in a manner that will eventually transfer the responsibility for financial, administrative and technical management, as well as the implementation and supervision of all MOFA activities, to the regions.

2.3.4 At regional level, the Regional Director is the most senior officer of MOFA, and is assisted by Regional Development Officers, who are technical staff. All the other professional staff are Subject Matter Specialists (SMS) grouped in various SMS centres in the region. Each region has a Training Co-ordinating Unit, which does not maintain a team of trainers but rather co-ordinates services to train Agriculture Extension Agents (AEAs) or farmer groups. At district level, all technical staff has been designated as “all purpose” AEAs carrying out field level missions of the MOFA establishment. The District Director of Agriculture (DDA) heads the MOFA district office. The District Assembly forms committees of which agriculture is one of the most important.

2.3.5 At the national level, the Departments of MOFA have been restructured into a single line of 9 technical directorates: i) Policy Planning, Monitoring and Evaluation Directorate (PPMED); ii) Agricultural Engineering Services; iii) Animal Production Services; iv) Crop Services; v) Fisheries Services; vi) Plant Protection and Regulatory Services; vii) Veterinary Services; viii) Extension Services; and ix) Women in Agricultural Development. The Crop Services Directorate (CSD) is the Implementing Agency of the Cashew Development Project and it will collaborate with the Directorate of Plant Protection and Regulatory Services and the Cocoa Research Institute of Ghana.

2.3.6 The Policy Planning Monitoring and Evaluation Directorate (PPMED) is charged with co-ordinating MOFA activities and collecting information for policy planning and analysis, as well as collection of data on crop and livestock production, inputs, prices and marketing. Regional Agricultural Development Units (RADU) provide planning, monitoring and evaluation support to programme implementation at the District level. The Regional Director directly oversees the District Directors. District Agricultural Development Units (DADU) are responsible for the management and implementation of projects and programmes in the districts. The District Director of Agriculture supervises the District Development Officers (DDOs) and Agricultural Extension Agents (AEAs). The DDA receives technical support from the Regional Director and Subject Matter Specialists (SMS) and from other technical staff assigned to the respective regions. AEAs are responsible for disseminating agricultural technology and information to farmers at the district level. The organisation structure of MOFA and the decentralised offices are shown in Annex 4.

2.3.7 *Cocoa Research Institute of Ghana (CRIG)*: CRIG is charged with the responsibility of carrying out research on tree crops such as Cocoa, Shea butter, Kola, Coffee and lately, Cashew. Production, propagation and the development of improved planting materials form the Institute’s main research program. The institute also uses its extension wing to transmit technologies to farmers, who in turn provide feed back to the scientists on problems encountered by the farmers. This forward and backward flow of information ensures that research activities continue to be demand-driven. Since 1998 Government policy requires that research institutes, generate 40% of the operating costs from their own resources by conducting research for the private industries. As a result, the GOG provides for only 60% of the funding requirements.

2.3.8 *Council for Scientific and Industrial Research (CSIR)*: Under the Ministry of Environment, Science and Technology (MEST), CSIR is responsible for most of the research in agriculture and forestry. It has 16 constituent institutes of which eight are involved in agriculture. The main agricultural institutes are the Crop Research Institutes (CRI), the Animal Research Institute and the Food Research Institute. Other research activities relate to tree crops namely, cocoa, coffee, shea butter, kola nuts and lately cashew. Research on these crops is also being carried out at CRIG.

2.3.9 *Council for Scientific and Industrial Research (CSIR)*: GLDB multiplies cereal and legume breeder seed to foundation seed. It also produces planting materials for yam, cassava, plantain and pineapple, as well as forage seed. Furthermore, the Board is responsible for commercial seed processing, and the management of seed reserves. The GLDB however has no mandate on cashew.

2.3.10. *Non-Governmental Organisations and Community Based Organisations*: A number of Non-Governmental Organisations (NGOs) are active in the agriculture sector, and in cashew production and marketing in particular. These organisations provide extension services, training for farmers and cashew processors, and limited credit services. There are a limited number of community-based organisations, associations and co-operatives operating in the cashew growing areas. Some of these include Tree Growers Associations, Palm Growers Associations and Cashew Processor Co-operatives.

2.3.11 *The Agricultural Development Bank (AgDB)*: The AgDB reports to two ministries, Agriculture and Finance. Being a bank, it is directly supervised by the Central Bank (Bank of Ghana). It operates as a private universal bank, independent of GOG even though it is fully owned by the Government. It has its own Board of Directors, whose members are appointed by the GOG. Currently, the AgDB is the main source of finance for the agricultural sector, particularly for the smallholder rural operators. Rural banks and other rural based commercial banks are also a major source of financing for rural smallholder operators, with comparatively smaller volumes of credit.

2.3.12 The AgDB, established in 1965, has become the major channel for bilateral and multilateral credit schemes to agriculture production and agro-based industries. It has a wide geographical coverage with branches in all regions and in most districts of the country. Based on the recent assessment of the institution by OPEV, under the 2nd and 3rd Lines of Credit performance evaluation, the financial condition of the AgDB is very sound. It has experienced a growth of over 160% in its asset base over the last five years. Although it experienced a decline in profits in two consecutive years, 1998 and 1999, it envisages an increase in net profits this year of 14% and projects successive increases in profits during the next three years.

2.3.13 Between 1982 and 1998 the AgDB administered three lines of credit funded by the Bank Group in a satisfactory manner, as indicated in the Project Performance Evaluation Report on the Second and Third lines of credit (completed in August 2000). This led to the approval in 1999 of a Fourth Line of Credit, which became effective in June 2000. Under the first three lines of credit, AgDB received institutional capacity building support to improve its performance, with senior and middle management staff receiving training. A direct outcome of this institutional support was a strengthened management capacity leading to improvement in the loan recovery rate in the agriculture sector, from 76% in 1996 to 80% in 1999 (AgDB data). Other outcomes have been the considerable increase in its asset base, deposit base, shareholders' funds, profitability, and improvement in prudential ratios, enabling it to consistently maintain a capital adequacy ratio well above the threshold of 6% established by Ghana's Banking Law PNDCL 225 in 1989.

2.3.14 *Private Sector Participation*: The GOG's development strategy focuses on enhancing private sector participation. The aim of this strategy is to reduce the drain on government funds due to inefficient and unprofitable public sector production activities. Instead, the Government is concentrating its activities on policy planning and guidance. Farmer co-operatives and private companies handle the marketing of agricultural inputs (seed, fertiliser, etc.), which until recently was wholly carried out by the government. These companies have the capacity to import and distribute seed to farmers across the country. Seed Growers Associations produce certified seed under the supervision of the Plant Protection and Regulatory Services Department (PPRSD). Nursery operations for trees, ornamental plants and cashew are another private sector activity. There is also growing private sector participation in cashew buying, processing and export.

2.3.15 *Environmental Protection Agency (EPA)*: The EPA is responsible for national environmental policy formulation, and the co-ordination and monitoring of activities that have an impact on the environment. The EPA's role is to ensure that development plans and programmes take into account environmental concerns through Environmental Impact Assessments (EIA), and to ensure that there is regular monitoring of environmental quality. The EPA is also mandated to enforce the law where necessary, to disseminate public information on the state of the environment and to carry out non-formal education programs. The agency has the necessary manpower and capacity to undertake the responsibilities entrusted to it.

2.3.16 *Feeder Roads Department (FRD)*: The FRD is the Government body responsible for development and maintenance of the feeder road network in the country. Currently there are a number of donors providing financial support towards the feeder road development, rehabilitation and improvement. The FRD has a highly skilled workforce but carries out a minimal amount of actual civil works. Therefore, the department does not maintain a fleet of requisite machinery. The department contracts out civil works to private contractors. Its major role is to develop technical specifications, design and tender documents, as well as supervise the work of the private contractors. The FRD also receives resources from the Ghana Road Fund, which was established in 1997 for regular maintenance of the country's roads.

2.4 Agricultural Policy Framework

2.4.1 The overall goal of the Government of Ghana's economic development programme is poverty reduction and the general improvement in the welfare of Ghanaians. A 25-year perspective plan for national development, the Vision 2020 launched in 1995, envisages an increase in employment and average incomes leading to reductions in poverty levels and inequalities. The main aim of Vision 2020 is to attain middle income status for the country. Under this vision, the agricultural sector has the following objectives: i) to ensure food security and adequate nutrition for all Ghanaians; ii) to supply raw materials and other inputs to other sectors of the economy, iii) to create employment in rural areas; iv) to contribute to improvement in balance of payments v) to provide producers with farm incomes comparable to earnings outside the agriculture sector; vi) to encourage balanced regional development; vii) to increase the sector's contribution to GDP; (viii) to increase foreign exchange earnings through greater production of traditional export crops and diversification into non-traditional crops; and (ix) to improve agricultural and industrial linkages.

2.4.2 To achieve the above-mentioned objectives, the GOG has formulated an Accelerated Agricultural Growth and Development Strategy (AAGDS), designed to increase the sector's average annual growth rate from 2-3 percent (1995-96) to about 5-6 percent by 2020. To put into operation the strategy, programmes have been designed based on five major elements: i) promotion of selected products through improved access to markets; ii) development of, and improved access to, technology for sustainable natural resource management; iii) better access to agricultural financial services; iv) improved rural infrastructure and v) enhanced human resource and institutional capacity. The GOG has indicated that the key to achieving a 6% average annual agricultural growth rate is to attain a significant increase in the growth of merchandise exports over the rates achieved in the past. Non-traditional agricultural exports would play a leading role so that sustainable foreign exchange earnings increase over time.

2.4.3 Principal elements of the AAGDS necessary to achieve the sector goal have been identified as: (i) promoting the use of more modern farming methods and marketing practices; (ii) increasing investment in human resources by improving the quality of, and access to, nutrition, education, health, water and sanitation services; (iii) encouraging the development of an indigenous entrepreneurial class through better access to training, financial services, credit and local and

foreign markets; and (iv) reducing the isolation of poor communities by improving the standard of infrastructure such as roads and communication networks.

2.4.4 The Agriculture Services Sector Investment Programme (AgSSIP) has been put together as the vehicle for implementing this strategy. AgSSIP is a three to five year rolling programme divided into four thematic sub-programmes, namely a) agriculture support services; b) institutional and regulatory improvement and capacity building; c) public infrastructure and improved market access; and d) development of the agricultural business sector. AgSSIP has also been adopted as the main development programme in the medium term to address poverty reduction. It is a long-term programme under which the GOG expects to attain its agricultural development goals. Under this programme, all development interventions in the sector will be in line with AGSSIP and will follow unified procedures as far as possible. The programme will be demand driven, focusing on agricultural diversification and improvement in productivity. AgSSIP is consistent with two basic orientations of the Government. First, reliance on the private sector to lead investment and economic growth; and second, devolution of significant responsibilities from Central Government to District Assemblies.

2.4.5 The GOG in consultation with the donor community in the sector has decided that in the short-term AgSSIP will focus on: i) mechanisation services; ii) cocoa sub-sector services; iii) livestock development; iv) seed industry; v) develop the plantain industry; vi) non-traditional export development; vii) fishing sub-sector; and viii) marketing of agricultural produce (internal and external). The Cashew Development Project fits into the strategies of non-traditional export development as well as the marketing of agricultural produce (internal and external).

2.4.6 The Government has targeted the development of cashew as part of its agricultural diversification strategy under the promotion of non-traditional exports strategy. The favourable prices for raw cashew nuts and processed kernels locally and internationally have the potential to contribute significantly to the reduction of poverty. Cashew production, therefore, would contribute to broadening the production and income base for the rural poor, and with it the production of more raw materials for industrial development and generation of foreign currency.

2.5. Donor Support Activities

2.5.1 A number of donors have and continue to support development interventions in the agriculture sector. Between 1973 and 2000, the Bank Group has approved a total of 21 operations to the agricultural sector. Fifteen have been completed, five are on going and one will soon become operational. The performance of the Bank portfolio in the sector has been rated satisfactory with significant improvements in the pace of project implementation. Recently approved projects in the sector focus on poverty reduction and address problems faced by the farming communities in drought prone areas, mainly in the northern savannah and transitional zones. The Food Crops Development Project, aims to increase and improve food security of small-scale farmers in the transition and Guinea Savannah zones. The Small Scale Irrigation Development Project will develop 2,500 ha of small and micro scale irrigation schemes in drought prone areas. A pilot project, the Food Security Programme, will test improved farming technologies in drought prone areas. Another co-financing project, the Rural Financial Services Project with IFAD and the World Bank will focus on institutional strengthening of Rural and Community Banks.

2.5.2 In order to adhere to the Comprehensive Development Framework in all donor interventions in the agricultural sector, the GOG has made concerted efforts to encourage continuous donor consultations and has set up quarterly donor meetings at which new interventions are discussed. Donors who are involved in other sectors, which complement activities in the agricultural sector, are also invited to these meetings. The major donors in the sector are the World Bank, IFAD,

Department for International Development of the United Kingdom (DFID), European Union (EU), Canadian International Development Agency (CIDA), United States International Development Agency (USAID) and the Dutch Government. Recent donor interventions in the agricultural sector have focused on poverty reduction.

