



PROJECT: GAFSP: Agriculture Productivity and Market Enhancement Project (APMEP)

COUNTRY: ZAMBIA

PROJECT APPRAISAL REPORT

TECHNICAL ANNEXES (Volume II of II)

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<p>Task Team</p>	<p>Team Leader: Yappy Silungwe, Senior Irrigation Engineer, OSAN.1 Team Members: Jean-Marie Meng-Lihinag, Principal Agricultural Economist, OSAN.1 Lewis Bangwe, Senior Agriculture Specialist, ZMFO. Natan Jere, Senior Procurement Officer, ZMFO Damian Ihedioha, Principal Agro-Industry Specialist, OSAN.1 Owusu M. Agyei, Principal Financial Management Specialist, SARC/ORPF.2 Bertha Munthali, Nutrition Specialist, FAO Consultant Sibekile Mtetwa, Environmental Specialist, Consultant</p>
	<p>Sector Manager: Josephine MWANGI, OSAN.1 Resident Representative: Freddie KWESIGA, ZMFO Sector Director: Chiji OJUKWU, OSAN Regional Director: Ebrima FAAL, SARC</p>
<p>Peer Reviewers</p>	<p>Evans NTAGWABIRA, Senior Rural Infrastructure Engineer, OSAN.2 Nathalie GAHUNGA, Chief Gender Officer, OSAN.3 Eklou ATTIOGBEVI SOMADO, Principal Agronomist, OSAN.2 Olagoke OLADAPO, Chief Agricultural Economist, OSAN.3</p>

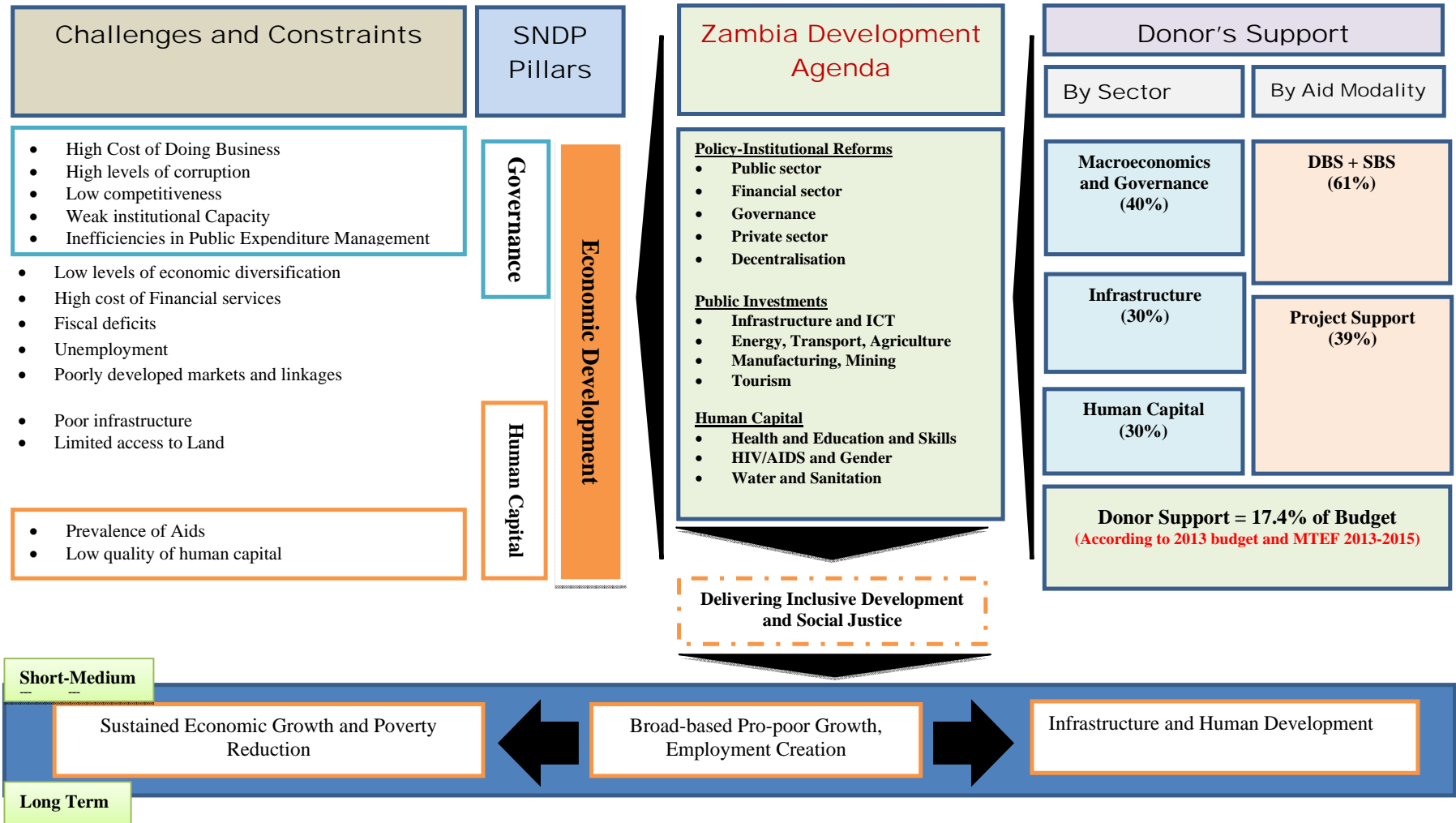
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This document (Volume II of II) should be read together with the Project Preparation Report (Volume I of II) which has been presented under a separate cover. In case of contradictions between the two documents, the Project Preparation Report (Volume I of II) will prevail.

A. ZAMBIA'S DEVELOPMENT AGENDA AND SECTOR BRIEF

Zambia's Development Agenda, Sector Brief and Donor's Support



A.1 Policy Context

1. The Government of Zambia (GoZ) development agenda are articulated in the National Vision 2030 which reflects the aspirations and determination to attain the status of a prosperous middle-income country by the year 2030. The Sixth National Development Plan (SNDP: 2011-2015), which operationalizes the National Vision 2030, has prioritised agriculture, along with mining, tourism, manufacturing and energy sectors, among the key growth sectors of the economy. The Ministry of Agriculture and Livestock (MAL) is refining its sector policies and strategies based on the National Agriculture Policy (NAP: 2004). MAL has also prepared a National Agriculture Investment Plan (NAIP: 2014-2018) within the framework of the Comprehensive Africa Agriculture Development Programme (CAADP) whose overall objective is to facilitate and support the development of a sustainable, dynamic, diversified and a competitive agricultural sector that assures food security at household and national levels and maximizes the sector's contribution to GDP. The NAIP has been used as the main anchor for the APMEP design. The Project is in line with the SNDP (2011-2015), the National Agriculture Policy (NAP 2004), National Gender Policy (2000), the Food and Nutrition Policy (2006), the National Food and Nutrition Strategic Plan (2011-2015), and the First 1,000 Most Critical Days (2013-2015). The GoZ has been implementing the Farm Blocks concept and the Farmer Input Support Programme (FISP) as the main tool to increase agriculture productivity and address the food security problem.

2. The GoZ's Medium Term Expenditure Framework (MTEF: 2013-2015) targets to increase agriculture diversification through support to crops, livestock and fisheries development, harnessing the value chain processes and expanding both domestic and international market access for agriculture products. The strategies include development and rehabilitation of production and marketing infrastructure such as livestock service centres and breeding centres, aquaculture development, expansion of smallholder irrigation to reduce dependence on rain-fed agriculture and increasing productivity in farming to ensure national food security, employment creation and increased income from exports. Investments particularly in agriculture infrastructure and rural finance offer effective means to make a significant impact on poverty levels. APMEP will support Government's efforts in diversifying agriculture, raising productivity and improving market linkages and value chain development as a means to enhance household food security, nutrition and farmers' incomes.

A.2 Development Partner/Donor Support

3. Donor Support and Coordination: The Mid-Term Review of the Bank's Country Strategy Paper conducted in 2012 highlighted the necessity for the Bank to further support economic diversification. As one of Development Partners (DPs), the Bank is supporting the implementation of SNDP and NAIP. Public sector external debt remains low, following extensive debt relief in 2005-2006. Debt relief under the Highly Indebted Poor Countries (HIPC) program and Multi-donor Debt Reduction Initiative (MDRI) significantly reduced Zambia's public sector external debt stock to 9% of GDP in 2006 (USD 0.5 billion), down from 86% (USD 7.2 billion) in 2005. The Government's debt policy of borrowing only on concessional terms from multilateral creditors (including the Bank) has resulted in a moderate rise in public sector external debt, at an average of 10.8% of GDP in 2008-2012, and expected to rise to 16.5% of GDP in 2013. The sustainable debt limit for external debt in Zambia is about 30%. Total public sector debt including domestic debt is 34.1% of GDP.

4. Donor contribution to the agriculture budget is significant and was about 30% in the 2012 fiscal year, with active portfolio, as at end of 2012 totalling USD 70.0 million and the percentage distribution is as indicated in Table A.2.1. Donor contributions are coordinated by the Ministry of Finance. The biggest contributor is World Bank (36.3%) followed by IFAD (17.4%). The Bank (AfDB) is one of the DPs in the agriculture sector and accounted for about 3.4% of the active portfolio budget in the 2012 fiscal year. The Agriculture Cooperating Partner Group (Ag-CP), whose current chair is EU, has been coordinating activities in the sector and engaging Government in dialogue on key policy developments. The Ag-CP played a key role in assisting Government to formulate the SNDP, NAIP and APMEP. The Zambia Field Office (ZMFO) chaired the Ag-CP in 2012 and has played a pivotal role in donor coordination activities and overall portfolio management.

Table: A.2.1 Donor Support to Agriculture (2012)

Sector or subsector*	Size			
	GDP	Exports	Labour Force	
Agriculture	13	20	67	
Players - Public Annual Expenditure (average) : 2012 Budget				
	Government	Donors	AfDB 3.4%	FAO 1.1% Finland 4.4%
UA m	UA 229.4 m	UA 70 m	WB 36.3%	JICA 3.4% USAID 7.9%
%	70.0%	30.0%	EU 4.7%	WFP 9.3% Norway 7.0%
			DFID 5.1%	IFAD 17.4%
Level of Donor Coordination				
Existence of Thematic Working Groups (this sector/sub-sector)			[Y]	
Existence of SWAps or Integrated Sector Approaches			[N]	
ADB's Involvement in Donors Coordination			[M]	

Key: L: Leader. M: member but not leader. None: no involvement. Y: Yes. N: No

6. Stakeholders' consultation was undertaken at four levels: National, Provincial, District and community levels. At national level, separate meetings were conducted with DPs, the Private sector, NGOs dealing with agriculture, gender and nutrition, International NGOs, Senior Government officials (including the Permanent Secretaries). At provincial level, the Provincial Development Coordinating Committee (PDCC) was engaged as well as key stakeholders at District level, including private sector, District Development Coordination Committee (DDCC), local NGOs, CSOs and farmer organizations. Both male and female farmers were consulted at community level through Focus Group Discussions.

A.3 Trends in Partnership Arrangements

7. Consistent with the principles enshrined in the Paris Declaration (PD) and Accra Agenda for Action (AAA), the Bank has played a very active role in the various coordinating efforts in Zambia. The Cooperating Partners Group (CPG) includes the World Bank, the EU, DFID, Germany, Ireland, Sweden, Finland, Netherlands and Norway - as well as close to 20 other diverse macro and thematic Sector Advisory Groups (SAGs). The Bank convened and chaired six Cooperating Partners Group (CPG) meetings that discussed key issues including post-Busan updates, SNDP developments, conference of Parties 17 outcomes, JASZ II/mutual accountability framework, joint graduated response to corruption, assessment of the annual progress report for the FNDP, key living conditions monitoring survey 2010, Zambia's preparations for Rio +20 and the trajectory of aid graduation and scaling up nutrition and the 1,000 days programme.

8. The Bank also convened four key meetings with the Secretary to the Treasury (ST) as a platform of discussion on matters that affected both the GRZ and CPs. The topics discussed bordered on a follow up on the Auditor General's report on the road sector and the status of the Road Development Agency Board; Joint communiqué leading to the Mutual Accountability Framework on Aid and Development Effectiveness; re-instatement of the Abuse of Office Clause, Climate Change mechanisms; and Review of Salaries and Conditions of Services instrument. Key achievements of the Bank as Chair of the CPG was to successfully hold two high level discussions on Government priorities and the CPG-GRZ engagement framework. In addition, the Bank also made significant inputs towards the organization of a High Level Policy Dialogue (HLPD) in November 2012, between the CPs and GRZ focusing on the diversification and transformation of the Zambian economy. As a Chair of the CP Agriculture Sector, the Bank prepared a discussion paper on Agriculture Diversification for Job Creation and this was discussed at a High Level Policy Dialogue Conference organized with the Government and the UNDP. The Chair also organized and led a joint tour of the CPs to Nansanga Farm Block in Serenje District, 400km from Lusaka. This helped the CPs to understand the concept and progress made by Government in implementing the farm blocks. As part of efforts to enhance collaboration and leverage additional resources, the Bank continues to work closely with other DPs on the projects in the portfolio. These DPs include: (i) multitude of Donors in the Poverty Reduction Budget Support (PRBS IV); (ii) Finland (for the Bank managed Small Scale Irrigation Project/SIP); (iii) the Governments of Zambia & Botswana and JICA (for the Kazungula Bridge Project); (iv) the EU (for the Nacala Corridor Road Project); and (v) collaboration with, European Investment Bank (EIB), Development Bank of Southern Africa (DBSA) and Agence Française de Développement/French Agency for Development/AFD) for the Itezhi Tezhi Hydro Power Generation and Transmission Line Project).