2.5.3 USAID is the only donor that has provided support to the cashew industry in Ghana, focusing on production and marketing with an emphasis on smallholder operators. In fact, to a large extent the cashew processing industry in the country emanated from USAID support. This support is channelled through locally established international NGOs. The World Bank (WB) concentrates its support on extension and research, and more recently on rural infrastructure development. Currently, the WB is actively involved in the appraisal of the Agricultural Services Sub-Sector Investment **Project** (AgSSIP) which is aimed at strengthening the capacity of institutions that will be involved in the implementation of the Agricultural Services Sub-Sector Investment **Programme** (AgSSIP). IFAD has focussed its support on micro credit and land conservation among small holder operators. Their geographical focus has also been in the Northern regions. The Canadian International Development Agency (CIDA) is currently supporting a food security project targeted at improving production and accessibility to food in the northern regions. The Government of Japan is financing the rehabilitation of 5 small-scale public sector crop production schemes covering 473 ha. The Japanese, with the French Development Agency, are also involved in the rehabilitation of bridges on feeder roads, which will favourably complement the feeder roads spot improvements sub-component under the current project.

3. CASHEW SUB-SECTOR

3.1 Cashew Agronomy.

3.1.1 Cashew (*Anacardium occidentale L.*) grows well on loam or sandy loam soils. It will also grow in lateritic soils, which are either too poor or too stony for most other crops. Although it can grow on marginal soils, high yields are only obtained when grown on the recommended soils. The suitable climate for cashew is the coastal warm and humid, with absence of extreme cold. Commercial cultivation is usually concentrated in areas that are below 700m in altitude. Cashew performs well in sunny areas and does not tolerate excessive shade. The tree is hardy and drought tolerant, requiring a minimum of 500 mm of rainfall per year. Generally it can stand rainfall levels between 300mm to 4000mm. A dry spell during flowering and fruit setting ensures a better harvest.

3.1.2 Cashew will grow well in most parts of Ghana, as the ideal soils and climatic conditions for its cultivation are present in the country. Ghana has rainfall levels as low as 700-800 mm in Greater Accra Region, to as high as 1,400 –1,500 mm in the Ashanti region. The overall average rainfall is 1,000 mm in the savannahs of Northern, Upper East, Upper West, and Volta Regions. Generally, cashew is grown as a rain-fed crop. Considering the suitable soil and climatic conditions in these regions, use of high-yielding planting material, and better plant management to exploit the genetic potential of the varieties, can increase yield levels substantially.

3.1.3 The cashew tree can be propagated either from seedlings or from vegetative material. Vegetative propagation (true-to-type seedlings) provides the most reliable progeny because the tree is highly cross-pollinated, and the yield is better than that of trees raised from seeds. New plantations generally come into bearing in the third to fourth year after planting with yield at about 30 kg/ha, gradually increasing to about 800 kg/ha in 10 to 12 years for both grafted and seedlings. Various methods of clonal propagation have been practised for cashew, with considerable success. In India and Brazil considerable amount of research has been conducted on selection and hybridization, and number of methods of vegetative propagation, such as *layering*, *grafting* and

budding techniques, with the main objective to increase yield of nuts. The project will support CRIG in adopting such methods in Ghana.

3.2 Cashew Production

3.2.1 *Global Cashew production:* Cashew is one of the important tree-nut crops, ranking third in the international trade after hardnuts (29%) and almonds (21%). World production of cashew is estimated at 750,000 metric tons. Major cashew-producing countries are India, Indonesia, Mozambique, Brazil and Tanzania.

3.2.2 *Cashew production in Africa:* There is a great variability in the cashew production and productivity in Africa mainly due to insects, diseases, poor nutrition, and poor management, as well as poor variety performance. Production in Africa has fallen significantly during the last 10-years while the world consumption of cashew has been increasing at an average annual rate of 10.9%. The principal producers are: Mozambique, Tanzania, Kenya, Guinea Bissau, Madagascar, Senegal, Côte d'Ivoire, Benin, Nigeria, Burkina Faso, Cameroon, Mali, Malawi, Zambia, Angola, and Cape Verde.

3.2.3 *Cashew production in Ghana:* The “*Ghana Cashew Industry Study*” by MOFA conducted in 1998, estimated that the total land area under cashew plantations is currently 18,000 ha, which is scattered in various parts of the country. The study also indicated that Ghana has enough land to develop about 60,000 ha within the next 10 years, and up to 100,000 ha in the year 2020, of new plantations. The first ever recorded export of cashew nuts from Ghana was in 1991 amounting to 15 metric tons. In 1997, export statistics indicated cashew export to have increased to 3,571MT.

3.2.4 The overall cashew production is estimated at about 5,000 metric tons annually. Cashew cultivation in Ghana is predominantly a small-holder venture operated by 6,500 farmers. On average, they farm parcels of land ranging between 0.9ha and 1.2ha and planted with old varieties that were introduced in early 1960's by the Government, under the Savannah Afforestation Programme. The cashew plantations are integrated in the traditional mixed-farming system. Cashew plantations were first established in the Greater Accra, Eastern, Volta and Brong Ahafo regions. During the last six years, there has been a growing interest for cashew cultivation in the country. Supply of seed from good varieties has been the major constraint to expansion of land under the crop. Ghana has no seed company dealing with cashew. The varieties currently grown by the farmers are unknown as the acquisition and distribution are through farmer to farmer exchange, generally using harvest from old plantations.

3.2.5 To improve the quality of planting materials, in 1995 the GOG imported 30MT of seed, the Brazilian high-yielding dwarf varieties, which was sold to farmers. The project will explore the Indian and Brazilian sources where excellent high-yielding varieties are available. MOFA estimated that the demand for cashew seed has grown from about 1MT in 1994 to about 50MT in 2000.

3.2.6 Globally, the highest recorded yield level is 1200 kg/ha of raw nuts. Brazil produces 1000 kg/ha. In Africa, Tanzania has the highest yield at 800 kg/ha from industrial plantations. In Ghana, the yield is currently estimated at 200kg/ha among the small holder producers, with mature trees. The low yield levels are due to poor varieties, wider than recommended spacing and poor management practices. Traditionally, farmers grow cashew in the mixed cropping system, often after harvesting yam for which new land had been cleared. Cashew trees start bearing fruits in the third year, but commercial harvest does not begin until the fifth or sixth year with an average yield of 90-100kg of nuts per hectare. The economic life of cashew trees extends up to about 40 years, when well managed. During the first 3 years of establishing the plantation, the actual area covered

by the young trees is negligible, leaving a lot of space in between for intensive inter-cropping with short cycle annual food crops.

3.3 Cashew processing

Processing of cashew nuts involves recovery of the edible meat portion, the kernels, from nuts by manual/mechanical means and includes cleaning, moisture conditioning, roasting, shelling, drying, peeling, grading, kernel conditioning, and packaging. In Ghana, these operations are performed manually largely by women. The size of a small scale processing unit is made of 3-7 hand and foot-operated shelling knives, one steamer and one oven-dryer. The equipment is affordable and manageable by rural women. There are seven such processing units in the country.

3.4 Institutional support

3.4.1 There is potential to increase the productivity of cashew from the present yield level of 200 kg/ha to about 800 kg/ha. This will require strengthening research and extension institutions to adequately address constraints in production, and to provide credit to producers. The CSD of MOFA, who is in charge of promoting the development of cashew production, is constrained by the limited knowledge of its technical staff, in cashew production. This has left farmers with inadequate extension support services, limited to establishment and maintenance of plantations. During the last 10 years, MOFA frontline personnel and two USAID supported NGOs have jointly provided support to cashew farmers.

3.4.2 Unlike Cocoa and coffee, very little research has been undertaken on cashew, in Ghana. With the growing interest in cashew production, a number of institutions have initiated limited cashew research activities. These comprise Crop Research Institute (CRI), Savannah Agriculture Research Institute (SARI), University for Development Studies (UDS), and CRIG. Recently, CRIG has initiated research on cashew and shea-nut, as priority crops. In 1991 scientists at CRIG investigated on the local cashew germplasms, and the evaluation is being done at the Bole Research Station. It involved selecting the best genetic materials and carrying out agronomic studies for better crop management. CRIG is also researching on industrial utilization of the cashew apple. The major institutional constraints for CRIG are, limited cashew crop-specific qualified scientists and insufficient financial resources to effectively run research programs on the crop. The project will address some of these constraints. In addition, project activities will complement those of other donor-funded projects within the framework of the Comprehensive Development Framework.

4. THE PROJECT

4.1 Project Concept and Rationale

4.1.1 During the last six years, farmers in the Savannah and transitional zones have discovered that cashew grows well in their regions. Farmers have also discovered that being a tree crop, cashew requires very little input and management, and that it grows in dry areas and on soils unsuitable for most staple crops such as rice and maize. These and a number of other positive characteristics of the crop have captured the interest of both the GOG and the farmers, who are anxiously waiting to be trained and to be provided with capital to produce cashew.

4.1.2 Commercially, the favourable world prices and ready market for raw nuts and kernels has further attracted the attention of the GOG and farmers for income generation and foreign exchange earnings. As a result, the GOG has committed itself to promoting the production of the crop and has set targets for the increase of cashew production from the current 18,000ha to 60,000ha within 10 years, and to 100,000ha in 2020. The Government expects to generate up to \$45 million annually

from the combined exports of raw nuts and processed kernels. Should these targets be realized, cashew production has the potential to contribute, significantly, to poverty reduction in Ghana.

4.1.3 As a priority cash crop in the AAGDS diversification programme of MOFA, GOG support is strong. The Government has extended commercial incentives for producers and processors, and has pledged to improve research and extension services. During the preparation of this project, farmers and other stakeholders showed a lot of interest and a strong commitment to grow cashew and invest in processing facilities. Private sector stakeholders (e.g. exporters) and NGOs are already giving support to cashew farmers by providing limited technical services and financial support.

4.1.4 At the time of designing this project a number of alternatives on how to effectively support the cashew industry were considered, with the Government recommending consideration for a full fledged research intervention. In order to be consistent with the GOG strategies and those of the Bank, for Ghana, the project will focus on the poor smallholder farmers. In this regard, the project will contribute to the development of cashew production by establishing a reliable supply of high yielding material. In the process, through farming the project will generate income for the rural poor and women, which will improve their standard of living, and contribute to reduction in poverty. The increase in domestic supply of raw nuts will enable the establishment of processing facilities that will in turn generate employment for the rural populations and promote exports of a higher value product, cashew kernels. Consequently, the government will generate much-needed foreign exchange from exports of both kernels and raw nuts.

4.1.5 The project is built on the premise of a beneficiary demand-driven approach, leading to full participation of the farmers in the activities and adoption of recommended practices. Project funds will be used to improve farmers traditional farming systems by introducing inter-cropping and intensification of cropping (use of high yielding planting material, fertilizers, pesticides, etc.). Under the processing activities of the project, the funds will be used to train potential entrepreneurs and procure technical assistance that will facilitate the establishment of thirty-two cashew nut processing units.

4.1.6 The price of processed kernels varies with size, in that whole (unbroken) ones fetch a premium prices while broken ones only fetch a percentage of the premium price. A major constraint to the seven processing units that are located in the transitional regions is the deterioration in the quality of the kernels (from “wholes” to “bits”) during transportation between the rural factories and the market center in Accra, due to the poor standard of the roads. Therefore, the project has made provision to improve 200km of feeder roads in the target districts. This activity will complement other donors investing in road improvement (they include Japan and the French International Development). Improved roads will enable the evacuation of the crop all year round as well as improve the quality of kernels at the selling point, in Accra, hence resulting in increased income to the smallholder processor.

4.1.7 Overall, the project has been formulated and designed to address identified constraints relating to cashew development in Ghana, and it is consistent with the Government of Ghana’s development strategies of poverty reduction, food security and agricultural diversification. It is also in line with Bank Group’s strategy for the Agriculture Sector in Ghana.

4.2 Project Area and Beneficiaries

4.2.1 *Project Area:* The project will be implemented in five regions covering ten districts, namely; Upper West (Nadowli, Girapa-Lambusi); Northern (Bole, West Gonja, Yendi); Brong Ahafo (Wenchi, Jaman, Kintampo); Volta (Nkwanta); and Greater Accra (Ga). The districts have

been selected on the basis of i) location in a major cashew production area ii) potential for expansion, due to the availability of land; and iii) high levels of rural poverty, estimated at 62.4%.

4.2.2 Generally, there are more male farm holders than female in the project districts. For example, in Brong Ahafo female farm holders constitute about 43% of all farm holders, while in the Northern Regions they make up only 20%. Farm holdings for women tend to be smaller than those for men. From a socio-economic point of view, there is a distinct delineation of gender roles with regard to tasks carried out by male and female farmers. Generally, men undertake the initial land clearing, are responsible for maintaining cash crop fields and often work in the formal sector. Women on the other hand are involved in both domestic and productive activities. They are responsible for sowing, weeding, harvesting and transporting agricultural produce, food processing, and domestic chores.

4.2.3 The physical infrastructure in the project area is generally very poor. The condition of access roads in some of the cashew producing areas constrain farmers' accessibility to markets and the evacuation of crops.