B. BACK-UP OF THE KEY ARGUMENTS OF THE REPORT

B.1 Lessons Learned from Bank-Financed Projects

1. The Bank has built experience on infrastructure development in support to agriculture infrastructure and capacity building activities. The Bank has learned adequate lessons such as (i) role played by the Implementation Unit in expediting project execution after a delay in start-up when implementation was entrusted to MAL, (ii) lack of drawings at project start-up resulted in delay in implementation, (iii) inadequate consultation with stakeholders in selection of sites, and (iv) poor performance of credit component. In this regard, APMEP will be implemented using the existing GAFSP Project Technical Team (PTT) and Government mainstream staff using the existing structures. The pre-appraisal mission adequately consulted the stakeholders. The detailed designs/drawings and tender documents for infrastructures will be ready through advance procurement before project start-up and also the institutional mechanisms for managing the community infrastructures will be clearly defined. In terms of specific support for women and youth farmers, the proposed approach is to implement livestock pass-on scheme and community water management study groups for interest groups/cooperatives whose resources will revolve amongst the group members.

2. The CSP (2011-2015) MTR found the Government's performance moderately satisfactory. The lessons from the 2012 Country Portfolio Improvement Plan (CPIP) highlighted the (i) weak capacity of project implementation units in the area of procurement, contract management and adherence to implementation schedule, (ii) weak project monitoring and evaluation, (iii) untimely submission of audit reports and non-compliance with fiduciary requirements, and (iv) poor coordination of Bank's interventions. These lessons were also considered during the Project design and some of the measures include provision of Project implementation training workshops in the areas of procurement, contract management, and disbursement management to participating staff. ZMFO shall track the submission of quarterly progress reports, process and provide feedback to GoZ on a timely basis. The GoZ has established a platform for monitoring, evaluation and obtaining feedback from project executing agencies and line ministries. Some of the issues are tabulated below.

Project	Date & Amount	Intervention Areas	Rating ¹	Lessons Learned ²
Zambia Agriculture Sector Investment Program (ASIP)	April 1999 to June 2008 Amount: UA 24,2 million	Agricultural development	***	<p>The PCR of ASIP informed provided several conclusions and lessons:</p> <p>i) infrastructure development remains very relevant to Zambia's development;</p> <p>ii) the role of communities in programme identification, monitoring and implementation should be built in the programme design to ensure ownership;</p> <p>iii) Agriculture projects should be fully prepared to detailed design before approval to ensure their readiness for implementation;</p> <p>iv) in a programme like ASIP, clear roles, inter-relationship and accountabilities of all institution involved should be established;</p> <p>v) local contractors should be thoroughly scrutinized for their financial and technical capability to ensure their ability to adequately complete contracted work in a timely manner;</p> <p>vi) a strong Monitoring and Evaluation (M&E) system coupled with quality baseline data is imperative for better monitoring of programme implementation, better performance evaluation and impact assessment;</p> <p>vii) the inability to develop and implement a business management plan for various revolving funds established and Livestock Market Centers which will limit the sustainability of outcomes;</p> <p>viii) the risk that the level of activities and interaction between extension staff and farmers declines if there is no increase in public resource flows to the districts;</p> <p>ix) operating and maintenance cost is required for equipment and civil works established;</p> <p>x) training in the development and implementation of Business Plans for Revolving Funds at Livestock Market Centers and Artificial Insemination Centre is required.</p> <p>xi) beneficiaries should be encouraged to contribute to the maintenance of civil works facilities through maintenance committees;</p> <p>xii) Proper implementation arrangements are important for timely execution of project activities - the implementation of the project improved only after a PTT was set up, but even then, the Programme Manager did not have adequate technical support.</p> <p>Most of the issues raised above were approached during the preparation and appraisal approach and are reflected in</p>
		Livestock development	***	
		Infrastructure development	**	
		Overall	***	

¹ **** (75-100% Benchmarks Met); *** (50-75 % Benchmarks Met); ** (25-50% Benchmarks Met); * (0-25% Benchmarks Met) from PCR or other available rating.

² Conclusions from the Project Completion Report (PCR).

Project	Date & Amount	Intervention Areas	Rating ¹	Lessons Learned ²
				the design of APMEP. Additional fine tuning in the design and description of the operation is expected to be provided through the PPF to be conducted prior to the onset of the intervention.
SADC REGION: Strengthening Institutions for risk management of Trans boundary animal diseases (TADs) ³	UA 13.71 million	Networking and Information Sharing	***	<p>The Multinational SADC “Strengthening Institutions for the Risk Management of Trans-boundary Animal Diseases (TADs) in the SADC region is an ongoing intervention with the objective of enhancing livestock as a tradable commodity through assured animal health. The project covers five countries of the SADC region, namely: Angola, Malawi, Mozambique, Tanzania and Zambia. The project has made so far great contributions in terms of strengthening the capacity of public institutions in charge of animal health in coping with the management of livestock trans-boundary diseases in the five participating countries. These contributions were made through large investments in the development of physical and human capacities in the laboratories, field staff and the surveillance and diagnostics capacity of the public health services. It also contributed to advancing the knowledge on TADs and their management.</p> <p>The main lesson learned from the ongoing implementation are:</p> <p>i) Collaboration among participating countries is key to successful delivery of outputs and outcome and to amplifying the effects of the project;</p> <p>ii) care should be taken to ensure that all countries are implementing the project at the a similar speed as countries may have different capacities for implementation. If one country lags behind it impedes project overall performance;</p> <p>iii) Implementation Units must be empowered to fully play its role and not be hindered by bureaucratic processes.</p>
		Capacity Building and Institutional Strengthening at the regional and national levels in the area of laboratories, epidemiological and socioeconomic domains	***	
		Overall	***	

³ Ratings and lessons learned are derived from last supervision and the project is still ongoing until December 2013.

B.2 Project Costs

3. Estimated Costs and Financing Arrangements: The Project cost, including physical and price contingencies, is UA 23.01 (USD 34.87) million which will be financed by, refer to Table B.2.1, (i) GAFSP Grant of UA 20.54 (USD 31.12) million (89.3%) covering all major Project activities, (ii) the GoZ contribution of UA 2.38 (USD 3.61) million (10.3%) through salaries for staff, office space and utilities/services, and (iii) beneficiaries in-kind contribution of UA 0.09 (USD 0.14) million (0.4%) in-kind contribution during watershed management, maintenance of bicycles/mini-processing equipment. The price contingencies were based on actual and projected local and foreign inflation rates of 10.0% and 2.0% per annum, respectively. The physical contingencies ranged from 0% (salaries) to 10% (works) based on common technical practices. The summary Project costs have been presented in Volume I of the Appraisal Report, sub-section 2.4. The Detailed Cost Tables (DCTs) summary is indicated in Table B.2.2 and details are indicated in Tables B.2.3 to B.2.10 which have been aligned to the Project's sub-components for ease of implementation and also revision of List of Goods and Services (LOGS), when need arises. For instance, “**Detailed Cost Table #1**” reflects the costs for **Sub-component 1.1 “Irrigation Development”**, as per the Table-title, and so on. It should be noted that each DCT has been presented in two tables (say Table B.2.3a and Table B.2.3b). The first one (Table 2.3a) has ZMW and UA costs including price contingencies and physical contingency rates whilst the second one (Table 2.3b) has ZMW and UA costs including other accounts (disbursement account, financing rule, procurement account, and procurement method). *The DCTs should be read together with Technical Annex C.9 (Additional Technical Annexes – Project Components 1, 2 and 3) for descriptive summary.*

Table B.2.1: Sources of Financing (Amount in UA and USD million)

Source of Financing	Total Amount (UA and USD million) and Percentage Contribution (%)								
	Local			Foreign			Total		
	UA	USD	%	UA	USD	%	UA	USD	%
GAFSP Grant	6.04	9.15	70.9	14.50	21.97	100.0	20.54	31.12	89.3
Government	2.38	3.61	28.0	-	-	-	2.38	3.61	10.3
Beneficiaries	0.09	0.14	1.1	-	-	-	0.09	0.14	0.4
Total	8.51	12.90	100.0	14.50	21.97	100.0	23.01	34.87	100.0

Table B.2.2: Summary of Detailed Cost Tables 1 to 8

Zambia GAFSP APMEP Components and Detailed Cost Tables	Cost (UA million)	Cost (USD million)	%
Component 1 Agriculture Production and Productivity			
Table 1. Irrigation Development	12.69	19.23	55.2
Table 2. Crop Diversification and Intensification	0.95	1.44	4.1
Table 3. Livestock Development	0.89	1.35	3.9
Sub-total Component 1	14.53	22.02	63.2
Component 2 Value Chain Development and Market Linkages			
Table 4. Agro-processing Infrastructure Development	2.51	3.80	10.9
Table 5. Market Linkages	1.45	2.20	6.3
Sub-total Component 2	3.96	6.00	17.2
Component 3: Institutional Strengthening			
Table 6. Nutrition Security and Capacity Building	1.92	2.91	8.3
Table 7. Project Management	1.32	2.00	5.7
Table 8. Monitoring and Evaluation	1.28	1.94	5.6
Sub-total Component 3	4.52	6.85	19.6
Project Total	23.01	34.87	100.0

Table B.2.3a Detailed Cost Table #1a Sub-Component 1.1: Irrigation Development

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. WORKS																				
1. Irrigation Scheme Development																				
Provincial Review of Scheme Reports/Drawings	No	1	-	-	-	-	1	80.00	9.6	-	-	-	-	9.6	10.4	-	-	-	-	10.4
Preparatory Activities (Farmer Mobilisation) /a	No	13	-	-	-	-	13	80.00	125.3	-	-	-	-	125.3	134.9	-	-	-	-	134.9
Development of Small-scale Irrigation Schemes /b	Ha	232	600	1,000	400	-	2,232	33.00	922.6	2,386.1	3,976.8	1,590.7	-	8,876.2	1,025.0	2,704.0	4,596.7	1,875.5	-	10,201.2
Community Mini-scale Irrigation Schemes (<20ha each) /c	No	100	300	300	195	-	895	3.30	39.8	119.3	119.3	77.5	-	355.9	44.2	135.2	137.9	91.4	-	408.7
Watershed Management (GAFSP)	No	-	1	1	1	-	3	20.00	-	2.4	2.4	2.4	-	7.2	-	2.7	2.9	3.0	-	8.6
Watershed Management (Beneficiaries) /d	LS	-	1	1	1	1	4	4.00	-	0.5	0.5	0.5	0.5	1.9	-	0.5	0.6	0.6	0.6	2.3
Environmental Mitigation Activities (ESMP)	LS	1	1	1	1	1	5	20.00	2.4	2.4	2.4	2.4	2.4	12.1	2.6	2.7	2.9	3.0	3.2	14.3
Subtotal									1,099.8	2,510.7	4,101.4	1,673.6	2.9	9,388.3	1,217.1	2,845.1	4,740.9	1,973.5	3.8	10,780.4
2. Aquaculture (Fish Farming) /e																				
Aqua-Preparatory & Operation Activities /f	No	0.4	0.6	-	-	-	1	70.00	3.4	5.1	-	-	-	8.4	3.6	5.7	-	-	-	9.4
Fish Pens Establishment (Incl Equipment) /g	No	80	100	100	-	-	280	3.00	28.9	36.2	36.2	-	-	101.2	32.6	42.8	44.9	-	-	120.4
Fish Cages Establishment (Incl equipment) /h	No	40	100	200	-	-	340	5.00	24.1	60.3	120.5	-	-	204.9	26.8	68.3	139.3	-	-	234.4
Subtotal									56.4	101.5	156.7	-	-	314.5	63.0	116.8	184.2	-	-	364.1
Subtotal									1,156.2	2,612.2	4,258.1	1,673.6	2.9	9,702.9	1,280.1	2,962.0	4,925.2	1,973.5	3.8	11,144.5
B. GOODS																				
1. Vehicles																				
Double Cab 4x4 Motorvehicles	No	1	-	-	-	-	1	280.00	33.7	-	-	-	-	33.7	35.8	-	-	-	-	35.8
Motorcycles (off-road)	No	6	-	-	-	-	6	35.00	25.3	-	-	-	-	25.3	26.8	-	-	-	-	26.8
Subtotal									59.0	-	-	-	-	59.0	62.6	-	-	-	-	62.6
C. SERVICES																				
1. Consultancy																				
Supervision of Scheme Construction /i	Per Month	6	12	12	12	6	48	80.00	57.8	115.7	115.7	115.7	57.8	462.8	62.3	130.7	137.3	144.1	75.7	550.1
Aquaculture Development /j	Per Month	-	2	-	-	-	2	80.00	-	19.3	-	-	-	19.3	-	21.4	-	-	-	21.4
Environmentalist (Site Specific Project Briefs & ESMPs) /k	Per Month	-	2	2	2	-	6	79.00	-	19.0	19.0	19.0	-	57.1	-	21.5	22.6	23.7	-	67.8
Subtotal									57.8	154.0	134.7	134.7	57.8	539.2	62.3	173.6	159.9	167.9	75.7	639.3
2. Training and Other Activities /l																				
Staff Training in Irrigation Water Management	Session	-	-	2	2	-	4	41.00	-	-	9.9	9.9	-	19.8	-	-	11.7	12.3	-	24.0
Staff Training in Irrigation Scheme O&M	Session	-	-	2	2	-	4	41.00	-	-	9.9	9.9	-	19.8	-	-	11.7	12.3	-	24.0
Farmer Training in Irrigation Water Management	Session	-	-	3	3	-	6	35.00	-	-	12.7	12.7	-	25.3	-	-	15.0	15.8	-	30.8
Farmer Training in Irrigation Scheme O&M	Session	-	-	6	6	-	12	35.00	-	-	25.3	25.3	-	50.6	-	-	30.0	31.5	-	61.6
Establishment of Scheme Management Entity /m	LS	-	1	1	0.8	0.2	3	110.00	-	13.3	13.3	10.6	2.7	39.8	-	15.0	15.7	13.2	3.5	47.4
Staff Training in Aquaculture /n	Session	-	2	2	-	-	4	41.00	-	9.9	9.9	-	-	19.8	-	11.2	11.7	-	-	22.9
Farmer Training in Aquaculture	Session	-	2	2	2	-	6	35.00	-	8.4	8.4	8.4	-	25.3	-	9.5	10.0	10.5	-	30.1
Subtotal									-	31.6	89.3	76.8	2.7	200.3	-	35.7	106.0	95.6	3.5	240.7
Subtotal									57.8	185.6	224.0	211.5	60.5	739.4	62.3	209.3	265.8	263.5	79.1	880.0
Total Investment Costs									1,273.1	2,797.7	4,482.1	1,885.1	63.4	10,501.4	1,405.0	3,171.3	5,191.0	2,237.0	82.9	12,087.1