4.2.4 *Beneficiaries:* The primary beneficiaries of the project are the present and potential smallholder cashew farmers and processors. They are subsistence operators who grow food for their households and market the marginal surplus quantities for cash income. Based on the existing farming system operations for crops, household income levels range from Cedis 1.4 million (UA268) to Cedis 1.6 million (UA304) per year, across the ten districts. Farmers are usually unable to access resources to engage in significant economic activities due to lack of collateral. Within the households, there is a sharp distinction of income earnings between women and men, with women earning much lower levels of income. The main sources of income for women are from sale of vegetables, processing and/or sale of Shea Butter, groundnuts, and livestock. Men, on the other hand, control the principal income from sale of crops grown on the family farm. Institutionally, the direct beneficiaries of the project are the ten Districts and the five Regions involved in the project, and the CRIG.

4.2.5 Project beneficiaries will comprise an estimated 20,000 small-scale cashew producers; members of smallholder cashew processor groups including potential owners of the newly established micro-processing units for cashew; operators of 40 nurseries for cashew planting material; 240 AEAs, 20 District and Regional MIS Officers and the cashew research unit at CRIG.

4.2.6 During preparation of the project, it was observed that some rural, community-based cooperatives or associations owned micro-cashew processing facilities. Members of these cooperatives were cashew farmers in the community. Other members of the community who were interested in purchasing shares also joined the cooperatives. The shares were priced at a reasonably low price to enable most of the members of the community to buy them. It was further observed that a significant number of women bought shares in the processing facilities and they also sought employment in the factory for a wage income. This enabled them to earn a regular monthly income as well as collect dividends from share holding.

4.3 Strategic Context

4.3.1 The Bank Group Vision Statement has proclaimed rural development in general and agriculture in particular, as its basic strategy for poverty alleviation in its RMCS. Additionally, the Bank Group strategy for the agricultural sector in Ghana, as stipulated in the Country Strategy Paper, is to focus on poverty reduction. Similarly, the GOG agricultural sector goal is to reduce poverty and ensure food security. The major aspects of the GOG agriculture strategy (AAGDS) are to accelerate agricultural growth and development by promoting crops, which have a clear

comparative advantage for the export market. Given the potential for generating income from production and processing activities, and considering the potential foreign exchange earnings that could be generated from cashew exports, the project is in line with the GOG's Agricultural Development Strategy. The strategy calls for diversifying the agricultural economic base, enhancing the economic base for the rural subsistence farmers, as well as generating employment and enhancing environmental conservation and management. At the national level, the expected increase in cashew production and potential export earnings will increase the sector's contribution to GDP and foreign exchange earnings, which is estimated at US\$19.2million per year starting in year nine after the start of project implementation.

4.3.2 The project intervention is designed to contribute to the broad GOG goals of improving living standards of the rural population, particularly the small-holder farmers, and diversifying the country's export base in an environmentally friendly manner. In addition, the project will contribute to the key sector issues of poverty reduction; food security; generation of employment and support for women (two years after project completion, estimates indicate that the industry will provide full time employment to 1,120 people in processing factories, 20,000 farm holders and 40,000 seasonal jobs on the cashew plantations; and improved access to production inputs, especially credit and to domestic and international markets. The project is therefore consistent with the Government's development strategy as well as the Bank Group's strategy for the Agricultural Sector in Ghana.

4.4 Project Objective

4.4.1 Sector Goals: The sector goals are to improve living standards of the rural population; to contribute to poverty reduction, enhance food security, generate rural employment, and contribute to foreign exchange earnings for the country.

4.4.2 Project Objective: The objective of the Cashew Development Project is to increase cashew production in targeted regions.

4.5 Project Description

4.5.1 The project will comprise four components namely: i) Production Development; iii) Extension and Training; iii) Credit, and iv) Project Management. A detailed description of outputs and activities follows:

Production Development

4.5.2 The project will finance: 1) import of high yielding cashew clonal materials for use in the establishment of 18,000 ha of small-scale cashew plots and the associated quarantine services costs for the imported materials, to ensure that no pests and diseases are inadvertently introduced into the country; 2) travel of technical staff to two countries known as source for high-yielding varieties, and possess appropriate technology for cashew production, and 3) credit for farm inputs, equipment and operating costs, to establish 4,500ha (4,050 small-scale farmers with 0.9 ha) of cashew each year for four years. During the first three years of establishing cashew plots, extension workers will work very closely with the farmers to ensure that they inter-crop the cashew with high value crops and they follow recommended agronomic practices for intensive farming to generate high levels of income from production.

4.5.3 Under research, the project will fund the establishment of a 20 ha garden with high-yielding clonal varieties at CRIG from which, grafting material will be used for canopy substitution of most of the existing 18,000 ha small-scale plantations that were established with low-yielding varieties. About 1,500 ha of such old plantations will be substituted during project implementation at 500 ha

(about 50,000 old trees) every year starting in year PY4. Thus, the project will provide resources for training extension agents and farmers in this technology. Researchers will be trained on how to establish and maintain the clonal garden at the Bole research station. Funding will be provided to extend the laboratory structure and to establish a cashew adaptive research programme at CRIG, by providing 3 vehicles, field and laboratory equipment (including a tractor) and materials.

4.5.4 The project will train nursery operators and provide them with credit to establish 40 privately owned cashew nurseries (4 in each 10 district). Project activities will focus on training operators in techniques of nursery management. Nursery operators will be able to access credit to purchase high-yielding planting materials, tools and to meet operating costs. Under processing, rural entrepreneurs interested in operating processing factories will be trained and provided with credit, to establish an estimated 32 small-scale units in the project area. This will result in processing of 2,000MT of cashew nuts annually for local and/or export markets. The project will target women cooperatives interested in setting up such facilities. Credit (through AgDB) will enable the co-operatives to build the factory structures, to procure equipment, and raw materials.

4.5.5 The project will provide funding to improve 200 km of feeder road network in the project area, by grading and spot improvement. Spot improvement will consist of filling of pot holes, re-grading, gravelling, construction of side drains and/or rehabilitation of small bridges and culverts.

Extension and Training

4.5.6 The main activities under this component will include mobilization of farmers and formation of farmers' groups/associations, training of extension and research staff, training of farmers and potential cashew processors through workshops, seminars, on-farm training and tours. All in-country training activities will be carried out in close co-ordination with Regional Training Units who will co-ordinate the activities in collaboration with the PMU and trainers (consultants). The courses and workshops will have flexible programming to enable women to participate and still attend to other household chores.

4.5.7 Short-term consulting services of group formation experts will be procured to mobilize interested farmers, processors, and nursery operators into groups and form strong associations. Participation in these groups will be on a demand basis. There is increasing interest in the country among farmers to form groups or associations, since such groups provide them with a common voice and enables them to access the limited credit facilities available in the country. Considering cashew is a long-term crop, the structure of the groups/associations/co-operatives to be formed will have in-built flexibility for entry and exit of members, with some measures put in place to ensure continuity and sustainability of the groups. The project will also support the establishment of 10 growers associations or co-operatives (one growers' associations per district). With the use of group formation experts, the project will encourage groups to form an umbrella National Cashew Association to bring together all the stakeholders such as producers, processors, traders and policy-makers which will provide a forum for close collaboration and consultation.

4.5.8 The PMU in close collaboration with the five Regional Training Co-ordinators will procure consultancy services to train 240 AEAs and ten MIS staff in cashew production and processing. To improve the delivery of extension services, the project will procure five motorcycles per district, which will be loaned to AEAs and the district based MIS staff, to supplement the existing numbers of motorcycles. The AEAs and MISs who will receive these motorcycles will also receive the standard GOG maintenance allowance to run the vehicles. A revolving fund will be established as the repayments are made, so that additional motorcycles could be purchased and loaned to more AEAs. Experience gained from other projects in the country, involving motorcycle ownership scheme has proved to be successful and ensures continuity of AEAs' mobility.

4.5.9 One of the key factors that will encourage farmers to invest in cashew production is the attractive income levels that will be generated before the cashew plantations start to fruit in the third to fourth year of establishing them. To ensure that farmers have substantial income increase during this period, they will receive training in intensive inter-cropping farming systems with high value crops, using high level management for optimum yield. This will be done within the existing traditional cropping systems. Furthermore, credit funds to purchase recommended inputs will be availed to the farmers. In addition, AEAs will work very closely with the farmers, as they establish their cashew plantations to ensure that farmers adhere to the recommended agronomic practices, which will increase the productivity of the other crops in the farming systems.

4.5.10 In research, the project will procure technical assistance services to train CRIG scientists in cashew specific agronomy and plant protection. Two scientists from CRIG will be sent on a one-month study tour to Brazil or India where they will enhance their technical knowledge and skills on the cashew crop. On return, they will train other scientist at CRIG. With the knowledge gathered overseas and in Ghana, CRIG will develop cashew technology packages for AEAs and farmers.

4.5.11 *HIV/ Aids:* During a joint review carried out by the Ministry of Health, USAID and UNDP, in 1998, it was discovered that: i) National HIV incidence is around 4%, and varies from region to region; ii) cumulative number of cases since 1986 is estimated at 21,546; iii) there is a limited capacity at the level of National Aids Control Programme to handle the required multi-sectoral approach; iv) Training activities on AIDS are limited. Currently, the Government has reported that most activities are restricted to the health services and community responses are insufficient due to lack of sensitisation. At the same time there is need to co-ordinate community-based activities and ongoing research efforts. To address these constraints, the GOG has adopted a strategy of integrating routine Aids/HIV activities into regional and district plans and budgets, and building capacity of key institutions in order to further promote AIDS control activities in other sectors.

4.5.12 Aids affects human resource productivity and hence it is of direct concern to the agricultural sector and to the success of the Cashew Development Project. Consequently, provision has been made under the project to contribute to the community activities. Farmers, processors and extension agents targeted under the project will receive HIV/Aids awareness and prevention messages. This will be achieved by incorporating training modules on the subject in the courses that will be organised for the various target groups. The process will involve close collaboration with the Ministry of Health officials, at all levels of the administrative structure.

Credit

4.5.13 Output from the credit component will be the establishment and operation of a credit scheme of UA 4.18 million, which shall be managed by the AgDB. Credit funds will be used to finance capital requirements for establishing cashew nurseries and plantations and for processing cashew nuts. It will be loaned under short to medium-term loan arrangements at market interest rates. As well, UA14,700 will be provided under this component to import cashew planting material.

4.5.14 Under the fourth Line of Credit to the AgDB, UA 0.9million was provided for the cashew industry, for lending to all categories of cashew production, processing and marketing operations in the country. However, this amount is not sufficient to meet the additional capital requirements as a result of the Cashew Development Project. Funds under the credit component will be made available only to the primary beneficiaries who are the smallholder producers and processors, as individual operators or as groups. AgDB will use its existing guidelines for selecting eligible clients in the delivery of the credit. For the established farmer groups, of which 40% are expected to consist of women, repayment will be a group responsibility.

4.5.15 Based on the existing AgDB credit structure and practices, particularly with the Bank funded four lines of credit, it is envisaged that three types of loans will be made available to farmers and processors. These are, short term loans (6-8 months), to be used for such items as purchasing cashew nuts for processing; short term loans (about 12 months) for purchasing production inputs; and, medium term loans (up to 2 years) for construction of storage facilities and purchase of processing equipment. The AgDB will charge prevailing market interest rates for tree crop production and for the other associated cost items. This is in line with its existing policies, which are also consistent with the policies of the Bank Group.

4.5.16 The GOG shall on-lend the entire amount under the credit component of the ADF loan to the AgDB, on the basis of a subsidiary loan agreement between the two, on terms and conditions acceptable to the Fund and at the prevailing market interest rates. Regarding the funds allocated for importing seeds, the AgDB will provide credit to a private seed company in Ghana to import seed from sources that will be recommended by the PMU. The Seed Company will in turn distribute the seeds to farmers and nursery operators in the ten districts on credit, guaranteed by the AgDB. Some of the seed will be supplied to CRIG for the establishment of a clonal garden. Details of the administrative arrangements between the GOG and the AgDB will be included in the subsidiary agreement to be signed between the two parties.

Project Management and Technical Assistance

4.5.17 Project management will comprise a Steering Committee (SC) and a Project Management Unit (PMU). The project will provide funding to assist MOFA to establish a PMU which will consist of the following experts: a) a Government assigned Project Manager, b) an internationally recruited technical assistant, to advise the Project manager. The TA will have background in agronomy and/or horticulture, and possess skills in procurement. c) Three TA recruited nationally, with expertise in agricultural economics, cashew production, cashew processing and marketing, and d) a nationally recruited accountant. The PMU will be responsible for co-ordination and the day to day management of the project. Institutional arrangements are presented in detail in Chapter 5.

4.5.18 The PMU will co-ordinate the activities of the various Government bodies (e.g. the Roads department, CRIG, Regional and District offices) and private organisations or individuals (Farmers, processors, nursery operators, seed company, consultants) involved in implementing project activities. Specifically, the Project Manager and the advisor will be responsible for the overall management of the project and will ensure that procurement is carried out on time and in line with Bank procedures. At the end of project implementation, the Project Manager will revert back to the responsibilities in MOFA. It is envisaged that the Project Manager will co-ordinate GOG support to the cashew industry thereafter. The three experts will receive supplementary training in cashew, so that at the end of the project, they will be available in the private sector, to provide services to the GOG, processing factories, or the association of cashew producers and processors that will be created. These experts will co-ordinate the activities of the project such as, surveys, training programmes and reviews. After training, they will impart this knowledge, in their respective fields of study and specific to cashew, to the beneficiaries as well as to GOG personnel under the project, who will continue to provide services to the cashew industry at the end of the project. The accountant will be responsible for keeping project accounts.