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
MAL Senior Staff	P/Month	12	12	12	12	12	60	10.00	14.5	14.5	14.5	14.5	14.5	72.3	14.8	15.6	16.3	17.2	18.0	81.9
Middle & Junior Staff	P/Month	48	48	48	48	48	240	7.47	43.2	43.2	43.2	43.2	43.2	215.9	44.3	46.5	48.8	51.2	53.8	244.6
MAL Support Staff	P/Month	36	36	36	36	36	180	5.00	21.7	21.7	21.7	21.7	21.7	108.5	22.2	23.3	24.5	25.7	27.0	122.9
Subtotal									79.3	79.3	79.3	79.3	79.3	396.7	81.3	85.4	89.7	94.1	98.8	449.3
B. DAILY SUBSISTENCE ALLOWANCES																				
All Participating Staff	Per_Night	140	140	140	140	140	700	0.80	13.5	13.5	13.5	13.5	13.5	67.5	14.5	15.3	16.0	16.8	17.7	80.3
C. OPERATION AND MAINTENANCE																				
1. Irrigation Infrastructure O&M																				
All Irrigation Schemes /o	Ha	-	300	300	1,000	410	2,010	0.01	-	0.4	0.4	1.2	0.5	2.4	-	0.4	0.4	1.5	0.6	3.0
Aquaculture Infrastructure O&M	No	100	420	600	500	500	2,120	0.03	0.4	1.5	2.2	1.8	1.8	7.7	0.4	1.7	2.6	2.3	2.4	9.3
O&M for Irrigation Infrastructure /p	LS	-	-	-	1	1	2	40.00	-	-	-	4.8	4.8	9.6	-	-	-	6.0	6.3	12.3
Subtotal									0.4	1.9	2.5	7.8	7.1	19.7	0.4	2.1	3.0	9.8	9.3	24.6
2. Vehicles O&M /q																				
Motorvehicles 4x4 Doublecab /r	LS	6	6	6	6	6	30	10.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
Motorcycles Offroad /s	No	12	12	12	12	12	60	0.30	0.4	0.4	0.4	0.4	0.4	2.2	0.5	0.5	0.5	0.5	0.6	2.6
Subtotal									7.7	7.7	7.7	7.7	7.7	38.3	8.2	8.7	9.1	9.5	10.0	45.6
Subtotal									8.0	9.5	10.2	15.5	14.8	58.0	8.6	10.8	12.1	19.3	19.3	70.2
Total Recurrent Costs									100.9	102.4	103.0	108.3	107.6	522.2	104.5	111.4	117.8	130.3	135.8	599.8
Total									1,373.9	2,900.1	4,585.1	1,993.4	171.0	11,023.6	1,509.4	3,282.7	5,308.7	2,367.3	218.8	12,686.9

la Including Formation of Farmer Organisations (Associations or Cooperatives)

lb Expansion/construction of small-scale irrigation schemes.

lc For communal management, targetting resource-poor rural farmers. Includes fees for NGO and provision of manual irrigation equipment.

ld Beneficiary in-kind contribution to complement the GAFSP funds.

le The aqua-item costs include all associated equipment.

lf Including infrastructure designs and installation costs of fish-processing equipment.

lg Including procurement of equipment for pens.

lh Including procurement of equipment (cages).

li Long term individual consultant with defined inputs

lj Short-term consultancy with predefined inputs (locally recruited staff)

lk Individual Consultant (Environmentalist): Short-term consultant with predefined inputs. To include environmental monitoring

ll To be conducted at local training institutions (cost to cover DSA, fuel and training venue)

lm For all 10 small-scale irrigation schemes.

ln 1 session/Province/year

lo Beneficiary contribution as per Government requirement.

lp GAFSP Grant

lq Includes Project and also GRZ vehicles & motorcycles dedicated to planned activities.

lr Including 5 existing Govt vehicles.

ls Including 6 existing Govt Motorcycles

Table B.2.3b Detailed Cost Table #1b

Sub-Component 1.1: Irrigation Development (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts				
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	
I. Investment Costs													
A. WORKS													
1. Irrigation Scheme Development													
Provincial Review of Scheme Reports/Drawings	10.4	-	-	-	-	10.4	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Preparatory Activities (Farmer Mobilisation) /a	134.9	-	-	-	-	134.9	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Development of Small-scale Irrigation Schemes /b	1,025.0	2,704.0	4,596.7	1,875.5	-	10,201.2	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	NCB_PM (100%)	
Community Mini-scale Irrigation Schemes (<20ha each) /c	44.2	135.2	137.9	91.4	-	408.7	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Watershed Management (GAFSP)	-	2.7	2.9	3.0	-	8.6	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Watershed Management (Beneficiaries) /d	-	0.5	0.6	0.6	0.6	2.3	5.0	0.0	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Environmental Mitigation Activities (ESMP)	2.6	2.7	2.9	3.0	3.2	14.3	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Subtotal	1,217.1	2,845.1	4,740.9	1,973.5	3.8	10,780.4							
2. Aquaculture (Fish Farming) /e													
Aqua-Preparatory & Operation Activities /f	3.6	5.7	-	-	-	9.4	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Fish Pens Establishment (Incl Equipment) /g	32.6	42.8	44.9	-	-	120.4	10.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Fish Cages Establishment (Incl equipment) /h	26.8	68.3	139.3	-	-	234.4	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)	
Subtotal	63.0	116.8	184.2	-	-	364.1							
Subtotal	1,280.1	2,962.0	4,925.2	1,973.5	3.8	11,144.5							
B. GOODS													
1. Vehicles													
Double Cab 4x4 Motorvehicles	35.8	-	-	-	-	35.8	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)	
Motorcycles (off-road)	26.8	-	-	-	-	26.8	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)	
Subtotal	62.6	-	-	-	-	62.6							
C. SERVICES													
1. Consultancy													
Supervision of Scheme Construction /i	62.3	130.7	137.3	144.1	75.7	550.1	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)	
Aquaculture Development /j	-	21.4	-	-	-	21.4	3.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)	
Environmentalist (Site Specific Project Briefs & ESMPs) /k	-	21.5	22.6	23.7	-	67.8	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)	
Subtotal	62.3	173.6	159.9	167.9	75.7	639.3							
2. Training and Other Activities /l													
Staff Training in Irrigation Water Management	-	-	11.7	12.3	-	24.0	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Staff Training in Irrigation Scheme O&M	-	-	11.7	12.3	-	24.0	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Farmer Training in Irrigation Water Management	-	-	15.0	15.8	-	30.8	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Farmer Training in Irrigation Scheme O&M	-	-	30.0	31.5	-	61.6	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Establishment of Scheme Management Entity /m	-	15.0	15.7	13.2	3.5	47.4	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Staff Training in Aquaculture /n	-	11.2	11.7	-	-	22.9	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Farmer Training in Aquaculture	-	9.5	10.0	10.5	-	30.1	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Subtotal	-	35.7	106.0	95.6	3.5	240.7							
Subtotal	62.3	209.3	265.8	263.5	79.1	880.0							
Total Investment Costs	1,405.0	3,171.3	5,191.0	2,237.0	82.9	12,087.1							

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts				
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
MAL Senior Staff	14.8	15.6	16.3	17.2	18.0	81.9	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Middle & Junior Staff	44.3	46.5	48.8	51.2	53.8	244.6	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
MAL Support Staff	22.2	23.3	24.5	25.7	27.0	122.9	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Subtotal	81.3	85.4	89.7	94.1	98.8	449.3							
B. DAILY SUBSISTENCE ALLOWANCES													
All Participating Staff	14.5	15.3	16.0	16.8	17.7	80.3	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
C. OPERATION AND MAINTENANCE													
1. Irrigation Infrastructure O&M													
All Irrigation Schemes /o	-	0.4	0.4	1.5	0.6	3.0	5.0	0.0	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	NBF_PM (100%)	
Aquaculture Infrastructure O&M	0.4	1.7	2.6	2.3	2.4	9.3	5.0	0.0	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	NBF_PM (100%)	
O&M for Irrigation Infrastructure /p	-	-	-	6.0	6.3	12.3	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Subtotal	0.4	2.1	3.0	9.8	9.3	24.6							
2. Vehicles O&M /q													
Motorvehicles 4x4 Doublecab /r	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Motorcycles Offroad /s	0.5	0.5	0.5	0.5	0.6	2.6	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Subtotal	8.2	8.7	9.1	9.5	10.0	45.6							
Subtotal	8.6	10.8	12.1	19.3	19.3	70.2							
Total Recurrent Costs	104.5	111.4	117.8	130.3	135.8	599.8							
Total	1,509.4	3,282.7	5,308.7	2,367.3	218.8	12,686.9							

la Including Formation of Farmer Organisations (Associations or Cooperatives)

lb Expansion/construction of small-scale irrigation schemes.

lc For communal management, targeting resource-poor rural farmers. Includes fees for NGO and provision of manual irrigation equipment.

ld Beneficiary in-kind contribution to complement the GAFSP funds.

le The aqua-item costs include all associated equipment.

lf Including infrastructure designs and installation costs of fish-processing equipment.

lg Including procurement of equipment for pens.

lh Including procurement of equipment (cages).

li Long term individual consultant with defined inputs

lj Short-term consultancy with predefined inputs (locally recruited staff)

lk Individual Consultant (Environmentalist): Short-term consultant with predefined inputs. To include environmental monitoring

ll To be conducted at local training institutions (cost to cover DSA, fuel and training venue)

lm For all 10 small-scale irrigation schemes.

ln 1 session/Province/year

lo Beneficiary contribution as per Government requirement.

lp GAFSP Grant

lq Includes Project and also GRZ vehicles & motorcycles dedicated to planned activities.

lr Including 5 existing Govt vehicles.

ls Including 6 existing Govt Motorcycles

Table B.2.4a Detailed Cost Table #2a:

Sub-Component 1.2: Crop Diversification and Intensification

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. WORKS																				
1. Rainfed Agriculture and Good Agric Practices																				
Support Farm Mechanisation	LS	-	0.2	0.2	0.3	0.3	1	80.00	-	1.9	1.9	2.9	2.9	9.6	-	2.2	2.3	3.6	3.8	11.9
Conservation Farming /a	Ha	300	1,000	1,000	1,000	1,000	4,300	0.09	3.3	10.8	10.8	10.8	10.8	46.6	3.5	12.3	12.9	13.5	14.2	56.3
Subtotal									3.3	12.8	12.8	13.7	13.7	56.3	3.5	14.4	15.2	17.1	18.0	68.2
2. Crop Diversification /b																				
Support Crop Diversification	Ha	1,600	700	1,000	2,000	1,000	6,300	0.01	1.9	0.8	1.2	2.4	1.2	7.6	2.1	1.0	1.4	2.8	1.4	8.8
3. Crop Intensification																				
Crop Intensification incl e-voucher	Ha	700	1,500	1,500	1,500	1,500	6,700	0.05	4.2	9.0	9.0	9.0	9.0	40.4	4.5	10.2	10.7	11.3	11.8	48.6
Subtotal									9.4	22.7	23.0	25.2	24.0	104.2	10.2	25.6	27.3	31.2	31.2	125.5
B. GOODS																				
1. Equipment																				
Seeds (various)	Packages	500	5,000	8,000	-	-	13,500	0.01	0.6	6.0	9.6	-	-	16.3	0.6	6.8	11.4	-	-	18.9
Farm Mechanisation Equipment	Set	8	-	-	-	-	8	200.00	192.8	-	-	-	-	192.8	207.5	-	-	-	-	207.5
Subtotal									193.4	6.0	9.6	-	-	209.1	208.2	6.8	11.4	-	-	226.4
Total Investment Costs									202.8	28.7	32.7	25.2	24.0	313.3	218.3	32.4	38.7	31.2	31.2	351.9
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
MAL Senior Staff	P/Month	12	12	12	12	12	60	10.00	14.5	14.5	14.5	14.5	14.5	72.3	14.8	15.6	16.3	17.2	18.0	81.9
MAL Middle & Junior Staff	P/Month	60	60	60	60	60	300	7.47	54.0	54.0	54.0	54.0	54.0	269.9	55.3	58.1	61.0	64.0	67.2	305.7
MAL Support Staff	P/Month	24	24	24	24	24	120	5.00	14.5	14.5	14.5	14.5	14.5	72.3	14.8	15.6	16.3	17.2	18.0	81.9
Subtotal									82.9	82.9	82.9	82.9	82.9	414.5	85.0	89.2	93.7	98.4	103.3	469.5
B. DAILY SUBSISTENCE ALLOWANCES																				
All Participating Staff	Per_Night	150	150	150	150	150	750	0.80	14.5	14.5	14.5	14.5	14.5	72.3	14.8	15.6	16.3	17.2	18.0	81.9
C. OPERATION AND MAINTENANCE																				
1. Vehicles O&M																				
Motorvehicles 4x4 Double Cab /c	No	5	5	5	5	5	25	13.00	7.8	7.8	7.8	7.8	7.8	39.2	8.4	8.9	9.3	9.8	10.2	46.6
Total Recurrent Costs									105.2	105.2	105.2	105.2	105.2	526.0	108.2	113.6	119.3	125.3	131.5	598.0
Total									308.0	133.9	137.9	130.4	129.2	839.3	326.6	146.0	158.0	156.5	162.8	949.9
/a Includes activities under good practices.																				
/b Crops: Soya beans, sunflower, sorghum, groundnuts, cowpeas, vitamin A maize and orange fleshed sweet potatoes.																				
/c To include Government vehicles on Project activities																				

Table B.2.4b Detailed Cost Table #2b:

Sub-Component 1.2: Crop Diversification and Intensification (with Other Accounts)

Item Description	Unit	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs													
A. WORKS													
1. Rainfed Agriculture and Good Agric Practices													
Support Farm Mechanisation	LS	-	2.2	2.3	3.6	3.8	11.9	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
Conservation Farming /a	Ha	3.5	12.3	12.9	13.5	14.2	56.3	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
Subtotal		3.5	14.4	15.2	17.1	18.0	68.2						
2. Crop Diversification /b													
Support Crop Diversification	Ha	2.1	1.0	1.4	2.8	1.4	8.8	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
3. Crop Intensification													
Crop Intensification incl e-voucher	Ha	4.5	10.2	10.7	11.3	11.8	48.6	5.0	0.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
Subtotal		10.2	25.6	27.3	31.2	31.2	125.5						
B. GOODS													
1. Equipment													
Seeds (various)	Packages	0.6	6.8	11.4	-	-	18.9	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)
Farm Mechanisation Equipment	Set	207.5	-	-	-	-	207.5	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
Subtotal		208.2	6.8	11.4	-	-	226.4						
Total Investment Costs		218.3	32.4	38.7	31.2	31.2	351.9						
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
MAL Senior Staff	P/Month	14.8	15.6	16.3	17.2	18.0	81.9	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
MAL Middle & Junior Staff	P/Month	55.3	58.1	61.0	64.0	67.2	305.7	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
MAL Support Staff	P/Month	14.8	15.6	16.3	17.2	18.0	81.9	0.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Subtotal		85.0	89.2	93.7	98.4	103.3	469.5						
B. DAILY SUBSISTENCE ALLOWANCES													
All Participating Staff	Per_Night	14.8	15.6	16.3	17.2	18.0	81.9	0.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE													
1. Vehicles O&M													
Motorvehicles 4x4 Double Cab /c	No	8.4	8.9	9.3	9.8	10.2	46.6	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Total Recurrent Costs		108.2	113.6	119.3	125.3	131.5	598.0						
Total		326.6	146.0	158.0	156.5	162.8	949.9						
/a Includes activities under good practices.													
/b Crops: Soya beans, sunflower, sorghum, groundnuts, cowpeas, vitamin A maize and orange fleshed sweet potatoes.													
/c To include Government vehicles on Project activities													

Table B.2.5a Detailed Cost Table #3a:

Sub-Component 1.3: Livestock Development

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. GOODS																				
1. Equipment																				
Thermal Stable Newcastle Vaccine /a	No	4,000	8,000	4,000	-	-	16,000	0.01	2.4	4.8	2.4	-	-	9.6	2.6	5.4	2.9	-	-	10.9
Newcastle Disease Diagnostic Equipment	Set	12	-	-	-	-	12	10.00	14.5	-	-	-	-	14.5	15.6	-	-	-	-	15.6
Start-up Drug Boxes for CAHW and CLAs	Set	-	88	-	-	-	88	3.00	-	31.8	-	-	-	31.8	-	36.0	-	-	-	36.0
Subtotal									16.9	36.6	2.4	-	-	55.9	18.2	41.4	2.9	-	-	62.4
2. Vehicles																				
Bicycles (Push Bikes) /b	No	-	60	60	-	-	120	1.00	-	7.2	7.2	-	-	14.5	-	8.2	8.6	-	-	16.8
Motorcycles (off-road) /c	No	6	-	-	-	-	6	35.00	25.3	-	-	-	-	25.3	27.2	-	-	-	-	27.2
Subtotal									25.3	7.2	7.2	-	-	39.8	27.2	8.2	8.6	-	-	44.0
Subtotal									42.2	43.9	9.6	-	-	95.7	45.4	49.6	11.4	-	-	106.4
B. SERVICES																				
1. Consultancy																				
NGO - Livestock Pass-on Scheme /d	LS	0.2	0.4	0.4	-	-	1	2,100.00	50.6	101.2	101.2	-	-	253.1	52.1	106.4	108.5	-	-	267.0
2. Training and Other Activities																				
Preparatory Activities (Farmer Mobilisation)	LS	0.4	0.6	-	-	-	1	80.00	3.9	5.8	-	-	-	9.6	4.1	6.4	-	-	-	10.5
Poultry Distribution and Management /e	LS	1	1	1	1	1	5	80.00	9.6	9.6	9.6	9.6	9.6	48.2	10.2	10.7	11.2	11.8	12.4	56.2
Staff Training - Livestock (CAHW and CLA) /f	No	3	3	-	-	-	6	41.00	14.8	14.8	-	-	-	29.6	15.6	16.4	-	-	-	32.1
Farmer Training - Livestock (various)	Session	4	4	4	4	-	16	35.00	16.9	16.9	16.9	16.9	-	67.5	17.8	18.7	19.6	20.6	-	76.8
Vaccination Campaign and Surveillance /g	LS	1	1	1	1	1	5	100.00	12.1	12.1	12.1	12.1	12.1	60.3	12.7	13.4	14.0	14.7	15.5	70.3
Subtotal									57.2	59.2	38.6	38.6	21.7	215.2	60.4	65.6	44.9	47.1	27.8	245.9
Subtotal									107.9	160.4	139.8	38.6	21.7	468.3	112.6	172.0	153.4	47.1	27.8	512.9
Total Investment Costs									150.0	204.3	149.4	38.6	21.7	564.0	158.0	221.5	164.8	47.1	27.8	619.3
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
MAL Senior Staff	Per Month	6	6	6	6	6	30	10.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
MAL Middle and Junior Staff	Per Month	12	12	12	12	12	60	7.47	10.8	10.8	10.8	10.8	10.8	54.0	11.6	12.2	12.8	13.4	14.1	64.2
MAL Support Staff	Per Month	12	12	12	12	12	60	5.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
Subtotal									25.3	25.3	25.3	25.3	25.3	126.3	27.2	28.5	30.0	31.5	33.0	150.2
B. DAILY SUBSISTENCE ALLOWANCES																				
All Participating Staff	Per_Night	150	150	150	150	150	750	0.80	14.5	14.5	14.5	14.5	14.5	72.3	15.6	16.3	17.2	18.0	18.9	86.0
C. OPERATION AND MAINTENANCE																				
1. Vehicles O&M																				
Motorcycle O&M	No	6	6	6	6	6	30	0.30	0.2	0.2	0.2	0.2	0.2	1.1	0.2	0.2	0.3	0.3	0.3	1.3
Motorvehicles 4x4 Double Cab	No	3	3	3	3	3	15	13.00	4.7	4.7	4.7	4.7	4.7	23.5	5.1	5.3	5.6	5.9	6.1	27.9
Subtotal									4.9	4.9	4.9	4.9	4.9	24.6	5.3	5.6	5.9	6.1	6.5	29.3
Total Recurrent Costs									44.6	44.6	44.6	44.6	44.6	223.2	48.0	50.4	53.0	55.6	58.4	265.5
Total									194.7	248.9	194.1	83.2	66.3	787.2	206.0	272.0	217.8	102.8	86.2	884.8

/a Total Doses 16,000. To be outsourced to Government's Central Veterinary Research Institute (CVRI-Balmoral)

/b For Women Groups Livestock Pass-on Scheme

/c 1 per participating District (Livestock).

/d All activities including training and procurement of small-stock (goats & sheep) and dairy animals for women/youth groups.

/e Including procurement of local chickens for women/youth groups.

/f Including procurement of drug boxes

/g Newcastle Disease (Local/village Chickens).

Table B.2.5b Detailed Cost Table #3b:

Sub-Component 1.3: Livestock Development (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts				
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	
I. Investment Costs													
A. GOODS													
1. Equipment													
Thermal Stable Newcastle Vaccine /a	2.6	5.4	2.9	-	-	10.9	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)	
Newcastle Disease Diagnostic Equipment	15.6	-	-	-	-	15.6	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)	
Start-up Drug Boxes for CAHW and CLAs	-	36.0	-	-	-	36.0	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)	
Subtotal	18.2	41.4	2.9	-	-	62.4							
2. Vehicles													
Bicycles (Push Bikes) /b	-	8.2	8.6	-	-	16.8	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	OTHER_PM (100%)	
Motorcycles (off-road) /c	27.2	-	-	-	-	27.2	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)	
Subtotal	27.2	8.2	8.6	-	-	44.0							
Subtotal	45.4	49.6	11.4	-	-	106.4							
B. SERVICES													
1. Consultancy													
NGO - Livestock Pass-on Scheme /d	52.1	106.4	108.5	-	-	267.0	2.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)	
2. Training and Other Activities													
Preparatory Activities (Farmer Mobilisation)	4.1	6.4	-	-	-	10.5	3.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Poultry Distribution and Management /e	10.2	10.7	11.2	11.8	12.4	56.2	3.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Staff Training - Livestock (CAHW and CLA) /f	15.6	16.4	-	-	-	32.1	3.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Farmer Training - Livestock (various)	17.8	18.7	19.6	20.6	-	76.8	3.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Vaccination Campaign and Surveillance /g	12.7	13.4	14.0	14.7	15.5	70.3	3.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Subtotal	60.4	65.6	44.9	47.1	27.8	245.9							
Subtotal	112.6	172.0	153.4	47.1	27.8	512.9							
Total Investment Costs	158.0	221.5	164.8	47.1	27.8	619.3							
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
MAL Senior Staff	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
MAL Middle and Junior Staff	11.6	12.2	12.8	13.4	14.1	64.2	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
MAL Support Staff	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Subtotal	27.2	28.5	30.0	31.5	33.0	150.2							
B. DAILY SUBSISTENCE ALLOWANCES													
All Participating Staff	15.6	16.3	17.2	18.0	18.9	86.0	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
C. OPERATION AND MAINTENANCE													
1. Vehicles O&M													
Motorcycle O&M	0.2	0.2	0.3	0.3	0.3	1.3	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Motorvehicles 4x4 Double Cab	5.1	5.3	5.6	5.9	6.1	27.9	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Subtotal	5.3	5.6	5.9	6.1	6.5	29.3							
Total Recurrent Costs	48.0	50.4	53.0	55.6	58.4	265.5							
Total	206.0	272.0	217.8	102.8	86.2	884.8							

/a Total Doses 16,000. To be outsourced to Government's Central Veterinary Research Institute (CVRI-Balmoral)

/b For Women Groups Livestock Pass-on Scheme

/c 1 per participating District (Livestock).

/d All activities including training and procurement of small-stock (goats & sheep) and dairy animals for women/youth groups.

/e Including procurement of local chickens for women/youth groups.

/f Including procurement of drug boxes

/g Newcastle Disease (Local/village Chickens).

Table B.2.6a Detailed Cost Table #4 a Sub-Component 2.1: Agro-processing Infrastructure Development