4.6 Markets and Prices

4.6.1 *Markets:* Over 150,000 metric tonnes of cashew kernels are traded on the international market every year, with India as the major supplier of processed cashew kernels followed by Vietnam and Brazil. The three countries supply over 90% of the cashew kernels traded

internationally and their export volumes have been increasing steadily. Recent increases in the area under cashew plantations in Vietnam is expected to raise the supply of cashew kernels on the world market. On the other hand, demand for kernels has also been increasing steadily at an average rate of 10.9% per year. The market is concentrated in North America, Western Europe and China. Other growing markets for processed cashew include Japan, Australia, the Middle East, Russia, South Africa and Zimbabwe. Food preparation and confectionery, particularly in Asia, is another large outlet to the consumer market. Based on the supply and demand trends during the past decade, it is expected that demand will continue to increase into the foreseeable future, resulting in sufficient capacity to absorb any cashew exported from Ghana.

4.6.2 Until recently, cashew was a minor cash crop in the farming systems of the farmers that grew the crop. Cashew nuts were sold through informal market channels where trade statistics is not available. From the existing 18,000 ha of cashew plantations, Ghana has the potential to produce 3,600MT at the prevailing yield level of 200kg/ha. This production is significantly low to satisfy the high demand of the export market and that of the existing domestic processing units. At the end of project implementation, in Year-6, the combined production from the existing 18,000 ha and from project established plantations, could reach 6,000MT, out of which the export market will absorb about 4,500MT (75%), and the remaining 25% would go into the processing units.

4.6.3 Ghana has seven cashew-processing facilities with a total potential capacity of processing 210MT of raw nuts. The white kernels produced in these processing facilities are of acceptable quality on the international market, based on feed back from overseas companies that have imported kernels from Ghana. Most of the local processing facilities operate at less than 50% of their capacity, due to untimely supply of, and insufficient credit to purchase, adequate amounts of raw nuts, in the face of stiff competition from other buyers who have ready cash. Timely disbursement of credit to the cashew processors will be very key to the success of processing operations to enable processors to purchase adequate amounts of raw nuts at favourable prices for processing from one marketing season to the next. Processing of cashew in Ghana is a recent undertaking carried out by local community workers, since the technology used does not require specialised skills. Increased processing of raw cashew nuts into kernels will undoubtedly add significant value to the outputs and increase export revenues. It will also create employment, especially for women who form about 70% of the work force in the existing processing facilities.

4.6.4 During the last two years, a number of cashew trading companies have been set up. They purchase cashew nuts from farmers, which they in turn sell to exporters. As a result, buying centres have been established in almost all the major cashew producing areas. The increase in the number of buyers has established a competitive market for cashew nuts and with it significant increases in farm gate prices. A new cashew processing and export company has recently been formed in Ghana with the support of a USAID funded NGO. The shareholding of the company includes some of the community cashew processing co-operatives in the project area. This is a positive development as the new company will provide a market for much of the processed kernels and will also facilitate further processing of cashew kernels for both the local and export market.

4.6.5 The cashew apple is currently consumed as a fruit in Ghana. Increasingly, the apple is being processed into various products such as animal feed. CRIG is a lead institution in conducting industrial research on production of alcoholic beverages, juices, jam, and animal feed. CRIG has also been assessing the financial viability of these operations. Results from this research will be disseminated to the private sector, for possible industrial processing activities. Other potential areas of processing include extraction of cashew nut shell liquid (CNSL). A local private company in Ghana is producing 12,000 litres per annum of cashew brandy from the cashew apple. The current trend indicates that Ghana has the potential to develop industrial processing of various products from cashew, for which there is a ready market.

4.6.6 *Prices:* The international price of cashew has remained relatively stable over the last five years, at about US\$ 750 - 950/ MT for raw nuts and US\$5,000-8,000/MT for processed kernels. The price of cashew nuts has increased from about US\$0.05/kg in 1994 to about US\$0.63/kg in the Year 2000, while the average price of processed kernels is currently US\$6.0/kg for wholes, US\$5.25/kg for halves and US\$4.25/kg for bits.

4.7 Environmental Impact

4.7.1 *Positive Impacts:* The project has been classified as category II, indicating that it has limited negative impacts, which can be mitigated by incorporating specific measures in the design. The integration of cashew in the farming systems and the small size individual plantations (about 0.9 ha) will minimise the clearance of large segments of land, thus mitigate potential negative impacts on the environment. Cashew is a valuable tropical cash and food tree crop that can grow in marginal lands. It stabilises the soil and is a source of fuelwood. The crop is often used for agro-forestry development. The additional tree cover provided by cashew plantations help to alleviate pressure on the local vegetation and increase soil fertility (by improving moisture retention, soil structure and nutrient content), which helps to mitigate the effects of drought and desertification. In addition, the use of cashew shells to fire boilers and ovens during processing reduces the need for cutting down trees for energy hence reduces pressure on the surrounding forests. Also, the use of shells in the processing prevents their build-up, which could have negative environmental impacts.

4.7.2 *Negative Impacts:* Potential negative impacts include loss of habitat and subsequent decrease in biodiversity, and increased potential for crop loss due to pests and disease infestation. The use of agro-chemicals if not properly controlled can be a health hazard to farmers through direct inhalation or through runoffs into local water bodies, which could affect the quality of drinking water. Furthermore, localised soil erosion and loss of fertility resulting from chemical and biological changes in the soil structure can occur, because as litter becomes dominated by single specie, it alters the decomposition process. Build-up of cashew shells around processing facilities could occur if they are not disposed of, which can be a fire hazard and reduce water infiltration.

4.7.3 *Mitigating Measures:* An estimated 1,500 ha of old plantations targeted for improvement will be canopy substituted by grafting, hence this project activity will not involve land clearing. Farmers will be encouraged to establish the 18,000 ha new plantations on shrub and fallow lands or on unused land to avoid competition with food crops. The very act of introducing a drought-resistant plant species, the cashew tree, is an environmental mitigating measure. In addition, farmers will be encouraged to practice inter-cropping with food and cash crops such as maize, cassava, and yam during the initial three years of establishing the plantations, until the canopy closes, thereby substantially reducing weeding and the risk for fire hazard.

4.7.4 Training of farmers and AEAs will be used as a strategic tool to mitigate some of the potential environmental negative impacts. For example, farmers and AEAs will be trained in water conservation techniques to minimise runoff and maximise infiltration, and in design methods of drainage systems that prevent agrochemical residues from affecting watercourses in the event of misapplication. Farmers will also be trained in proper management of cashew plantations including fire prevention techniques. The cashew processing technology used in Ghana is the manual cottage industry type with limited fume emissions and has negligible additional occupational hazard. The rehabilitation of the feeder road network will involve spot improvement, consisting of filling potholes, grading and providing drains and culverts on parts of the road, which will minimize the effects on vegetation. Other mitigating measures will include continuous transfer of knowledge to farmers by AEAs, on environmentally friendly farming practices such as proper application of agro-chemicals, limiting land preparation to dry season, and avoiding clearing of highly erosive areas.

4.7.5 Environmental Management and Monitoring: The adaptive research team at CRIG will develop appropriate plant protection and production packages for use by AEAs and cashew farmers, which are consistent with the standard recommendations by the Environmental Protection Agency (EPA). In all its activities, the project will adhere to the established EPA environmental standards. The project will also liaise closely with the EPA to ensure that they monitor the project activities. For internal monitoring purposes, the baseline study will include key environmental indicators in order to monitor during and after project implementation the ecological viability of the cashew development operations. More detailed information on environmental impact of the project is provided in volume II of the report.

4.8 Social Impact

4.8.1 Social impacts of the project will emanate from group formation, and cashew production, processing and nursery operations. These will successively lead to increased opportunities for: a) employment in the rural areas; b) income generation among the vulnerable small holder farmers and women; c) participation in collective income earning operations that offer collateral; d) accessing credit. All of these opportunities will ultimately result in increased household incomes and improvement in rural living conditions, hence contribute to poverty reduction.

4.8.2 *Group Formation:* The project will have significant impact on the collective voice of the community, as the formation of groups will contribute to empowering members to take charge of their development needs. Under the project men and women will be mobilised and trained in cashew production and processing, as well as in basic accounting methods. Ghana has long term experience in group formation for both men and women. Women groups have been comparatively more successful, and membership does not require a male guarantor. The formation of groups will provide the necessary collateral, for AgDB, to enable the poorest members of the community, and women to access funds on credit for establishing cashew nurseries and plots, and for setting up processing factories. After project implementation, these groups will continue to be able to access funds from AgDB and other lending institutions that provide credit using group lending approaches or peer guarantees.

4.8.3 *Production:* Farming activities in the project area are categorised as either for men or women. Based on this classification, an estimated 30% of the required labour to grow cashew is classified as female activities. A 0.9 hectare cashew plantation (+4 years old) will require 40 person days per year of labour to maintain it (weeding) and to harvest the nuts, hence this will translate into 12 person days per year, per plot, of female labour. Harvesting is carried out at the time when there are no or fewer activities for other crops. Therefore, farmers will not be faced with an additional workload at peak periods of farm family labour requirement. Hence, the timing of this principal activity is favourable for the farmers, particularly for women who have multiple roles in production and household.

4.8.4 *Processing:* Women have shown significant interest in working and owning shares in the existing processing facilities, as evidenced by the high percentage (70%) of women employees. The project will encourage women ownership so that at least 50% of the newly established processing units will be owned by women co-operatives. Based on discussions held with women working in the factories during the preparation of this project, the jobs created in the factories are preferred to the hard labour associated with agricultural production activities. Consequently, these jobs provide a favourable alternative income earning activity for the women in the rural communities. The women who participated in the discussions also indicated that the income generated is used to purchase food for the family, pay for children's schooling and meet family medical costs.

4.8.5 *Plant Nurseries:* Women currently operate the majority of the tree nurseries in the country, owning about 60% of them and making up 80% of the employees. The existing nurseries produce seedlings for fruit trees (mangoes), forest trees (teak, eucalyptus) and horticulture (ornamental plants). This experience, coupled with growing interest for cashew farms and hence high demand for cashew seedlings, will offer additional business opportunities to women nursery operators for profit, and result in increased employment generation.

4.9 Project Costs

4.9.1 The total cost of the project, including physical and price contingencies, is UA11.54 million. The foreign exchange portion is UA8.69 million equivalent to 75.3% of the total project cost. The local cost is UA2.85 million. A summary of the costs by component is shown in Table 4.1 and by category of expenditure in Table 4.2.

	(Cedis '000)			(UA '000)			% Foreign Exch.	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
1. Production Development	4,414,019	12,115,190	16,529,209	933	2,560	3,492	73	33
2. Extension and Training	2,101,359	3,278,380	5,379,739	444	693	1,137	61	11
3. Credit	3,753,208	15,076,079	18,829,287	793	3,186	3,979	80	38
4. Project Management & TA	2,207,279	6,578,136	8,785,414	466	1,390	1,856	75	18
Total BASELINE COSTS	12,475,864	37,047,785	49,523,648	2,636	7,828	10,464	75	100
Physical Contingencies	1,021,519	2,954,417	3,975,936	216	624	840	74	8
Price Contingencies	-	1,099,159	1,099,159	0	232	232	100	2
Total PROJECT COSTS	13,497,382	41,101,361	54,598,744	2,852	8,687	11,536	75	110

	(Cedis '000)			(UA '000)			% Foreign Exchange
	Local	Foreign	Total	Local	Foreign	Total	
I. Investment Costs							
A. Civil Works	11,832	5,930,482	5,942,314	3	1,253	1,256	100
B. Vehicles and Motorcycles	-	1,736,697	1,736,697	0.0	367	367	100
C. Equipment	47,328	4,754,188	4,801,516	10.0	1,005	1,015	100
D. Inputs and Supplies	-	189,175	189,175	0.0	40	40	100
E. Staff Training	181,928	1,067,535	1,249,464	38	226	264	85
F. Training, Beneficiaries	543,324	2,314,950	2,858,274	115	489	604	81
G. Studies, Surveys, Reviews	14,198	198,304	212,502	3	42	45	93
H. Technical Assistance (long term)	-	4,524,547	4,524,547	0.0	956	956	100
I. Consultancy Services (short term)	41,649	229,943	271,591	9	49	57	85
J. Other Contract Services	4,023	134,133	138,156	0.9	28	29	97
K. Credit	3,753,208	15,076,079	18,829,287	793	3,186	3,979	80
Total Investment Costs	4,597,490	36,156,033	40,753,523	971	7,640	8,611	89
II. Recurrent Costs							
A. Salaries and Allowances	4,353,977	712,261	5,066,239	920	150	1,070	14
B. O & M Equipment	2,291,031	121,278	2,412,309	484	26	510	5
C. O&M Vehicle & Motorcycles	14,198	58,213	72,412	3	12	15	80
D. Travel and Accommodation	1,219,167	-	1,219,167	258	0.0	258	-
Total Recurrent Costs	7,878,374	891,752	8,770,126	1,665	188	1,853	10
Total BASELINE COSTS	12,475,864	37,047,785	49,523,648	2,636	7,828	10,464	75
Physical Contingencies	1,021,519	2,954,417	3,975,936	216	624	840	74
Price Contingencies	-	1,099,159	1,099,159	0	232	232	100
Total PROJECT COSTS	13,497,382	41,101,361	54,598,744	2,852	8,684	11,536	75

4.9.2 All costs were estimated originally in United States Dollars which were then converted to Units of Accounts (UA). Unit rates for locally procured goods and services were derived from the prevailing March 2000 costs in Ghana. Physical contingencies are estimated at 10%, and have been applied on the costs of civil works, goods to be purchased, as well as on training costs. Given that

4.10.6 The ADF is financing part of the local currency costs, amounting to 24.7% of the total project costs, considering the GOG would not be able to bear the entire burden of costs related to operation and maintenance, research activities and beneficiaries group formation and training.