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. WORKS																				
1. Construction of Agro-Processing Structures /a																				
Maize/Feed Mill Establishment	No	0.5	0.5	1	-	-	2	1,800.00	108.5	108.5	216.9	-	-	433.8	120.5	122.9	250.7	-	-	494.1
Cassava Mill Establishment /b	No	0.5	0.5	1	-	-	2	360.00	21.7	21.7	43.4	-	-	86.8	24.1	24.6	50.1	-	-	98.8
Subtotal									130.2	130.2	260.3	-	-	520.6	144.6	147.5	300.9	-	-	593.0
B. GOODS																				
1. Equipment (Community-Level Value Addition) /c																				
Honey Presses	No	-	20	20	-	-	40	40.00	-	96.4	96.4	-	-	192.8	-	108.9	114.4	-	-	223.3
Solar Dryers (Fruit & Vegetables)	No	10	40	20	-	-	70	80.00	96.4	385.6	192.8	-	-	674.9	102.2	417.1	212.7	-	-	732.1
Subtotal									96.4	482.0	289.2	-	-	867.7	102.2	526.1	327.1	-	-	955.5
C. SERVICES																				
1. Training and Other Activities																				
Support Comm-Level Value Addition Activities	LS	1	1	1	1	-	4	80.00	9.6	9.6	9.6	9.6	-	38.6	10.4	10.9	11.4	12.0	-	44.7
Women/Youth Groups Training (various)	Session	12	12	12	12	-	48	1.00	1.4	1.4	1.4	1.4	-	5.8	1.6	1.6	1.7	1.8	-	6.7
Agro-Dealer Support & Matching Grant	LS	12	12	12	12	12	60	30.00	43.4	43.4	43.4	43.4	43.4	216.9	46.7	49.0	51.5	54.1	56.8	258.0
Subtotal									54.5	54.5	54.5	54.5	43.4	261.3	58.6	61.6	64.6	67.9	56.8	309.4
2. Consultancy																				
Agro-processing and Value Chain /d	Per Month	-	3	3	-	-	6	79.00	-	28.6	28.6	-	-	57.1	-	30.9	31.5	-	-	62.4
Subtotal									54.5	83.0	83.0	54.5	43.4	318.4	58.6	92.4	96.1	67.9	56.8	371.8
Total Investment Costs									281.0	695.2	632.6	54.5	43.4	1,706.7	305.5	766.0	724.2	67.9	56.8	1,920.3
II. Recurrent Costs																				
A. OPERATION AND MAINTENANCE																				
1. Agro-Processing Equipment																				
Maize/Feed and Cassava Mills	LS	-	-	-	1	1	2	3.00	-	-	-	0.4	0.4	0.7	-	-	-	0.5	0.5	0.9
Maize and Cassava Mills O&M (GAFSP)	LS	-	-	4	4	4	12	60.00	-	-	28.9	28.9	28.9	86.8	-	-	34.3	36.0	37.8	108.2
Community-Level Value Addition Equipment	LS	-	20	180	180	180	560	0.89	-	2.1	19.3	19.3	19.3	60.1	-	2.4	22.9	24.1	25.3	74.6
Subtotal									-	2.1	48.2	48.6	48.6	147.6	-	2.4	57.2	60.5	63.6	183.8
2. Vehicles O&M																				
Motorvehicles 4x4 Double Cab /e	No	3	3	3	3	3	15	13.00	4.7	4.7	4.7	4.7	4.7	23.5	5.1	5.3	5.6	5.9	6.1	27.9
Subtotal									4.7	6.8	52.9	53.3	53.3	171.1	5.1	7.7	62.8	66.4	69.7	211.7
B. PERSONNEL (Salaries)																				
MAL Senior Staff	Per Month	12	12	12	12	12	60	10.00	14.5	14.5	14.5	14.5	14.5	72.3	15.6	16.3	17.2	18.0	18.9	86.0
MAL Middle and Junior Staff	Per Month	24	24	24	24	24	120	7.47	21.6	21.6	21.6	21.6	21.6	108.0	23.2	24.4	25.6	26.9	28.2	128.4
MAL Support Staff	Per Month	14	14	14	14	14	70	5.00	8.4	8.4	8.4	8.4	8.4	42.2	9.1	9.5	10.0	10.5	11.0	50.2
Subtotal									44.5	44.5	44.5	44.5	44.5	222.4	47.9	50.3	52.8	55.4	58.2	264.6
C. DAILY SUBSISTENCE ALLOWANCES																				
All Participating Staff	Per_Night	200	200	200	200	200	1,000	0.80	19.3	19.3	19.3	19.3	19.3	96.4	20.8	21.8	22.9	24.0	25.2	114.7
Total Recurrent Costs									68.5	70.6	116.7	117.1	117.1	489.9	73.7	79.8	138.5	145.8	153.1	590.9
Total									349.5	765.8	749.3	171.5	160.4	2,196.5	379.1	845.8	862.6	213.7	209.9	2,511.2

/a Total Cost includes Civil Works and Equipment/Mills

/b 1 in Rufunsa & 1 in Serenje District.

/c For Women and Youth Groups. Similar equipment can be bought in bulk, based on demand. Beneficiaries will provide in-kind the necessary housing/structures.

/d Individual Consultant (inputs in months per year)

/e Including Govt vehicles.

Table B.2.6b Detailed Cost Table #4b Sub-Component 2.1: Agro-processing Infrastructure Development (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts			
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs												
A. WORKS												
1. Construction of Agro-Processing Structures /a												
Maize/Feed Mill Establishment	120.5	122.9	250.7	-	-	494.1	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	NCB_PM (100%)
Cassava Mill Establishment /b	24.1	24.6	50.1	-	-	98.8	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	NCB_PM (100%)
Subtotal	144.6	147.5	300.9	-	-	593.0						
B. GOODS												
1. Equipment (Community-Level Value Addition) /c												
Honey Presses	-	108.9	114.4	-	-	223.3	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)
Solar Dryers (Fruit & Vegetables)	102.2	417.1	212.7	-	-	732.1	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
Subtotal	102.2	526.1	327.1	-	-	955.5						
C. SERVICES												
1. Training and Other Activities												
Support Comm-Level Value Addition Activities	10.4	10.9	11.4	12.0	-	44.7	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Women/Youth Groups Training (various)	1.6	1.6	1.7	1.8	-	6.7	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Agro-Dealer Support & Matching Grant	46.7	49.0	51.5	54.1	56.8	258.0	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Subtotal	58.6	61.6	64.6	67.9	56.8	309.4						
2. Consultancy												
Agro-processing and Value Chain /d	-	30.9	31.5	-	-	62.4	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)
Subtotal	58.6	92.4	96.1	67.9	56.8	371.8						
Total Investment Costs	305.5	766.0	724.2	67.9	56.8	1,920.3						
II. Recurrent Costs												
A. OPERATION AND MAINTENANCE												
1. Agro-Processing Equipment												
Maize/Feed and Cassava Mills	-	-	-	0.5	0.5	0.9	5.0	0.0	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	NBF_PM (100%)
Maize and Cassava Mills O&M (GAFSP)	-	-	34.3	36.0	37.8	108.2	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Community-Level Value Addition Equipment	-	2.4	22.9	24.1	25.3	74.6	5.0	0.0	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	NBF_PM (100%)
Subtotal	-	2.4	57.2	60.5	63.6	183.8						
2. Vehicles O&M												
Motorvehicles 4x4 Double Cab /e	5.1	5.3	5.6	5.9	6.1	27.9	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Subtotal	5.1	7.7	62.8	66.4	69.7	211.7						
B. PERSONNEL (Salaries)												
MAL Senior Staff	15.6	16.3	17.2	18.0	18.9	86.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
MAL Middle and Junior Staff	23.2	24.4	25.6	26.9	28.2	128.4	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
MAL Support Staff	9.1	9.5	10.0	10.5	11.0	50.2	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Subtotal	47.9	50.3	52.8	55.4	58.2	264.6						
C. DAILY SUBSISTENCE ALLOWANCES												
All Participating Staff	20.8	21.8	22.9	24.0	25.2	114.7	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Total Recurrent Costs	73.7	79.8	138.5	145.8	153.1	590.9						
Total	379.1	845.8	862.6	213.7	209.9	2,511.2						

/a Total Cost includes Civil Works and Equipment/Mills

/b 1 in Rufunsa & 1 in Serenje District.

/c For Women and Youth Groups. Similar equipment can be bought in bulk, based on demand. Beneficiaries will provide in-kind the necessary housing/structures.

/d Individual Consultant (inputs in months per year)

/e Including Govt vehicles.

Table B.2.7a Detailed Cost Table #5a Sub-component 2.2: Market Linkages

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. WORKS /a																				
1. Infrastructure Development																				
Agro-Market Centres (Small-scale One-Stop-Shop) /b	No	1	1	2	-	-	4	1,100.00	132.6	132.6	265.1	-	-	530.2	147.3	150.2	306.4	-	-	603.9
Road-Side Markets	No	2	6	4	-	-	12	40.00	9.6	28.9	19.3	-	-	57.8	10.7	32.8	22.3	-	-	65.8
Access Roads Rehabilitation and Crossings	No	-	50	-	-	-	50	48.00	-	289.2	-	-	-	289.2	-	327.8	-	-	-	327.8
Subtotal									142.2	450.7	284.4	-	-	877.3	158.0	510.7	328.7	-	-	997.5
B. GOODS																				
1. Equipment																				
Laptop Computer	No	1	-	-	-	-	1	8.00	1.0	-	-	-	-	1.0	1.0	-	-	-	-	1.0
DeskTop Computer & Printer /c	Set	1	-	-	-	-	1	12.00	1.4	-	-	-	-	1.4	1.5	-	-	-	-	1.5
Subtotal									2.4	-	-	-	-	2.4	2.6	-	-	-	-	2.6
C. SERVICES																				
1. Training and Other Activities																				
Staff Training (various)	Session	3	3	-	-	-	6	41.00	14.8	14.8	-	-	-	29.6	16.0	16.8	-	-	-	32.7
Farmer Training (Market Linkages)	Session	3	3	-	-	-	6	35.00	12.7	12.7	-	-	-	25.3	13.6	14.3	-	-	-	27.9
Market Information System/mobile-phone-model /d	No	1	1	1	1	1	5	70.00	8.4	8.4	8.4	8.4	8.4	42.2	9.1	9.5	10.0	10.5	11.0	50.2
Subtotal									35.9	35.9	8.4	8.4	8.4	97.1	38.7	40.6	10.0	10.5	11.0	110.8
Total Investment Costs									180.5	486.6	292.8	8.4	8.4	976.8	199.2	551.3	338.7	10.5	11.0	1,110.8
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
Senior Govt Staff /e	Per Month	8	8	8	8	8	40	10.00	9.6	9.6	9.6	9.6	9.6	48.2	10.4	10.9	11.4	12.0	12.6	57.3
Middle Govt Staff /f	Per Month	20	20	20	20	20	100	7.47	18.0	18.0	18.0	18.0	18.0	90.0	19.4	20.3	21.3	22.4	23.5	107.0
Junior Govt Staff	Per Month	12	12	12	12	12	60	5.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
Subtotal									34.9	34.9	34.9	34.9	34.9	174.3	37.5	39.4	41.4	43.4	45.6	207.3
B. DAILY SUBSISTENCE ALLOWANCES																				
All Participating Staff /g	Per_Night	200	200	200	200	200	1,000	0.80	19.3	19.3	19.3	19.3	19.3	96.4	20.8	21.8	22.9	24.0	25.2	114.7
C. OPERATION AND MAINTENANCE																				
1. Vehicle O&M																				
Motorvehicles O&M /h	No	2	2	2	2	2	10	13.00	3.1	3.1	3.1	3.1	3.1	15.7	3.4	3.5	3.7	3.9	4.1	18.6
Total Recurrent Costs									57.3	57.3	57.3	57.3	57.3	286.4	61.6	64.7	68.0	71.4	74.9	340.6
Total									237.8	543.9	350.1	65.7	65.7	1,263.2	260.8	616.1	406.7	81.9	86.0	1,451.4

/a If access roads and crossings will be rehabilitated by Govt, then funds can be moved to Sub-component 1.1 (Irrigation Development).

/b The cost includes all associated equipment.

/c Including accessories (& UPS)

/d Includes Setting up and Management & procurement of mobile phones (all activities).

/e Government Contribution

/f Government Contribution.

/g Using Government Rates.

/h Including Govt vehicles.

Table B.2.7b Detailed Cost Table #5b

Sub-component 2.2: Market Linkages (with Other Accounts)

Item Description	Unit	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs													
A. WORKS /a													
1. Infrastructure Development													
Agro-Market Centres (Small-scale One-Stop-Shop) /b	No	147.3	150.2	306.4	-	-	603.9	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	NCB_PM (100%)
Road-Side Markets	No	10.7	32.8	22.3	-	-	65.8	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
Access Roads Rehabilitation and Crossings	No	-	327.8	-	-	-	327.8	10.0	100.0	WORKS_DA	GAFSP_GRANT (100%)	WORKS_PA	OTHER_PM (100%)
Subtotal		158.0	510.7	328.7	-	-	997.5						
B. GOODS													
1. Equipment													
Laptop Computer	No	1.0	-	-	-	-	1.0	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
DeskTop Computer & Printer /c	Set	1.5	-	-	-	-	1.5	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
Subtotal		2.6	-	-	-	-	2.6						
C. SERVICES													
1. Training and Other Activities													
Staff Training (various)	Session	16.0	16.8	-	-	-	32.7	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Farmer Training (Market Linkages)	Session	13.6	14.3	-	-	-	27.9	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Market Information System/mobile-phone-model /d	No	9.1	9.5	10.0	10.5	11.0	50.2	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)
Subtotal		38.7	40.6	10.0	10.5	11.0	110.8						
Total Investment Costs		199.2	551.3	338.7	10.5	11.0	1,110.8						
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
Senior Govt Staff /e	Per Month	10.4	10.9	11.4	12.0	12.6	57.3	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Middle Govt Staff /f	Per Month	19.4	20.3	21.3	22.4	23.5	107.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Junior Govt Staff	Per Month	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Subtotal		37.5	39.4	41.4	43.4	45.6	207.3						
B. DAILY SUBSISTENCE ALLOWANCES													
All Participating Staff /g	Per_Night	20.8	21.8	22.9	24.0	25.2	114.7	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE													
1. Vehicle O&M													
Motorvehicles O&M /h	No	3.4	3.5	3.7	3.9	4.1	18.6	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Total Recurrent Costs		61.6	64.7	68.0	71.4	74.9	340.6						
Total		260.8	616.1	406.7	81.9	86.0	1,451.4						

/a If access roads and crossings will be rehabilitated by Govt, then funds can be moved to Sub-component 1.1 (Irrigation Development).

/b The cost includes all associated equipment.

/c Including accessories (& UPS)

/d Includes Setting up and Management & procurement of mobile phones (all activities).

/e Government Contribution

/f Government Contribution.

/g Using Government Rates.

/h Including Govt vehicles.