5. PROJECT IMPLEMENTATION

5.1 Executing Agency

A Project Management Unit (PMU), set up within the Directorate of Crop Services, MOFA will be responsible for the implementation of the project. The PMU staff will consist of a Project Manager appointed by MOFA, assisted by technical staff recruited locally: one Agronomist/Horticulturist, one Agricultural Economist, one Accountant and one Processing and Marketing Specialist. The Government will provide support staff including a secretary, accounting officer, drivers and messengers. A Cashew specialist will be recruited internationally to assist the PMU. The qualifications and experience of the project manager as well as the other professional staff in the PMU will receive prior approval by the ADF. In each District, the District Director of Agriculture assisted by Management Information System Officers and AEAs will implement the project at field level within the decentralised structure of MOFA.

5.2 Institutional arrangements

5.2.1 *Project Steering Committee:* For sustainability purposes, the project will share the existing Steering Committee set-up for the Food Crops Development Project chaired by the Deputy Minister of MOFA and assisted by the Director of CSD. Additional members representing stakeholders in the cashew industry including farmers, NGOs, and CRIG will be nominated to the existing Steering Committee. The Project Manager will provide secretariat services to the steering committee for the cashew project. The Fund will require evidence from the GOG that new members have been added to the Steering Committee, and it has been given official responsibility to oversee project activities.

5.2.2 The SC shall meet quarterly, and will be responsible for the overall direction of the project implementation. The Steering Committee shall a) review and approve the annual work programme submitted by the PMU; b) discuss and resolve any regional issues related to the cashew industry in general; c) address any inter-agency constraints and facilitate project implementation; d) advise Government, of the need for policy changes, particularly in relation to credit for small-scale farmers; and e) review the regular project progress reports, including M&E reports, from the PMU.

5.2.3 *Decentralised implementation structure:* At the field level, the project implementation will be carried out by the RADUs and the DADUs in each of the districts in the project area. The management team at the regional level will comprise the Regional Management Information Systems (MIS) Officer, Monitoring and Evaluation (M&E) Officer, and the 24 Agriculture Extension Agents (AEAs). At national level a Senior Monitoring and Evaluation Officer from PPMED will be responsible for the direct monitoring of project activities. The Agriculture and Economic Committees of the District Assemblies will provide policy guidance, at the district level.

5.2.4 The AgDB has been selected to manage the credit scheme under the project. The AgDB has the capacity to administer the credit evidenced by its satisfactory administration of three Lines of Credit from the Bank Group, leading to the approval in 1999 of a Fourth Line of Credit. AgDB has also received institutional support, under Bank financed lines of credit, which has led to increase in loan recovery rates and increases in its asset base, deposit base, shareholders' funds, profitability, and improvement in its prudential ratios.

5.2.5 An on-lending agreement will be signed between the GOG and the AgDB for the credit fund, on terms and conditions acceptable to the Fund. This agreement will stipulate the detailed administration of the credit. In general terms, funds under the credit scheme will be made available only to the primary beneficiaries who are the smallholder producers and processors, as individual operators or as groups (established under the project), at market interest rates, which currently range between 30 – 40% for tree crops and agro-processing. AgDB will use its existing guidelines to effectively deliver the credit to the end users. For the established farmer groups, of which 40% are expected to be for women, group lending system for will be used as collateral.

5.2.6 The AgDB will utilise the credit funds allocated for seed purchase to provide credit to private seed company/companies in Ghana to import cashew seed from sources that will be recommended by the PMU. The seed company/companies will in turn distribute the seeds to farmers in the ten districts on credit, guaranteed by the AgDB.

5.3 Supervision and Implementation Schedule

5.3.1 *Supervision Schedule:* The day-by-day supervision of the project will be done by the PMU. The annual work plan and budget shall be submitted three months before the beginning of each year, to ADF for review and approval prior to implementation. The Steering Committee will hold quarterly meetings to ensure that work plans and procurement schedules are achieved as planned.

5.3.2 The ADF will supervise the project at least once a year, to evaluate project implementation progress and discuss with PMU, MOFA AgDB, beneficiaries, other officials and stakeholders regarding relevant activities achievements, problems, constraints, and any changes that may be necessary. A mid-term review mission will take place in the fourth year of project implementation. A final evaluation mission will be carried out at the end of year 6.

5.3.3 The PMU will supervise all the project activities including all activities to be undertaken by contractors, consultants, cashew producers and processors. It will report, quarterly, to the Project Steering Committee on all aspects of the project including financial aspects, and progress of project activities based on reports received from M&E officers. The PMU will also prepare a project completion report capturing all aspects of the project including achievements, constraints, problems and lessons learnt at the end of the project period.

5.3.4 *Implementation Schedule:* The project will be implemented over a six-year period from May 2001 . In year one (2001), the activities will involve: a) establishing the PMU and assigning members to the Project Steering Committee; b) recruiting the Cashew Specialist and national technical assistants; c) making the necessary preparations to commence work on the baseline survey; d) preparing an elaborate implementation plan of training schedules of the AEAs, research scientists, cashew producers and processors, and the nursery operators. In the Second trimester of Y1, the PMU will prepare tender documents for procurement of goods and services, and prepare for the mission for sourcing and importing high-yielding cashew seed. The PMU will collaborate with AgDB to identify a private seed company, which will import and distribute the cashew seeds in the selected districts.

5.3.5 In year two (2002), mobilisation of farmers for the first 4,500 ha of new cashew plantations to be established during the onset of the rainy season will be completed by the months of March-April 2002. The PMU will also liaise and co-ordinate with Feeder Roads Department in identifying the roads and developing technical design and specifications as well as supervising contractors involved in spot improvement of the feeder road network. During this year, the line of credit will be accessible to the farmers and processors. In addition, the project will facilitate the formation of an umbrella national cashew association to bring together all the stakeholder groups including those

of growers, processors, and exporters.

5.3.6 In Year 2005, the development of the 18,000 ha will be completed. An average of 4,500 ha will be planted each year. No new plantations are planned in 2006, to allow adequate time for the PMU to intensify its monitoring and evaluation activities of the project operations. Detailed implementation schedule is given in Annex 3.

5.4 Procurement Arrangements

5.4.1 All procurement of works, goods and consulting services financed by ADF will be in accordance with the Bank's "Rules of Procedures for Procurement of Goods and Works" or the "Rules of Procedure for the Use of Consultants", using the corresponding Bank Standard Bidding Documents. Table 5.1 below gives the summary of procurement arrangements for the project.

5.4.2 The PMU will be responsible for all procurement for the project, including the selection of consultants. The PMU will consolidate a procurement plan at the start of the project incorporating the contracts, value, and procurement method and time schedule for all procurement activities.

5.4.3 *Works:* About ten contracts will be awarded for the spot improvement and rehabilitation of 200-km of feeder roads. The total cost of the contracts for the spot improvement of feeder roads, including contingencies, is estimated at UA1.5million. Due to the scattered nature of the feeder roads in the project area, the contracts are not likely to attract the participation of international contractors. Therefore National Competitive Bidding (NCB) will be used. As well, the one contract valued at UA 0.029 million for the extension of the laboratory at Bole will be awarded through National Competitive Bidding (NCB) procedure. The project will collaborate closely with the Department of Feeder Roads who will prepare technical specifications and supervision of the works for the spot improvement of the feeder roads as well as for the extension of the CRIG laboratory at Bole.

5.4.4 *Goods:* Two contracts will be awarded for the procurement of vehicles, consisting of a tractor (no.1), and motor cycles (no.50), pick-up trucks (no.5), and 4-WD station wagons (no.4). The total cost of these contracts will be UA0.416 million. The mode of procurement will be through International Competitive Bidding (ICB).

5.4.5 Various types of equipment will be required for the implementation of project activities. These will range from equipment for use in research work to office equipment. The bulk of the research equipment (UA1.16 million) will be procured through National Competitive Bidding (NCB). Most of the laboratory equipment is readily available off-the-shelf in Ghana. Considering such equipment is of standard specification, and that there are many agents of qualified foreign suppliers to ensure competitive prices, it will be procured using National Shopping. Selected laboratory supplies worth UA0.047 will be procured using NCB under one contract.

5.4.6 *Consultancy Services:* Services of a senior level international technical advisor (48 person months) to provide advisory services to the Project Manager will be procured using short listing procedures. National level technical assistant services (240 person-months) for the PMU will also be procured through short listing. As well, short-term consultancy services (135 person-months), in various fields of specialisation including auditing, will be procured using short listing method, and the selection procedure of combined technical quality with price considerations.

5.4.7 *Credit:* The GOG will on-lend a credit fund of UA4.2million to AgDB, under conditions acceptable to the ADF. The AgDB will use its existing disbursement guidelines to provide credit to cashew smallholder operators. The loans will be used to enable the operators to procure inputs for

cashew plantation development, processing equipment, and construction of storage facilities and to provide operating capital.

5.4.8 *General Procurement Notice (GPN) and Documents Review Procedures:* A GPN will be issued for publication in the United Nations Development Business Periodical, upon approval by the Board of Directors of the loan proposal. The following documents are subject to review and approval by the Fund before promulgation i) specific procurement notices, ii) tender documents or requests for proposals from consultants iii) tender evaluation reports or reports on evaluation of consultants proposals, and iv) draft contracts.

<u>PROJECT CATEGORIES</u>	<u>I.C.B.</u>	<u>N.C.B.</u>	<u>Local Shopg</u>	<u>Shortlist</u>	<u>Fin. Inte AgDB</u>	<u>Other</u>	<u>N.B.F.</u>	<u>Total</u>
A. CIVIL WORKS								
Buildings	-	29.1	-	-	-	-	-	29.1
Infrastructure	-	1,457.7	-	-	-	-	-	1,457.7
B. GOODS								
1. Vehicles	416.0	-	-	-	-	-	-	416.0
2. Equipment	229.7	899.0	21.9	-	-	9.9	-	1,160.5
3. Materials	-	70.8	-	-	-	-	-	70.8
C. Technical Assistance	528.0	-	-	523.6	-	-	-	1,051.6
D. Consultancy Services	-	-	-	89.9	-	-	-	89.9
E. TRG, Study Tours, Attach. Conf.	-	-	-	96.4	-	883.5	-	979.9
F. Other Costs	-	-	-	-	-	30.5	-	30.5
G. Operating Costs								
Salaries and Wages	-	64.2	-	-	-	77.1	725.6	866.9
							(725.6)	(725.6)
Operation and Maintenance	-	10.3	17.8	-	-	254.8	922.1	1,205.0
						(0.0)	(922.1)	(922.1)
H. Credit	-	-	-	-	4,178.5	-	-	4,178.5
TOTAL	1,173.7	2,531.1	39.7	709.9	4,178.5	1,255.8	1,647.7	11,536.3
	-	(0.0)	-	(0.0)	(0.0)	(0.0)	(1,647.7)	(1,647.7)

Note: Figures in parenthesis are the respective amounts financed by Government of Ghana

5.5 Disbursement Arrangements

5.5.1 Tables 5.2 and 5.3 below show the expenditure schedule by component and by source of finance respectively. The GOG will open a foreign exchange denominated account with a bank acceptable to the ADF in the name of the Cashew Development Project. The account will be used solely for purposes of the loan and will not be mixed with counterpart funds nor with any other funds. No overdrafts will be authorised on the account. The funds paid into the special account will be held in an interest-bearing account, and the income earned could be used by the borrower to meet financial charges accruing from the operation of the account. The account will be operated by the PMU in line with ADF procedures, with an initial deposit equivalent to four months of expenditure.

	Totals Including Contingencies (UA '000)						Total
	2001	2002	2003	2004	2005	2006	
1. Production Development	515.9	1,363.8	667.9	682.8	584.2	181.9	3,996.5
2. Extension and Training	213.6	253.5	176.4	255.8	259.9	148.1	1,307.3
3. Credit	315.5	1,200.5	662.9	736.1	738.4	525.1	4,178.5
4. Project Management & TA	456.0	350.7	382.6	412.7	275.7	176.4	2,054.0
Total PROJECT COSTS	1,501.0	3,168.4	1,889.8	2,087.4	1,858.3	1,031.5	11,536.3

Table 5.3: Expenditure Schedule by Source of Finance

Source	Totals Including Contingencies (UA '000)						Total
	2001	2002	2003	2004	2005	2006	
African Development Fund	1,200.5	2,892.7	1,631.0	1,803.5	1,580.5	780.3	9,888.6
Government	300.5	275.6	258.7	283.9	277.7	251.2	1,647.7
Total PROJECT COSTS	1,501.0	3,168.4	1,889.8	2,087.4	1,858.3	1,031.5	11,536.3

5.5.2 The Government will also open a Cedi account in a Bank acceptable to the Fund, which will be used to deposit counterpart funds. The Cedi account will also be operated by the PMU. The direct Payment Method of disbursement will be used for civil works, technical assistance training and studies, while the Revolving Fund Method will be applied for disbursing funds for training, office equipment, allowances, and other recurrent cost items.

5.6 Monitoring and Evaluation

5.6.1 Monitoring and Evaluation (M&E) will form an important management tool to effectively assess progress of project activities, identify critical problems and constraints, and to evaluate new opportunities. Monitoring and Evaluation activities will include a) a baseline survey; b) on-going monitoring; c) a mid-term evaluation; and d) a project completion report. The PPMED will be responsible for this activity. A start-up workshop will be organised in order to provide a forum for the beneficiaries to participate in the project before the start of implementation. The workshop will also contribute to raising awareness about the project, and provide an opportunity for close collaboration with the beneficiaries and other stakeholders on project objectives and modalities of implementation.

5.6.2 Short-term local consulting services will be procured to carry out a baseline survey in all the participating districts at the beginning of the project, using a participatory approach. The survey will, among other factors, identify key indicators under which the project impact will be determined and provide data against which specific project activities will be assessed vis-à-vis project objectives. Some of the key indicators include general economic growth at the district level; changes in income levels of the primary beneficiaries; rate of women's participation in income generating activities; and agriculture production levels in the districts.

5.6.3 Continuous monitoring of project activities will be done to assess progress in project implementation with respect to parameters identified in the baseline survey. This activity will be carried out by the Monitoring and Evaluation Unit of the PPMED in collaboration with the Regional Agricultural Development Units (RADU) and the District Agricultural Development Units (DADU). Together, these units will form the support network for disseminating technical information to, and collecting feedback from the farmers. The personnel that will be directly involved in the continuous monitoring of project activities are the Monitoring and Evaluation (M&E) Officers and the Management Information Systems (MIS) Officers at the Regional level, and the District based MIS Officers.

5.6.4 A mid-term review will be carried out during year three of project implementation. The review will aim at evaluating progress made against set targets and recommend any changes in project scope for the remaining project period. Consulting services will be procured to undertake the mid-term review. A mid-term workshop will be organised in order to provide a forum for both the beneficiaries and project staff to collaborate and consult on the on-going project activities.

5.6.5 Within three months before the end of the project, a Project Completion Report (PCR) will be prepared by the PMU. The report will be reviewed by MOFA and the project steering committee before submission to the ADF. The PCR will form the basis for the ADF's PCR. An end-of-project workshop will be organised for beneficiaries and project staff to reflect on the achievements and constraints, and to assess the project performance with regards to its objectives.

5.7 Financial Reporting and Auditing

5.7.1 The PMU will maintain separate and reliable project accounts and use control systems capable of recording and reporting all financial transactions. Such records and accounts will include income and expenditure accounts for each year, cumulative accounts since loan entry into force and a summary of reimbursements claimed under the statement of expenditure. The annual financial statements will be consolidated by the PMU. At the District level, the MIS Officers will submit quarterly and annual reports to the PMU who will record all movements in the accounts of the period, the physical acquisitions made from the expenditures, and monitoring & evaluation results.

5.7.2 The PMU will be responsible for timely submission of annual financial statements to be audited by suitably qualified independent auditors acceptable to ADF. A separate audit shall be undertaken on the use and application of the credit component. Fully audited financial statements for the preceding financial year will be submitted to the ADF by 30th June of the following year.

5.7.3 District Development Units will submit quarterly and annual progress reports to the PMU covering activities undertaken, progress achieved, accounts, physical acquisitions, monitoring and evaluation results, problems and constraints. On the basis of information presented in the progress reports the PMU will consolidate quarterly and annual reports. Copies of these reports will be submitted to the ADF for review within two months of the end of the reporting period. Annual reports shall reach the ADF before the end of March each year for review.

5.8 Aid Co-ordination

The project is consistent with the provisions of the Agriculture Services Sector Investment Programme (AgSSIP). Within AgSSIP there is an established mechanism for donor co-ordination for all bilateral and multilateral donor organizations providing support to the agricultural sector. The donor consultative meetings are held under the auspices of FAO. Joint donors' co-ordination committee meetings are held on a quarterly basis, or as and when deemed necessary. The agencies represented include the World Bank, CIDA, DFID, GTZ, AFD, FAO, IFAD and JICA. During the project preparation mission, the project was discussed in detail with donors at a joint AgSSIP meeting. As a follow-up, during the appraisal mission, the project was discussed again with donors at meetings that were arranged separately. Consultations with bilateral and multilateral donors will continue during the implementation of the project, through these donor consultation meetings.

6. **PROJECT SUSTAINABILITY AND RISKS**

6.1 Recurrent Costs

6.1.1 Total recurrent costs under the project are UA2.0 million. The cost items under ADF financing comprise operating costs for the PMU, operation and maintenance of equipment at regional, district levels and at CRIG, and field allowances, valued at UA0.396 million. The year by year expenditure of ADF and GOG operating costs are shown in Table 6.1 below and they exhibit a decreasing trend. The additional recurrent costs due to the project are low considering the project is simply adding one crop to the responsibilities of the AEAs, M&E, MIS, and the Crops Services Directorate. At the end of project implementation, the departments that are participating in the implementation of the project will carry out co-ordination of the various activities, under their existing recurrent expenditures. These departments will assume their respective roles in training, feeder road maintenance, research and extension services to farmers and processors. M&E of project established investments (cashew plots and processing factories) will also be integrated into the regular activities of MOFA. These will continue to be carried out by the National, Regional and

District level M&E officials as structured under the MOFA. Recurrent costs related to production, processing and nursery operations are the responsibility of the private sector, the beneficiaries.

Table 6.1: Recurrent Cost Schedule by Source of Finance

Source	Totals Including Contingencies (UA '000)						Total
	2001	2002	2003	2004	2005	2006	
African Development Fund	60.8	71.4	71.1	68.9	65.9	58.0	396.1
Government of Ghana	289.5	275.6	258.7	283.9	277.8	251.2	1,636.7
Total PROJECT COSTS	350.3	347.0	329.8	352.8	343.7	309.2	2,032.8

6.1.2 Recurrent costs associated with feeder roads spot improvement and grading are those of the Roads Department in the preparation of contracts and tender documents for awarding contracts. This is a responsibility already under the Roads Department and will not result in additional costs at the end of project implementation. Under research, additional recurrent costs will emanate from operation and maintenance of the equipment, tractor, and the clonal garden as well as operations and maintenance costs related to the extension to the laboratory at the Bole Research. At the district level, the Government will bear additional costs for maintenance fees of motorcycles.

6.2 Project Sustainability

6.2.1 The use of a producer/processor demand-driven and participatory approach whereby farmers and potential processors will request for services and later participate in their implementation will ensure beneficiary ownership and sustainability of project activities. The participatory approach will be adopted throughout the implementation process. The comparatively favourable farm gate price of cashew nuts, at US\$6/kg, currently generates one of the highest marginal returns for agricultural products. As a result, the high additional income which producers will realise through increases in the area cropped and productivity per unit area, will provide the necessary incentive and motivation for the farmers to continue to maintain their cashew plantations. Continuity of project activities after project completion is ensured since by the end of the implementation, farmers, nursery operators and processors will have acquired considerable knowledge and skills for the growing, managing, and processing of cashew. Furthermore, training in basic business accounting through various project delivered courses will enable them to run financially viable operations.

6.2.2 *Supply of Planting Material:* The project will improve supply of high yielding planting material. Concomitantly, in-country technical knowledge and skills for multiplication, grafting and canopy substitution will also be enhanced. With readily available high yielding planting material for farmers, it is envisaged that there will be a sustained increase in cashew production. Project activities for institutional support to CRIG will build its capacity to carry out research in other areas such as disease and pest control. In the same manner, the institutional support to extension services will contribute to the sustainability of production activities, with a continued availability of services for the producers of cashew.

6.2.3 *Feeder Roads:* The improved road network in the project area and the planned regular maintenance of feeder roads through the GOG established Road Fund will facilitate inter-community travel and social activities. This will ensure all year round passage in the Districts, enabling the evacuation of crops to the market.

6.2.4 *Mobility of extension agents:* Motorcycles purchased with project resources will be sold to the Extension Agents. This will lead to full ownership of the motor cycles by the users. This practice helps ensure proper maintenance of the motor cycles and hence sustainability of the extension services support provided to the beneficiary farmers. The funds recovered from the sale

of motorcycles will be used to set up a revolving fund so as to provide loans for the purchase of more motorcycles for extension workers.

6.2.5 *Groups:* Ghana has many years of experience in group formation. It is common practice in rural areas for community members to form groups around an economic or political interest. It is therefore envisaged that the groups formed will exist for extended periods of time. Efforts to establish long lasting groups/associations will be made through use of the services of group formation experts, who will take into consideration the social factors governing the success of groups. Terms of reference for the experts will indicate the need to build groups that have in-built flexibility for entry and exit of its members, accompanied by measures that will ensure continued financial viability and sustainability of the groups. Such a structure will provide the choice to farmers and processors on whether or not to participate. It will also ensure the continued existence of the groups.

6.3 Critical Risks and Mitigation Measures

6.3.1 Currently the international market prices for both raw and processed cashew, at US\$750–950 per metric tonne and US\$5,000–8000 per metric tonne respectively, are very attractive. It is assumed that the prices will remain favourable leaving a significant profit margin for the producers as well as the processors. Under the project, the supply of high yielding clonal materials will be enhanced leading to improvement in the quality of cashew produced in the country. This will ensure that Ghanaian producers and processors can compete favourably on the international market.

6.3.2 The cashew producing areas are prone to drought and bush fires, due to long spells of dry weather. Cashew farmers will be trained in proper management of cashew plantations, including fire prevention techniques. In addition, inter-cropping of cashew with other agricultural crops will help to ensure that cashew plantations are weed-free, thereby reducing the risk of fire destroying the farmers' plantations.

6.3.3 The Government of Ghana is expected to disburse a total of UA1.64 million as counterpart funding. Failure to meet this obligation could have severe implications on the implementation of the project. It will be a condition of the loan agreement that the Government make available the requisite counterpart funds on a timely basis during project implementation.

7. PROJECT BENEFITS

7.1 Financial Analysis

7.1.1 *Cashew Production:* Two farm models were developed, representing the different farming systems practised in the northern regions covered by Guinea Savannah zone, on the one hand, and in the regions located in the transitional and coastal zones, on the other. Crop models were also developed for cashew, groundnuts, yam, cassava, maize, sorghum, and vegetables, since these are the crops grown in the regions proposed for intervention. The farm models assume a land expansion of 0.5 ha to the existing cropped area at the farm family level. Land is available for expansion in the areas selected for project intervention, as indicated in section 4.2. The increase in the cost of production as a result of the project will be financed by the project credit facility for the production component. Prices used to calculate farm outputs and inputs were obtained from MOFA during project preparation in March 2000, and are expressed in constant March 2000 Cedis.

7.1.2 Existing farm management practices in the project area are very poor, hence there is a high potential for improvements. Assuming farmers adopt the recommended practices, improvements in the cropping intensity and agronomic practices will result in incremental returns to the farm family

entire farming system, in Year 9 after establishment of cashew plots, of UA803 (264%) per year, from the present UA304, for the North and Upper West regions. For the districts in the transitional and coastal zones, the incremental returns are estimated at UA914 (340%) from the present UA268 per year. For an average family size of 5 persons, this translates into a per capita income of UA221 and UA236 for the Savannah and Transitional/Coastal regions, respectively. Compared to the per capita income for Ghana of UA290, the new incomes from the cropping system for both the savannah and transitional regions are still below the national per capita income but significantly higher than the income levels before project intervention. It should be noted that the poverty income level in Ghana is UA112. Farm models are shown in Volume II.

7.1.3 Financial benefits from cashew nut processing will emanate from the direct employment of the unskilled and semi-skilled rural inhabitants working in the factories. For those who will join groups/association/co-operatives that will establish processing facilities, the benefit will come from dividends received from the processing operation. A factory will employ 35 people at an average income of Cedis 60,000 per month. With the establishment of 32 such factories by the end of project implementation, the processing industry alone will generate 1,120 jobs, of which 70% (784) will be occupied by women. The analysis confirms that the cashew processing facility itself is financially viable. With a capacity of 60 metric tonnes per year, each factory will generate a total annual revenue of about 48 million Cedis. Details of the factory operating costs and revenues are presented in Volume II. The factory will be able to repay a loan at an estimated interest rate of 36%. The results of the financial analysis demonstrate that both cashew production and processing are profitable ventures, returning an overall Financial Internal Rate of Return FIRR of 35%.