Table B.2.8a Detailed Cost Table #6a Sub-component 3.1: Nutrition Security and Capacity Building

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. GOODS																				
1. Vehicles																				
Double/Twin Cab 4x4 Vehicle	No	1	-	-	-	-	1	280.00	33.7	-	-	-	-	33.7	35.8	-	-	-	-	35.8
B. SERVICES																				
1. Consultancy																				
Nutrition Security /a	Per Month	6	6	6	-	-	18	79.00	57.1	57.1	57.1	-	-	171.4	58.8	60.0	61.2	-	-	180.1
2. Training and Other Activities																				
Food Based Interventions /b	LS	6	6	6	6	6	30	80.00	57.8	57.8	57.8	57.8	57.8	289.2	60.5	63.5	66.7	70.0	73.5	334.2
Staff and Farmer Training	Session	12	12	12	12	12	60	60.00	86.8	86.8	86.8	86.8	86.8	433.8	90.7	95.3	100.0	105.0	110.3	501.3
Community Mobilisation & Value Addition Activities /c	LS	36	36	36	36	36	180	1.50	6.5	6.5	6.5	6.5	6.5	32.5	6.8	7.1	7.5	7.9	8.3	37.6
Subtotal									151.1	151.1	151.1	151.1	151.1	755.6	158.0	165.9	174.2	182.9	192.0	873.0
3. Nutrition Campaign																				
Nutrition Information Management System & IEC /d	LS	1	1	1	1	1	5	90.00	10.8	10.8	10.8	10.8	10.8	54.2	11.3	11.9	12.5	13.1	13.8	62.7
Supply of Orange Fleshed Sweet Potato Vines /e	LS	6	6	6	-	-	18	35.00	25.3	25.3	25.3	-	-	75.9	26.5	27.8	29.2	-	-	83.4
School Health and Nutrition Programmes /f	Session	3	3	3	3	3	15	10.00	3.6	3.6	3.6	3.6	3.6	18.1	3.8	4.0	4.2	4.4	4.6	20.9
Infant/Young Child Feeding Programme /g	No	6	6	6	6	6	30	20.00	14.5	14.5	14.5	14.5	14.5	72.3	15.1	15.9	16.7	17.5	18.4	83.5
Community/Household Nutrition Education	Session	3	3	3	3	3	15	30.00	10.8	10.8	10.8	10.8	10.8	54.2	11.3	11.9	12.5	13.1	13.8	62.7
Subtotal									65.1	65.1	65.1	39.8	39.8	274.8	68.0	71.4	75.0	48.1	50.5	313.2
Subtotal									273.3	273.3	273.3	190.9	190.9	1,201.7	284.9	297.4	310.4	231.0	242.6	1,366.3
Total Investment Costs									307.1	273.3	273.3	190.9	190.9	1,235.5	320.7	297.4	310.4	231.0	242.6	1,402.1
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
Senior Govt Staff	Per Month	6	6	6	6	6	30	10.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
Middle Govt Staff	Per Month	24	24	24	24	24	120	7.47	21.6	21.6	21.6	21.6	21.6	108.0	23.2	24.4	25.6	26.9	28.2	128.4
Junior Govt Staff	Per Month	12	12	12	12	12	60	5.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	43.0
Subtotal									36.1	36.1	36.1	36.1	36.1	180.3	38.8	40.7	42.8	44.9	47.2	214.4
B. DAILY SUBSISTENCE ALLOWANCE																				
All Participating Staff	Per_Night	300	300	300	300	300	1,500	0.80	28.9	28.9	28.9	28.9	28.9	144.6	31.1	32.7	34.3	36.0	37.8	172.0
C. OPERATION AND MAINTENANCE																				
1. Vehicle O&M																				
Double/Twin Cab 4x4 Vehicle	LS	12	12	12	12	12	60	15.00	21.7	21.7	21.7	21.7	21.7	108.5	23.3	24.5	25.7	27.0	28.4	129.0
Total Recurrent Costs									86.7	86.7	86.7	86.7	86.7	433.3	93.3	97.9	102.8	108.0	113.4	515.4
Total									393.7	360.0	360.0	277.6	277.6	1,668.8	413.9	395.3	413.3	339.0	356.0	1,917.4

/a Individual Consultant, pre-defined annual inputs

/b For 6 Districts. Includes Production of Special Nutrition-based Crops, Processing, Storage and Utilisation.

/c All Activities based on Procured Equipment.

/d Promotion Materials Include Radio and Posters

/e Including National, Provincial and District Launch Sessions. Plus Harmonisation of Food Security and Nutrition System. Lessons Learnt and Best Practices.

/f APAMEP & Ministry of Education Joint Effort.

/g APAMEP & Ministry of Health Nutrition Unit Joint Effort.

Table B.2.8b Detailed Cost Table #6b

Sub-component 3.1: Nutrition Security and Capacity Building (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts				
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	
I. Investment Costs													
A. GOODS													
1. Vehicles													
Double/Twin Cab 4x4 Vehicle	35.8	-	-	-	-	35.8	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)	
B. SERVICES													
1. Consultancy													
Nutrition Security /a	58.8	60.0	61.2	-	-	180.1	2.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	QBS_PM (100%)	
2. Training and Other Activities													
Food Based Interventions /b	60.5	63.5	66.7	70.0	73.5	334.2	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Staff and Farmer Training	90.7	95.3	100.0	105.0	110.3	501.3	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Community Mobilisation & Value Addition Activities /c	6.8	7.1	7.5	7.9	8.3	37.6	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Subtotal	158.0	165.9	174.2	182.9	192.0	873.0							
3. Nutrition Campaign													
Nutrition Information Management System & IEC /d	11.3	11.9	12.5	13.1	13.8	62.7	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Supply of Orange Fleshed Sweet Potato Vines /e	26.5	27.8	29.2	-	-	83.4	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
School Health and Nutrition Programmes /f	3.8	4.0	4.2	4.4	4.6	20.9	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Infant/Young Child Feeding Programme /g	15.1	15.9	16.7	17.5	18.4	83.5	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Community/Household Nutrition Education	11.3	11.9	12.5	13.1	13.8	62.7	2.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Subtotal	68.0	71.4	75.0	48.1	50.5	313.2							
Subtotal	284.9	297.4	310.4	231.0	242.6	1,366.3							
Total Investment Costs	320.7	297.4	310.4	231.0	242.6	1,402.1							
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
Senior Govt Staff	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Middle Govt Staff	23.2	24.4	25.6	26.9	28.2	128.4	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Junior Govt Staff	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Subtotal	38.8	40.7	42.8	44.9	47.2	214.4							
B. DAILY SUBSISTENCE ALLOWANCE													
All Participating Staff	31.1	32.7	34.3	36.0	37.8	172.0	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
C. OPERATION AND MAINTENANCE													
1. Vehicle O&M													
Double/Twin Cab 4x4 Vehicle	23.3	24.5	25.7	27.0	28.4	129.0	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Total Recurrent Costs	93.3	97.9	102.8	108.0	113.4	515.4							
Total	413.9	395.3	413.3	339.0	356.0	1,917.4							

/a Individual Consultant, pre-defined annual inputs

/b For 6 Districts. Includes Production of Special Nutrition-based Crops, Processing, Storage and Utilisation.

/c All Activities based on Procured Equipment.

/d Promotion Materials Include Radio and Posters

/e Including National, Provincial and District Launch Sessions. Plus Harmonisation of Food Security and Nutrition System. Lessons Learnt and Best Practices.

/f APAMEP & Ministry of Education Joint Effort.

/g APAMEP & Ministry of Health Nutrition Unit Joint Effort.

Table B.2.9a Detailed Cost Table #7a Sub-component 3.2: Project Management

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. GOODS																				
1. Equipment																				
Laptop Computer	LS	3	-	-	-	-	3	8.00	2.9	-	-	-	-	2.9	3.1	-	-	-	-	3.1
Desktop Computer Set /a	No	2	-	-	-	-	2	12.00	2.9	-	-	-	-	2.9	3.1	-	-	-	-	3.1
Other Office Equipment	No	1	-	-	-	-	1	60.00	7.2	-	-	-	-	7.2	7.7	-	-	-	-	7.7
PCU Office Furniture (Various)	Set	1	-	-	-	-	1	100.00	12.1	-	-	-	-	12.1	13.0	-	-	-	-	13.0
Subtotal									25.1	-	-	-	-	25.1	26.8	-	-	-	-	26.8
2. Vehicles																				
9-Seater 4x4 Motorvehicle	No	2	-	-	-	-	2	360.00	86.8	-	-	-	-	86.8	92.0	-	-	-	-	92.0
Double/Twin Cab 4x4 Motorvehicle	No	1	-	-	-	-	1	280.00	33.7	-	-	-	-	33.7	35.8	-	-	-	-	35.8
Motorcycle (Offroad) - PCU	No	1	-	-	-	-	1	35.00	4.2	-	-	-	-	4.2	4.5	-	-	-	-	4.5
Subtotal									124.7	-	-	-	-	124.7	132.3	-	-	-	-	132.3
Total Investment Costs									149.8	-	-	-	-	149.8	159.0	-	-	-	-	159.0
II. Recurrent Costs																				
A. PERSONNEL (Salaries) /b																				
Senior Govt Staff	Per Month	12	12	12	12	12	60	10.00	14.5	14.5	14.5	14.5	14.5	72.3	15.6	16.3	17.2	18.0	18.9	86.0
Middle Govt Staff	Per Month	48	48	48	48	48	240	7.47	43.2	43.2	43.2	43.2	43.2	215.9	46.5	48.8	51.2	53.8	56.5	256.8
Junior Govt Staff	Per Month	7	7	7	7	7	35	5.00	4.2	4.2	4.2	4.2	4.2	21.1	4.5	4.8	5.0	5.3	5.5	25.1
Project Coordinator /c	Per Month	12	12	12	12	12	60	22.00	31.8	31.8	31.8	31.8	31.8	159.1	34.2	36.0	37.7	39.6	41.6	189.2
Project Accountant /d	Per Month	12	12	12	12	12	60	19.00	27.5	27.5	27.5	27.5	27.5	137.4	29.6	31.0	32.6	34.2	35.9	163.4
Procurement Specialist /e	Per Month	12	12	12	12	12	60	19.00	27.5	27.5	27.5	27.5	27.5	137.4	29.6	31.0	32.6	34.2	35.9	163.4
Subtotal									148.6	148.6	148.6	148.6	148.6	743.1	160.0	168.0	176.4	185.2	194.4	883.9
B. DAILY SUBSISTENCE ALLOWANCE																				
All Participating Staff	Per_Night	250	250	250	250	250	1,250	0.80	24.1	24.1	24.1	24.1	24.1	120.5	25.9	27.2	28.6	30.0	31.5	143.3
C. OPERATION AND MAINTENANCE																				
1. Vehicle O&M																				
9-Seater 4x4 Motorvehicle	LS	2	2	2	2	2	10	20.00	4.8	4.8	4.8	4.8	4.8	24.1	5.2	5.4	5.7	6.0	6.3	28.7
Double Cab 4x4 Motorvehicle /f	LS	5	5	5	5	5	25	10.00	6.0	6.0	6.0	6.0	6.0	30.1	6.5	6.8	7.1	7.5	7.9	35.8
Motorcycle (PCU)	LS	1	1	1	1	1	5	0.30	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
Subtotal									10.9	10.9	10.9	10.9	10.9	54.4	11.7	12.3	12.9	13.6	14.2	64.7
2. PCU Office and Equipment /g																				
PCU Office and Equipment Operation	LS	1	1	1	1	1	5	100.00	12.1	12.1	12.1	12.1	12.1	60.3	13.0	13.6	14.3	15.0	15.8	71.7
PCU Office and Equipment Maintenance	LS	-	1	1	1	1	4	5.00	-	0.6	0.6	0.6	0.6	2.4	-	0.7	0.7	0.8	0.8	2.9
Subtotal									12.1	12.7	12.7	12.7	12.7	62.7	13.0	14.3	15.0	15.8	16.6	74.6
Subtotal									22.9	23.5	23.5	23.5	23.5	117.1	24.7	26.6	27.9	29.3	30.8	139.3
Total Recurrent Costs									195.7	196.3	196.3	196.3	196.3	980.7	210.6	221.8	232.9	244.5	256.8	1,166.5
Total									345.5	196.3	196.3	196.3	196.3	1,130.5	369.6	221.8	232.9	244.5	256.8	1,323.6

/a Including UPS and Printer.

/b Govt Salaries for Staff Participating in Project Activities (Govt Contribution) unless stated.

/c To be recruited by the Project (Local Staff).

/d To be recruited by the Project.

/e To be recruited by the Project.

/f Includes 4 existing Government Vehicles (used on Project activities)

/g Including consumable office items for the Project equipment.

Table B.2.9b Detailed Cost Table #7b

Sub-component 3.2: Project Management (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts			
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs												
A. GOODS												
1. Equipment												
Laptop Computer	3.1	-	-	-	-	3.1	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
Desktop Computer Set /a	3.1	-	-	-	-	3.1	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
Other Office Equipment	7.7	-	-	-	-	7.7	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)
PCU Office Furniture (Various)	13.0	-	-	-	-	13.0	5.0	0.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	OTHER_PM (100%)
Subtotal	26.8	-	-	-	-	26.8						
2. Vehicles												
9-Seater 4x4 Motorvehicle	92.0	-	-	-	-	92.0	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)
Double/Twin Cab 4x4 Motorvehicle	35.8	-	-	-	-	35.8	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)
Motorcycle (Offroad) - PCU	4.5	-	-	-	-	4.5	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	VEHICLES_PA	SHOPPING_PM (100%)
Subtotal	132.3	-	-	-	-	132.3						
Total Investment Costs	159.0	-	-	-	-	159.0						
II. Recurrent Costs												
A. PERSONNEL (Salaries) /b												
Senior Govt Staff	15.6	16.3	17.2	18.0	18.9	86.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Middle Govt Staff	46.5	48.8	51.2	53.8	56.5	256.8	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Junior Govt Staff	4.5	4.8	5.0	5.3	5.5	25.1	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Project Coordinator /c	34.2	36.0	37.7	39.6	41.6	189.2	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)
Project Accountant /d	29.6	31.0	32.6	34.2	35.9	163.4	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)
Procurement Specialist /e	29.6	31.0	32.6	34.2	35.9	163.4	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)
Subtotal	160.0	168.0	176.4	185.2	194.4	883.9						
B. DAILY SUBSISTENCE ALLOWANCE												
All Participating Staff	25.9	27.2	28.6	30.0	31.5	143.3	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE												
1. Vehicle O&M												
9-Seater 4x4 Motorvehicle	5.2	5.4	5.7	6.0	6.3	28.7	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Double Cab 4x4 Motorvehicle /f	6.5	6.8	7.1	7.5	7.9	35.8	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Motorcycle (PCU)	0.0	0.0	0.0	0.0	0.0	0.2	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Subtotal	11.7	12.3	12.9	13.6	14.2	64.7						
2. PCU Office and Equipment /g												
PCU Office and Equipment Operation	13.0	13.6	14.3	15.0	15.8	71.7	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
PCU Office and Equipment Maintenance	-	0.7	0.7	0.8	0.8	2.9	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Subtotal	13.0	14.3	15.0	15.8	16.6	74.6						
Subtotal	24.7	26.6	27.9	29.3	30.8	139.3						
Total Recurrent Costs	210.6	221.8	232.9	244.5	256.8	1,166.5						
Total	369.6	221.8	232.9	244.5	256.8	1,323.6						

/a Including UPS and Printer.