7.2. Economic Analysis

7.2.1 The incremental net benefit stream gives an economic Internal Rate of Return (EIRR) of 16% over 30 years, and a positive Net Present Value of UA1.909 million, when the opportunity cost of capital is set at 12%. The assumptions underlying this analysis are given in Annex 5.

7.2.2 The project is envisaged to create 1,120 jobs in 32 established processing factories; facilitate cashew plantation ownership by 20,000 small-scale farmers, create 40,000 seasonal jobs on the new cashew plantations; facilitate ownership by 40 small-scale entrepreneurs of cashew tree nurseries and 120 jobs on the nurseries gardens. Economically, the envisaged benefits are; a) increased rural household incomes; b); creation of jobs in the rural areas; c) potential generation of foreign exchange from export of increased amounts of cashew kernels; d) enhanced economic value of marginal lands, towards which the land expansion is envisaged; e) contribution to environmental conservation; and f) improvement of feeder road network in the project area.

7.3 Social Impact Analysis

7.3.1 The project will directly benefit about 20,000 farm families and create 40,000 seasonal jobs as a result of the establishment of 18,000 ha of new cashew plantations.

7.3.2 *Production:* The total number of jobs that will be created for women is estimated at thirty percent of the 40,000 seasonal jobs in cashew production in activities such as weeding, harvesting and drying. Considering that the project will actively encourage women to establish cashew plantations, either as individuals or as members of women groups, it is envisaged that this will lead to at least 10% of the established cashew plantations being owned by women, which will result in 2,000 small-scale women farmers.

7.3.3 *Processing:* Processing of raw cashew nuts into white kernels will add value and create considerable employment opportunities for women in the rural areas (784 jobs). It is envisaged that

at least 50% of the newly established processing units will be owned and operated by women groups. Through training and provision of credit to finance running costs, the project will support the establishment of 40 nurseries and encourage increased ownership by women (targeted at 60%).

7.3.4 Poverty Reduction: Cashew farming across the country is basically a smallholder venture, with farmers receiving up to 70% of the FOB price for the raw nut. The current farm gate price for cashew nuts is relatively higher than that for other traditional agriculture crops in the country, indicating the comparative advantage for cashew production and processing. By increasing the production and the processing of cashew, the project is in-line with the macro-economic reform programme of the Government, since it will contribute to the improvement of the living standards of the rural population by raising farm income levels and generating employment. The jobs that will be created by the project will generate disposable income for the farming communities.

7.3.5 Cashew harvesting and marketing takes place during the lean season for most staple crops. The cash income obtained from sale of cashew, particularly at a time of the year when there is little income being generated, will provide farmers with much needed disposable income for food, which will help ensure food security and hence poverty reduction. Another major factor for the persistence of poverty is lack of access to production resources. Under the Cashew Development Project, the opportunities for the small holder farmers to access resources and services will be improved.

7.3.6 HIV/AIDS: As mentioned in paragraphs 4.5.11 & 4.5.12, the project will collaborate closely with the Ministry of Health to disseminate HIV/Aids awareness and prevention messages to project beneficiaries.

7.4. Sensitivity Analysis

The sensitivity analysis shows that project costs have to increase up to 10% for the EIRR to fall to 10% (a return below the opportunity cost of capital of 12%), exhibiting sensitivity to increases in project costs. On the other hand, the EIRR falls as low as 9% when the benefits fall by 20%, a situation that might arise in the event of a significant crop failure or unfavourable international prices for the products. However, as indicated in the document, this is very unlikely given the historical trend and anticipated future levels of supply and demand of cashew. The sensitivity of the EIRR to selected levels of changes in benefits and costs show that the rate of return are as follows:

At Current benefits	EIRR = 16%
Benefits increase by 20%	EIRR = 17%
Benefits increase by 50%	EIRR = 18%
Costs up by 10%	EIRR = 10%
Costs up by 20%	EIRR = 9%

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 Cashew is a high value crop whose development comes at an opportune time when the international market prices of Ghana's traditional export commodities continue to decline. The project will contribute to the reduction of rural poverty by focusing its support on small-scale cashew producers and processors. This will broaden the production and income base for the rural poor and with it the production of more raw materials for industrial development and export. It is envisaged that the project will lead to an improvement in rural living conditions due to increased incomes of the project beneficiaries.

8.1.2 The project is socially desirable, technically feasible, financially viable and environmentally friendly. Furthermore, it is accorded high priority in the agriculture development strategy by the Government of Ghana and it is consistent with the Bank Group Vision statement as well as the Bank strategy for Ghana. At the national level, the project is expected to contribute to the diversification of the country's export base, generate rural employment and enhance rural incomes.

8.2 Recommendations and Conditions for Loan Approval

8.2.1 It is recommended that a loan not exceeding UA9.89 million be granted to the Republic of Ghana to finance the implementation of the Cashew Development Project as presented in this appraisal report.

A. *Conditions Precedent to Entry into Force*

8.2.2 It shall be a condition precedent to entry into force of the Agreement that the Borrower shall have fulfilled the conditions of section 5.01 of the General Conditions of the Fund Applicable to Loan Agreements and Guarantee Agreements.

B. *Conditions Prior to First Disbursement*

Prior to first disbursement, the Borrower shall:

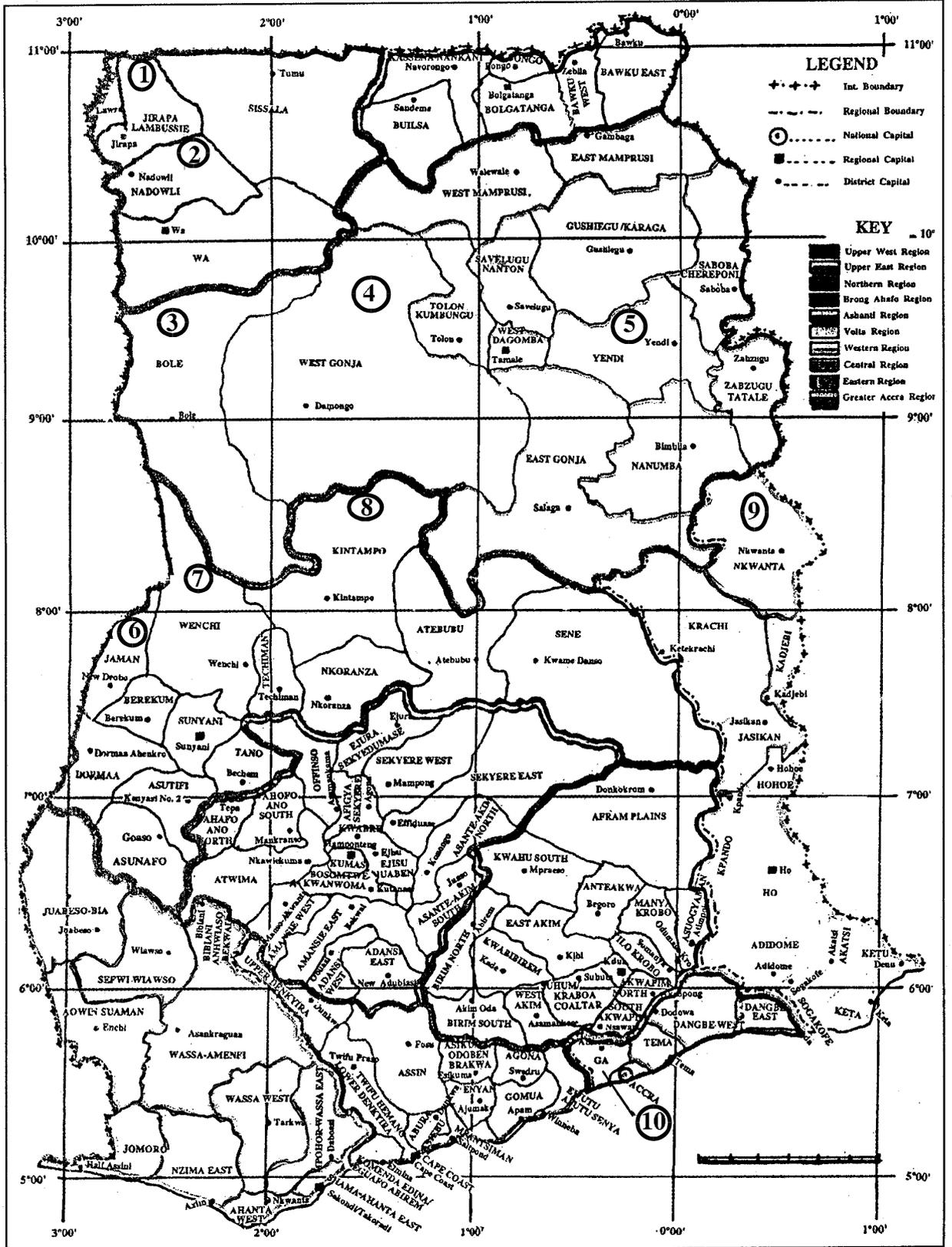
- i) Provide evidence of having established a Project Management Unit and appointed a Project Manager, whose qualifications and experience shall be acceptable to the ADF (para. 5.1.1).
- ii) Provide evidence of opening a) a Special Account in a Bank acceptable to the ADF, where disbursements from the Fund will be deposited; and b) a Special Account with a Bank acceptable to the ADF, where it will deposit GOG counterpart funds (paras.5.5.1 & 5.5.2).
- iii) Provide evidence that an on-lending agreement between AgDB and the Government of Ghana for the management of a credit fund amounting to UA4.18 million is concluded on terms and conditions acceptable to the ADF (para. 4.5.16).
- iv) Provide evidence of the appointment of an ADF approved list of additional members to serve on the existing Food Crops Project Steering Committee, that will comprise but not be limited to: representatives of cashew growers, processors, NGOs involved in the cashew industry, AgDB, MOFA, CRIG, Feeder Roads Department, EPA and GEPC. (Para. 5.2.1).
- v) Provide evidence that additional Terms of Reference have been assigned to the Food Crops Development Project Steering Committee, extending their field of responsibility to the Cashew Development Project, (para. 5.2.1).

C. *Other Conditions*

8.2.3 During the implementation of the project, the Borrower shall:

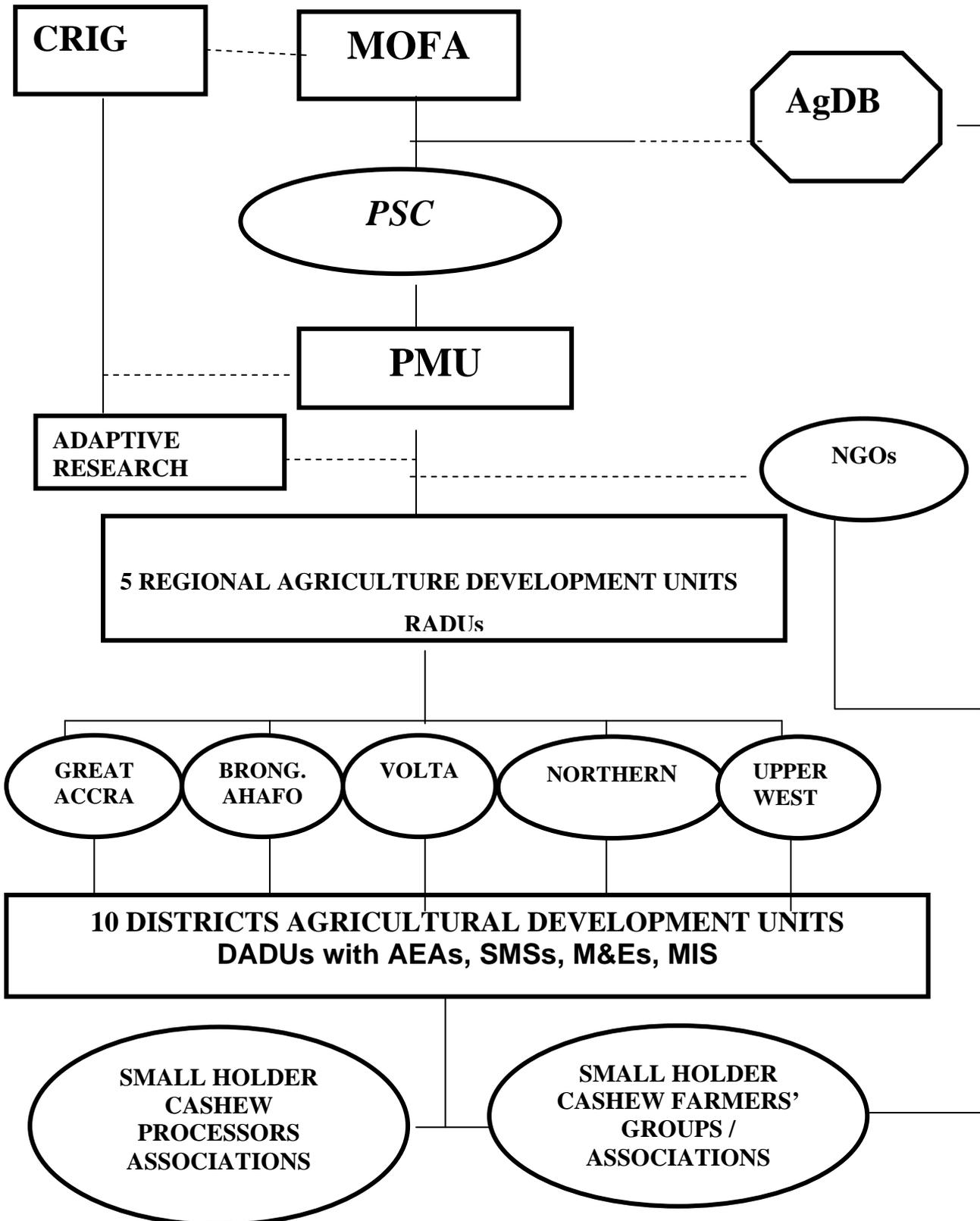
- i) Disburse to the project, counterpart funds for each year of project implementation, in accordance with the financing plan agreed with the Fund. (para 6.3.3).
- ii) Provide evidence every year, one year after first disbursement, that the implementation programme of the Road Fund, includes the feeder road network that shall have been rehabilitated by the project (para 6.2.3).

GHANA
Cashew Development Project
DISTRICT MAP



This map has been prepared by the African Development Bank Group exclusively for the use of the readers of the report to which it is attached. The names used and the borders shown do not imply on the part of the Bank and its members any judgement concerning the legal status of a territory nor any approval or acceptance of these borders.

PROJECT ORGANISATION AND MANAGEMENT



Republic of Ghana
Cashew Development Project
Provisional List of Goods and Services

	(Cedis '000)				(UA '000)					
	GOVT	ADF	Total	For. Exch.	Local (Excl. Taxes)	GOVT	ADF	Total	For. Exch.	Local (Excl. Taxes)
1. WORKS										
1.1 Laboratory Extension	-	137,620.1	137,620.1	124,604.9	13,015.2	-	29.1	29.1	26.3	2.8
1.2 Feeder Roads	-	6,898,985.2	6,898,985.2	6,898,985.2	-	-	1,457.7	1,457.7	1,457.7	-
Subtotal	-	7,036,605.3	7,036,605.3	7,023,590.1	13,015.2	-	1,486.8	1,486.8	1,484.0	2.8
2. GOODS										
2.1 Vehicles	-	1,968,525.6	1,968,525.6	1,968,525.6	-	-	415.9	415.9	415.9	-
2.1 Equipment	-	5,445,445.3	5,445,445.3	5,445,445.3	-	-	1,150.6	1,150.6	1,150.6	-
2.3 Materials	-	221,335.1	221,335.1	221,335.1	-	-	46.8	46.8	46.8	-
2.4 Planting Material-Quarantine	-	113,598.2	113,598.2	113,598.2	-	-	24.0	24.0	24.0	-
Subtotal	-	7,748,904.2	7,748,904.2	7,748,904.2	-	-	1,637.3	1,637.3	1,637.3	-
3. SERVICES										
3.1 Training - Staff	1,341,083.4	1,438,424.2	2,779,507.5	1,238,302.9	1,541,204.7	283.4	303.9	587.3	261.6	325.6
3.2 Training - Beneficiaries	-	3,343,658.6	3,343,658.6	2,746,001.9	597,656.7	-	706.5	706.5	580.2	126.3
Subtotal	1,341,083.4	4,782,082.8	6,123,166.1	3,984,304.8	2,138,861.4	283.4	1,010.4	1,293.8	841.9	451.9
4. TA & CONSULTANCY SERVICES										
4.1 Technical Assistance (long term)	-	2,478,088.8	2,478,088.8	2,478,088.8	-	-	523.6	523.6	523.6	-
4.2 Consultancy Services (short term)	-	317,625.7	317,625.7	271,812.3	45,813.4	-	67.1	67.1	57.4	9.7
4.3 International TA (long term)	-	2,498,913.1	2,498,913.1	2,498,913.1	-	-	528.0	528.0	528.0	-
Subtotal	-	5,294,627.7	5,294,627.7	5,248,814.3	45,813.4	-	1,118.7	1,118.7	1,109.0	9.7
5. Other Contract Services	-	287,955.8	287,955.8	267,912.5	20,043.4	-	60.8	60.8	56.6	4.2
6. Project Management Unit	52,060.7	-	52,060.7	-	52,060.7	11.0	-	11.0	-	11.0
7. Credit	-	19,775,844.7	19,775,844.7	15,833,325.6	3,942,519.1	-	4,178.5	4,178.5	3,345.5	833.0
8. Operations Costs	6,405,139.4	1,874,439.7	8,279,579.2	994,510.0	7,285,069.2	1,353.4	396.1	1,749.4	210.1	1,539.3
Total	7,798,283.5	46,800,460.2	54,598,743.7	41,101,361.3	13,497,382.4	1,647.7	9,888.6	11,536.3	8,684.4	2,851.9

FINANCIAL AND ECONOMIC ANALYSIS**ANNEX 5****Page 1 of 3****A. FINANCIAL ANALYSIS - ASSUMPTIONS**

A financial analysis has been carried out to determine the following:- a) incremental income to the target farmers, based upon the increase in income generated from the cashew that will be introduced in the farming system, including increase in revenue from the crops that will be retained in the cropping system with project intervention; b) profitability of a single small scale cashew nut processing factory.

Production

1. **Financial Prices:** The financial prices for farm outputs and inputs used in the analysis were obtained from MOFA and collected by the preparation and appraisal missions. Most were collected in Cedis at the time of data collection, March 2000. Farm-gate prices for outputs are the average farm-gate prices derived from the regions selected for the project. There is no significant difference in the prices between regions, therefore uniform average prices have been adopted for all project areas. A cost of labour of Cedis4,000 per day is used, reflecting the cost of on-farm hired labour. Other crop prices are: Cashew-nuts=Cedis2,500/kg, Groundnuts=Cedis1,000/kg; Yam=Cedis400/kg; Maize=Cedis400/kg; Vegetables=Cedis1,400/kg.

2. **Area:** The incremental **area** of a farm family crop field is estimated at 0.5 hectares from the current cropped area of 2.0 ha. The area allocated to cashew production as a result of the project is 0.9 ha.

3. **Yield:** A conservative approach was adopted in view of the projected yield levels. Therefore the analysis assumes a highest attainable yield for cashew (in year 9 after establishing the plantation) of 800kg per hectare. The maximum attainable is 1,200kg per hectare. Yield levels per hectare for cashews are therefore estimated at the following levels starting in year 4 after establishing the plantation: 30kg; 90kg; 100kg; 200kg; 500kg; 800kg, after which they stabilize of 800kg/ha. The yield levels of the 1,500ha of canopy substituted plantations are assumed at 30kg/ha during the 2nd year after establishing the plantation, 90kg/ha in the 3rd year, and continue to increase successively as the yields for new plantations. Yield levels for other crops are assumed to increase due to improved agronomic practices and management. Detailed crop budgets are in Volume II.

Processing

Financial Prices: Input prices to the processing factory were derived from the actual costs of the existing factories in the project area. The key ones are: cashew nuts = Cedis2,500/kg and labour at Cedis 60,000/month. For outputs, the prices adopted in the analysis are the following current prices: for kernels, wholes = Cedis 23million/MT (US\$5,750/MT); Halves = Cedis 21million/MT (US\$5,250/MT); Bits = Cedis17million/MT (US\$4,250/MT). The processing plant has been assessed at a capacity of 60,000MT of cashew nuts per year.

B. FINANCIAL BENEFITS

The overall financial rate of return (FIRR) for the project is 35%. Assuming that farmers adopt the recommended practices, improvements in the cropping intensity and agronomic practices will result in incremental returns to the farm family in Year 9 after commencement of production of Cedis 4.3 million (264%) per year from the present level of Cedis 1.6 million, for the North and Upper West Regions.

For the districts in the transitional and coastal zones, the incremental returns are estimated at Cedis 4.9 million (340%) from the present level of Cedis 1.4 million per year. The analysis returns a financial internal rate of return for the production of 35%. When the annual cash flows from production are discounted at the opportunity cost of capital of 25% the net present value is Cedis 48,109 million (US\$12million).

Financial benefits from cashew nut processing will emanate from direct employment income of the unskilled and semi-skilled rural inhabitants working in the factories, at an average income of Cedis 60,000 per month. The factory itself will generate annual revenue of about 48 million Cedis, and be able to repay a loan at the prevailing interest rates of 36%. The analysis returns a financial rate of return of 27% and a net present value of Cedis 31.2million (US\$7,807) when the annual cash flows from processing are discounted at the opportunity cost of capital of 25%.

C. ECONOMIC ANALYSIS - ASSUMPTIONS

The Economic analysis is carried out to determine the returns to the investments for the country using the economic internal rate of return. The computation of the Internal Economic Rate of Return (EIRR) is based on the determination of the a) incremental agricultural production of cashew and other crops in the farming systems of the target farmers; b) the incremental income for the country from processing of cashew nuts from 32 factories, and c) the economic value of the investment.

1. **Project economic life:** The net benefit stream has been analysed over a period of 30 years.
2. **Constant prices** are assumed over the 30 year economic life of the project.
3. **Benefits:** conservatively, only those benefits accruing from the 18,000 new plantations and 1,500 canopy substituted plantations have been considered in the analysis, although it is very likely that after the project investment phase, additional farmers will take up cashew production from their neighbours who will participate in the project. New plantations will be established at the rate of 4,500 ha per year for four years starting in year PY2. From PY4 to PY6, 1,500 ha of old plantations will be canopy substituted at the rate of 500 ha per year.
4. **Economic prices** have been derived from financial prices by applying a conversion factor of 0.9 for the food crops in the farming system of the target population, since they are not significantly traded. For groundnuts, and chillies, which are traded, F.O.B. Accra prices have been used instead, at Groundnuts = US\$0.25/kg; chillies=US\$0.35/kg. Economic prices for cashew nuts and kernels are conservatively estimated at 25% less than the average international price to allow for quality considerations since Ghana has a young cashew industry. The actual prices are:- cashew nuts=US\$625/mt; cashew kernels=US\$6,000/mt.
5. **Labour costs:** For production, economic labour costs have been derived by applying a 0.9 conversion factor, (i.e. the market labour wages are inflated by 10%), since once the plantations are fully grown the opportunity cost of the kind and timing of the labour required (harvesting) for the plantations is low. For processing activities, the market labour cost has been adopted as the opportunity cost of labour in the analysis, assuming the demand and supply for semi-skilled labour is in equilibrium.
6. An **opportunity cost** of capital of 12% was used in the calculation, being the cost of capital used by most donors (FAO, World Bank) in analysing the economic worth of development investments in Ghana.
7. Financial costs have been adjusted to **economic costs** by excluding taxes, duties and price contingencies. In addition, all the credit lines have been excluded from the project costs

D. ECONOMIC BENEFITS

Economic Internal Rate of Return and Sensitivity Analysis: Based on the assumptions, the incremental net benefit stream gives an EIRR of 16% over 30 years. The Net Present Value is estimated at Cedis10,283 million (UA\$ 1.909 million) if the opportunity cost of capital is set at 12%. The sensitivity analysis shows that when project costs increase by 10%, for the EIRR will fall to 10%, a return below the opportunity cost of capital of 12%. On the other hand, the EIRR falls as low as 9% when the benefits fall by 20% a situation that might arise in the event of a significant crop failure or unfavourable international prices for the products (which as indicated in the document is very unlikely given the historical anticipated future levels of supply and demand of cashews).

LIST OF ITEMS IN VOLUME II

ANNEX 1: Detailed Cost Tables by Component:

Table 1:	Production Development
Table 2:	Extension & Training
Table 3:	Credit
Table 4:	Project Management

ANNEX 2: Farm Models

Table 1:	Farm models in Savannah Region (<u>without Project</u>)
Table 2:	Farm models in Savannah Region (<u>with Project</u>)
Table 3:	Farm models in Transitional & Coastal Region (<u>without Project</u>)
Table 4:	Farm models in Transitional & Coastal Region (<u>with Project</u>)

ANNEX 3:

Table 1:	Financial budget with Credit financing
Table 2:	Financial Budget of a Processing Factory

ANNEX 4: Terms of Reference

- 1: Project Manager
- 2: Senior Advisor
- 2: Agricultural Economist
- 3: Agronomist/Horticulturist
- 4: Marketing and Processing Expert
- 5: Group Formation Specialist
- 6: Accountant

ANNEX 5: Summary of Bank Group Operations in Ghana

Annex

CASHEW DEVELOPMENT PROJECT

CORRIGENDUM

An error has been observed in the foreign exchange earning per year, starting in year nine. This is mentioned in the sections below.

- a) In the Matrix, Objectively Verifiable Indicators number 3, of the Sector Goals;
- b) In the Executive Summary, under Brief Description of the Project Outputs, item number (xi); and
- c) In paragraph 4.3.1 on page 13 of the report.

The figure quoted as the potential foreign exchange earnings of US \$19.2 million per year starting in year nine after the start of project implementation should read US \$13.5 million in year nine after establishment of cashew plantations.