/b Govt Salaries for Staff Participating in Project Activities (Govt Contribution) unless stated.

/c To be recruited by the Project (Local Staff).

/d To be recruited by the Project.

/e To be recruited by the Project.

/f Includes 4 existing Government Vehicles (used on Project activities)

/g Including consumable office items for the Project equipment.

Table B.2.10a Detailed Cost Table #8a Sub-component 3.3: Monitoring and Evaluation

Item Description	Unit	Quantities						Unit Cost (ZMW '000)	Base Cost (UA '000)						Totals Including Contingencies (UA '000)					
		PY1	PY2	PY3	PY4	PY5	Total		PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total
I. Investment Costs																				
A. GOODS																				
1. Equipment																				
Laptop Computer /a	No	1	-	-	-	-	1	8.00	1.0	-	-	-	-	1.0	-	-	-	-	1.0	
Desktop Computer /b	No	1	-	-	-	-	1	12.00	1.4	-	-	-	-	1.5	-	-	-	-	1.5	
Subtotal									2.4	-	-	-	-	2.6	-	-	-	-	2.6	
B. SERVICES																				
1. Consultancy																				
Annual Audit (Financial) /c	No	0.2	0.2	0.2	0.2	0.2	1	1,896.00	45.7	45.7	45.7	45.7	45.7	228.5	48.5	49.4	50.4	51.4	52.5	
Development and Management of M&E System /d	LS	1	1	1	1	1	5	120.00	14.5	14.5	14.5	14.5	14.5	72.3	15.3	15.6	16.0	16.3	16.6	
Mid-Term Review /e	P/Month	-	-	3	-	-	3	79.00	-	-	28.6	-	-	28.6	-	-	31.5	-	-	
Baseline Survey /f	P/Month	4	-	-	-	-	4	79.00	38.1	-	-	-	-	38.1	40.4	-	-	-	-	
Gender Survey /g	P/Month	2	-	-	-	-	2	79.00	19.0	-	-	-	-	19.0	20.2	-	-	-	-	
Gender Audit /h	P/Month	-	-	3	-	-	3	79.00	-	-	28.6	-	-	28.6	-	-	31.5	-	-	
Nutrition Audit /i	P/Month	-	-	1	-	-	1	79.00	-	-	9.5	-	-	9.5	-	-	10.5	-	-	
Beneficiary Impact Assessment /j	P/Month	-	-	-	-	5	5	79.00	-	-	-	-	47.6	47.6	-	-	-	-	54.6	
Project Completion - Technical Review /k	P/Month	-	-	-	-	6	6	79.00	-	-	-	-	57.1	57.1	-	-	-	-	65.6	
Subtotal									117.3	60.2	126.8	60.2	164.9	529.3	124.4	65.1	139.9	67.7	189.3	
2. Meetings, Training and Systems																				
Provincial Quarterly Review Meetings /l	No	4	4	4	4	4	20	65.00	31.3	31.3	31.3	31.3	31.3	156.7	33.7	35.4	37.2	39.0	41.0	
PSC Review Meetings	No	1	1	1	1	1	5	80.00	9.6	9.6	9.6	9.6	9.6	48.2	10.4	10.9	11.4	12.0	12.6	
Development of Annual Work Plans and Budgets	No	1	1	1	1	1	5	90.00	10.8	10.8	10.8	10.8	10.8	54.2	11.7	12.3	12.9	13.5	14.2	
Visibility - Project Posters and Adverts	LS	1	1	1	1	1	5	80.00	9.6	9.6	9.6	9.6	9.6	48.2	10.4	10.9	11.4	12.0	12.6	
Subtotal									61.5	61.5	61.5	61.5	61.5	307.3	66.1	69.5	72.9	76.6	80.4	
Subtotal									178.7	121.6	188.3	121.6	226.3	836.6	190.5	134.5	212.8	144.3	269.7	
Total Investment Costs									181.1	121.6	188.3	121.6	226.3	839.0	193.1	134.5	212.8	144.3	269.7	
II. Recurrent Costs																				
A. PERSONNEL (Salaries)																				
Senior Govt Staff	Per Month	12	12	12	12	12	60	10.00	14.5	14.5	14.5	14.5	14.5	72.3	15.6	16.3	17.2	18.0	18.9	
Middle Govt Staff	Per Month	24	24	24	24	24	120	7.47	21.6	21.6	21.6	21.6	21.6	108.0	23.2	24.4	25.6	26.9	28.2	
Junior Govt Staff	Per Month	12	12	12	12	12	60	5.00	7.2	7.2	7.2	7.2	7.2	36.2	7.8	8.2	8.6	9.0	9.5	
Subtotal									43.3	43.3	43.3	43.3	43.3	216.4	46.6	48.9	51.4	53.9	56.6	
B. DAILY SUBSISTENCE ALLOWANCE																				
All Participating Staff	Per_Night	150	150	150	150	150	750	0.80	14.5	14.5	14.5	14.5	14.5	72.3	15.6	16.3	17.2	18.0	18.9	
Total Recurrent Costs									57.7	57.7	57.7	57.7	57.7	288.7	62.1	65.3	68.5	71.9	75.5	
Total									238.9	179.4	246.0	179.4	284.1	1,127.7	255.2	199.8	281.3	216.2	345.2	

/a For M&E Specialist

/b Includes UPS and Printer

/c Outsourcing will be based on OAG's recommendation.

/d Individual Consultant. Based on predefined inputs. 6 months in PY1 and 3 months from PY2 to PY5 (System management & production of annual progress reports)

/e PY3: Recruitment of 3 Individual Consultants (1 month each).

/f PY1: Recruitment of 2 Individual Consultants (2 months each).

/g PY1: Individual Consultant (Gender Expert)

/h PY3: Individual Consultant (Gender Expert).

/i PY3: Individual Consultant.

/j PY5: 2 Individual Consultants, 2.5 months each.

/k PY5: 3 Individual Consultants, 2 months each.

/l 1 meeting per quarter covering 3 Provinces & 6 Districts.

Table B.2.10b Detailed Cost Table #8b

Sub-component 3.3: Monitoring and Evaluation (with Other Accounts)

Item Description	Totals Including Contingencies (UA '000)						Phy. Cont. %	For. Exch. %	Other Accounts				
	PY1	PY2	PY3	PY4	PY5	Total			Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	
I. Investment Costs													
A. GOODS													
1. Equipment													
Laptop Computer /a	1.0	-	-	-	-	1.0	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)	
Desktop Computer /b	1.5	-	-	-	-	1.5	5.0	100.0	GOODS_DA	GAFSP_GRANT (100%)	EQUIPMENT_PA	SHOPPING_PM (100%)	
Subtotal	2.6	-	-	-	-	2.6							
B. SERVICES													
1. Consultancy													
Annual Audit (Financial) /c	48.5	49.4	50.4	51.4	52.5	252.2	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	AUDIT_PA	LCS_PM (100%)	
Development and Management of M&E System /d	15.3	15.6	16.0	16.3	16.6	79.8	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Mid-Term Review /e	-	-	31.5	-	-	31.5	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Baseline Survey /f	40.4	-	-	-	-	40.4	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Gender Survey /g	20.2	-	-	-	-	20.2	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Gender Audit /h	-	-	31.5	-	-	31.5	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Nutrition Audit /i	-	-	10.5	-	-	10.5	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Beneficiary Impact Assessment /j	-	-	-	-	54.6	54.6	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Project Completion - Technical Review /k	-	-	-	-	65.6	65.6	5.0	100.0	SERVICES_DA	GAFSP_GRANT (100%)	CONSULTANCY_PA	OTHER_PM (100%)	
Subtotal	124.4	65.1	139.9	67.7	189.3	586.3							
2. Meetings, Training and Systems													
Provincial Quarterly Review Meetings /l	33.7	35.4	37.2	39.0	41.0	186.3	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
PSC Review Meetings	10.4	10.9	11.4	12.0	12.6	57.3	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Development of Annual Work Plans and Budgets	11.7	12.3	12.9	13.5	14.2	64.5	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Visibility - Project Posters and Adverts	10.4	10.9	11.4	12.0	12.6	57.3	5.0	0.0	SERVICES_DA	GAFSP_GRANT (100%)	TRAINING_PA	OTHER_PM (100%)	
Subtotal	66.1	69.5	72.9	76.6	80.4	365.5							
Subtotal	190.5	134.5	212.8	144.3	269.7	951.8							
Total Investment Costs	193.1	134.5	212.8	144.3	269.7	954.4							
II. Recurrent Costs													
A. PERSONNEL (Salaries)													
Senior Govt Staff	15.6	16.3	17.2	18.0	18.9	86.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Middle Govt Staff	23.2	24.4	25.6	26.9	28.2	128.4	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Junior Govt Staff	7.8	8.2	8.6	9.0	9.5	43.0	5.0	0.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)	
Subtotal	46.6	48.9	51.4	53.9	56.6	257.4							
B. DAILY SUBSISTENCE ALLOWANCE													
All Participating Staff	15.6	16.3	17.2	18.0	18.9	86.0	5.0	0.0	OPERATING_COSTS_DA	GAFSP_GRANT (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)	
Total Recurrent Costs	62.1	65.3	68.5	71.9	75.5	343.4							
Total	255.2	199.8	281.3	216.2	345.2	1,284.8							

^a For M&E Specialist

^b Includes UPS and Printer

^c Outsourcing will be based on OAG's recommendatin.

^d Individual Consultant. Based on predefined inputs. 6 months in PY1 and 3 months from PY2 to PY5 (System management & production of annual progress reports)

^e PY3: Recruitment of 3 Individual Consultants (1 month each).

^f PY1: Recruitment of 2 Individual Consultants (2 months each).

^g PY1: Individual Consultant (Gender Expert)

^h PY3: Individual Consultant (Gender Expert).

^i PY3: Individual Consultant.

^j PY5: 2 Individual Consultants, 2.5 months each.

^k PY5: 3 Individual Consultants, 2 months each.

^l 1 meeting per quarter covering 3 Provinces & 6 Districts.

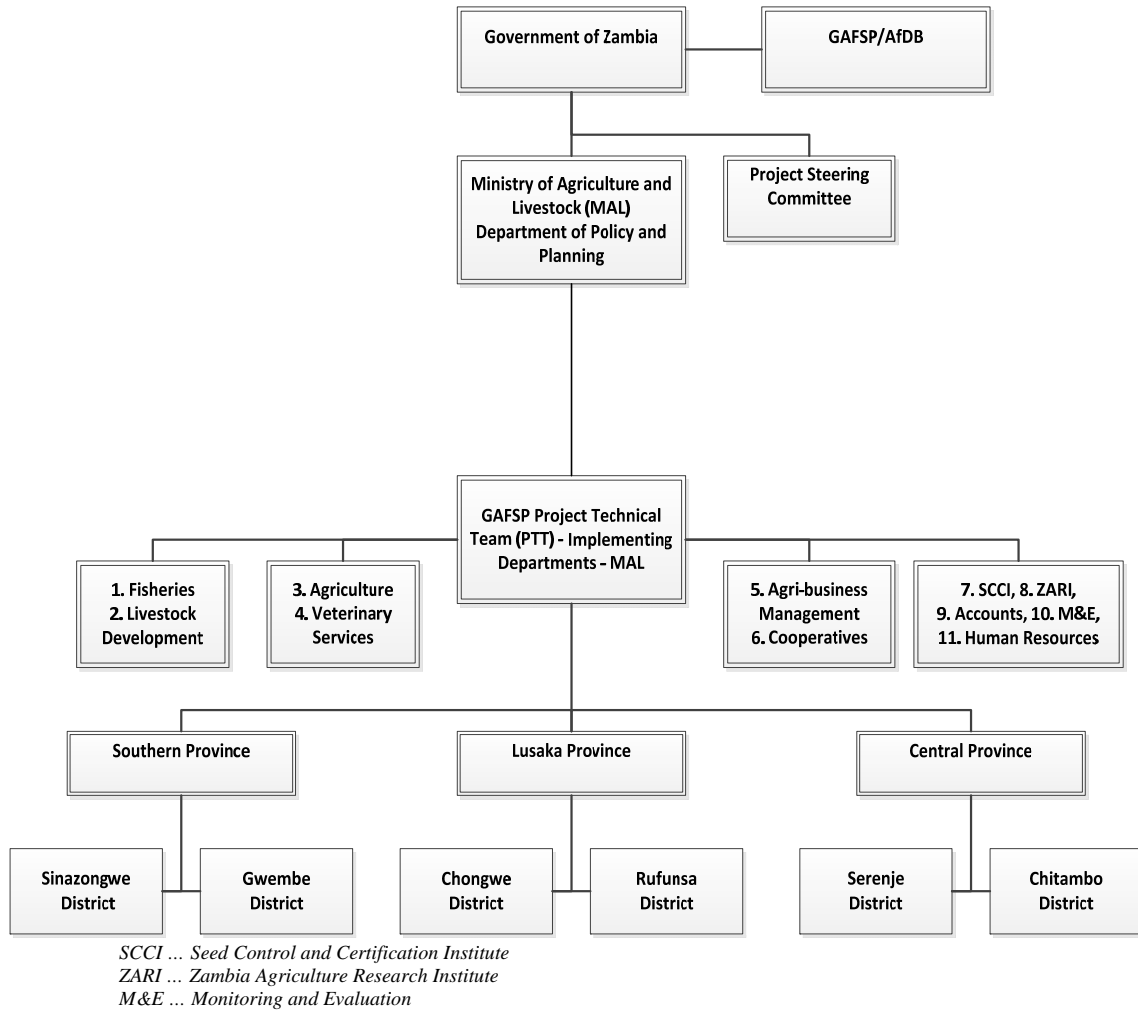
B.3 Implementation Arrangements

4. Implementation Arrangements: The Project will be implemented by MAL, using the existing structures, over a period of 5 years. Considering the multi-disciplinary nature of the Project, it will be implemented under the MAL Director of Policy and Planning (DPP), but the day to day management of the Project will be entrusted to the existing GoZ GAFSP PTT (see para 2.6) led by the MAL Deputy Director of Policy and Planning (MAL-DDPP). The PTT consists of MAL HQ Component Managers who are Subject Matter Specialists (SMS), at national level, on (i) livestock, (ii) irrigation, (iii) crops, (iv) monitoring and evaluation, (v) fisheries, (vi) nutrition, (vii) gender, (viii) agribusiness, (ix) cooperatives, (x) accounting and procurement, and (xi) human resources. However, the PTT addresses all these activities for the implementation of the NAIP by GoZ and all CPs, and therefore the PTT members do not have adequate time to dedicate to individual projects on full time basis. In order to ensure that the PTT delivers on the APMEP in time and satisfactorily, the Project will recruit competitively, on full-time basis, a Project Coordinator (PC), a Procurement Specialist and an Accountant (local experts). The PC will coordinate the work of the PTT and report to the DPP. A multi-sectoral Project Steering Committee (PSC) will be set-up by GoZ and will comprise 7 senior Government officials indicated in Table B.3.1 who will have oversight responsibility and oversee Project compliance with sector policies and strategies. The PC will be the secretary of PSC, and will be the liaison between the Project and the Bank. Prior to recruitment of the PC, the MAL-DDPP will coordinate the Project activities. The APMEP organogram is indicated in Figure B.3.1.

Table B.3.1: Project Steering Committee (PSC) Members

No	Member
1.	Secretary to Treasury (Ministry of Finance) - Chairperson
2.	Permanent Secretary - Ministry of Agriculture and Livestock
3.	Permanent Secretary - Southern Province
4.	Permanent Secretary - Lusaka Province
5.	Permanent Secretary - Central Province
6.	Permanent Secretary - Ministry of Works
7.	Representative of Zambia Environmental Management Authority (ZEMA)
8.	<i>MAL Director of Policy and Planning - Secretariat</i>
9.	<i>Project Coordinator - Secretariat</i>

5. At the Provincial level, the responsibility for delivery rests with the existing institutional structures of MAL under coordination of the Provincial Agriculture Coordinator (PACO). The Provincial and District Offices have technical officers who will spearhead Project implementation and generate work plans and budgets. To fill the technical capacity gaps, the Project will strengthen the capacity of the GoZ by engaging the services of a local NGO or firms for the livestock pass-on scheme for women and youth groups. ZMFO will support the APMEP through regular supervision missions, close follow up, informal meetings, and processing of all fiduciary documents. The Coordinating Committees at Province (PDCC) and District (DDCC) levels will supervise and monitor the project at those levels.

Figure B.3.1: APMEP Organogram

6. **Monitoring:** The M&E system of the MAL is being strengthened with the aim of developing an integrated sector-wide M&E system. To overcome the M&E weaknesses which were noted and to ensure adequate tracking of the Project's progress and impacts, the GoZ's M&E Officer (PTT member) will be responsible for establishment and management of the Project M&E system with assistance of the short-term Individual Consultant (M&E Specialist) to be recruited by the Project. The M&E Consultant shall have short-term predetermined annual inputs as follows: (i) PY1 = 6 months covering development of Project M&E system (5 months) and production of annual progress report (1 month, at the end of PY1); (ii) PY2 to PY5 = 3 months per year covering spot-check of Project M&E system (2 months) and production of annual progress report (1 month, preferably at the end of each implementation year). Apart from the end of year input, the actual timing of the M&E Consultant's inputs will be determined by the PC in consultation with the MAL-DPP. The end of year input will enable the Consultant (M&E Specialist) to facilitate the production and timely submission of the Project's annual progress reports to GoZ and the Bank.

7. The Project's M&E system will be linked to the MAL's integrated sector-wide M&E system and the Central Statistical Office (CSO) system. The indicators defined in the Result-based Logframe will constitute the basis for the measure of evolution towards the achievement of Project's objectives. However, additional indicators would be developed to capture any unforeseen pertinent outcomes and impacts induced by the Project. Indicators will be harmonized with sectors indicators to ease their integration with the national/CSO data system.

The Project will provide financial resources to facilitate training in proper data gathering, processing and reporting.

8. The Project has allocated funds for mid-term review (MTR), gender audit, nutrition audit, project completion report and annual external audits, whose final reports/key milestones will be prepared as indicated in the table below.

Time-Frame	Reports/Key Milestones	Monitoring Process
Year 1	Baseline Survey Report	PTT, MAL and Consultant.
	Gender Survey Report	PTT, MAL and Consultant.
Years 1 to 5	Project Implementation Progress Reports	Beneficiaries, MAL, PTT and Consultant.
	Financial Audit Reports	Beneficiaries, MAL, PTT and OAG.
Year 3	Mid-Term Review (MTR) Report	Beneficiaries, MAL, PTT and Consultants.
	Gender Audit Report	Beneficiaries, MAL, PTT and Consultant.
	Nutrition Audit Report	Beneficiaries, MAL, PTT and Consultant.
Year 5	Beneficiary Impact Assessment Report	Beneficiaries, PTT and Consultant.
	Project Completion Report (PCR)	Beneficiaries, MAL, PTT and Consultant.

9. The Project M&E activities, including implementation progress, will be an integral part of the MAL (Executing Agency), as a regular management function through the PTT's M&E Specialist. The PTT will submit to the Bank quarterly and annual progress reports, annual work plans and budgets, and procurement plans using Bank's format. The quarterly progress report will be submitted to the Bank within two months after the end of the reporting period, whilst the annual progress report will be submitted within three months after the end of reporting period. The Bank will closely monitor the implementation of the Project through regular follow-up, review and Supervision Missions. The Supervision Missions will be undertaken at least twice a year, and will include, at least once a year, a Nutrition Expert or Gender Specialist. These Missions will verify implementation progress to ensure that key verifiable indicators, including gender specific indicators, related to the Project outputs and outcomes are being monitored.

10. **Sustainability:** The Bank adopted a participatory approach in identification and preparation of APMEP which is an important step towards ensuring the relevance of the investments made and laying of an institutional capacity at the community level for the sustainability of the planned activities. The use of Provincial and District decentralized implementation system will ensure full community participation guided by District authorities. The Project will put much emphasis on developing the capacity of beneficiaries and strengthening their institutions like interest groups and cooperatives. The beneficiaries will be mobilised, organised into viable self-reliant entities, trained and empowered to view their activities as business rather than subsistence type. Gender and also nutrition awareness and training at the community and local administration levels will ensure that women continue to participate and benefit equally from all rural development activities. Project sustainability will also be ensured by the proactive involvement of the beneficiaries and District/Provincial staff in participatory M&E of activities.

11. The Project beneficiaries will contribute in-kind towards the cost of developing the irrigation and aquaculture infrastructure which will show their commitment and cultivate sense of ownership. This approach is currently being used by the Government in similar activities which induces beneficiaries to fully operate and maintain the said infrastructure. The agribusiness skills training modules will include operations and management of the infrastructures. The irrigation, aquaculture and agro-processing infrastructure and community-level value addition equipment will be wholly managed by the beneficiaries through either the registered management entity, cooperatives/associations or leased out to private sector which

will also take care of operational and maintenance costs based on generated revenues from the services, to ensure sustainability.

12. **Knowledge Building:** The Project is expected to generate considerable knowledge which will add value to the overall design and management of similar future interventions by the Bank. Lessons and experiences will be shared within the Bank and other CPs interested in implementing similar projects. The Project will promote the community participation and management of the agriculture infrastructures. The Project will demonstrate that the agriculture infrastructure can be ably managed by the community if given the necessary support including seed money which will revolve with time. The process of community engagement and participation will be a learning intervention point for the success and sustainability of APMEP and also useful database for other potential development projects being planned by GoZ. APMEP will also focus on capacity building for key staff and direct beneficiaries who will be fully involved in the planned training activities based on needs assessment. Such activities will be conducted throughout the Project period and is aimed at enhancing the knowledge transfer. The Project has made adequate provision for periodic meetings of technical staff and other stakeholders to jointly review progress of implementation. This will provide a good learning opportunity to the implementing communities. The Project will fund PSC annual meetings and also quarterly Provincial staff progress review meetings. CPs and NGOs that plan to establish similar agricultural infrastructure will benefit from the quarterly and annual progress reports which will be produced and distributed by MAL-DPP as these will form part of the knowledge transfer and dissemination tools. Beneficiary impact assessment will be carried out in PY5 which will provide an in-depth analysis of the Project impacts on the direct beneficiaries in line with the planned activities.

B.4 Financial Management and Disbursement Arrangements

13. **Introduction:** A financial management assessment of the MAL (Executing Agency) was carried out in accordance with the Bank's Guidelines for the Financial Management and Financial Analysis of Projects (2007) and ORPF FMS Tool Kit (Provisional, June 2010).

14. The objective of the assessment was to determine whether the MAL and as the Project Technical Team (PTT) has acceptable financial management arrangements, which will ensure that: (a) project funds are used only for the intended purposes, in an efficient and economical way; (b) the project's financial reports will be prepared in an accurate, reliable, and timely manner; (c) internal controls exist which allow early detection of errors, unusual practices as a deterrent to fraud and corruption; (d) project assets are safeguarded; and (e) the project is subject to external audit oversight. The initial results of the assessment and the agreed financial management, disbursement and auditing arrangements for the proposed APMEP are documented below. This initial FM assessment was done during the month of November 2013 as part of the APMEP preparation appraisal. The overall financial management residual risk for the project is assessed as moderate. An assessment of MAL's financial management capacity for the implementation of the project indicates that they would satisfy Bank minimum requirements if all the agreed actions are appropriately implemented.

15. **Country Issues:** Public financial management reforms in Zambia have been on-going since 2009 with the support of CPs following the 2008 Public Expenditure and Financial Accountability (PEFA) assessment, to improve the country's PFM environment. Various PFM progress review and diagnostic reports (including the 2012 PEFA (draft) assessments and the PEMFA Secretariat Report (April 2012)), noted some progress have been made in a number of areas including improvement in legal and regulatory framework for PFM, development and operationalization of the Debt Management Policy and Strategy (2009), enactment of the Zambia Public Procurement Act (ZPPA) 2008 replacing the Zambia National Tender Board Act,

the piloting of Integrated Financial Management Information System (IFMIS) in MoFNP and roll out to 28 more sites. The Office of the Auditor General (OAG) as well as parliamentary scrutiny has seen some improvement resulting in increased audit coverage.

16. In spite of this progress however, major areas of weaknesses still exists and being addressed by GoZ particularly, in accounting and reporting, internal audit, procurement, external audit and scrutiny, to further improve Zambia's PFM environment. There is also critical capacity constraint in some Ministries, Departments and Agencies (MDAs), particularly those implementing on-going bank-funded projects have resulted in delays and/or non-submission of quarterly progress reports as well as audited financial statements within the required mandatory timeframe. The preparation mission also identified challenges associated with timely processing and generation of financial reports by IFMIS, as well as delays in preparation and submission of audited financial statements to the Bank for on-going Bank-supported project being implemented by MAL. The overall country fiduciary risk was assessed as Substantial, but with a positive trajectory for change. The GoZ has prepared a new PFM Reform Strategy (2011-2015) for continuous PFM reforms to help address the weaknesses identified.

17. The Bank will use various aspects of the Country's financial management systems to the extent possible with appropriate mitigation measures for the implementation of the project with the MAL, in line with the Bank's commitment to the Paris Declaration (2005) and Accra Agenda for Action (2008). The project would therefore make use of the following aspects of GoZ's PFM: Budgeting – reflecting the project within the National Budget; Accounting and Financial Reporting – accounting for and reflecting project transactions within MAL's system of accounting for all public funds; Treasury Management/Funds Flow - disbursing project resources through GoZ's banking arrangements and treasury procedures at the Bank of Zambia (the Country's central bank), to access the funds; Internal Controls and Internal Audit - using the existing national rules and financial control procedures when implementing the project; and External Audit oversight - using the Country's supreme audit institution, the Office of the Auditor General (OAG), to audit or guide the project financial statements auditing process as per their mandate.

18. Given the challenges associated with the IFMIS and taken lessons from other on-going projects being implemented in Zambia generally, and MAL in particular, a number of risk mitigation measures have been considered and recommended to strengthen the financial management processes and accountability under the Project. These measures will include: (i) having a tailor-made financial management procedures manual that will provide guidance to staff on all aspects including expenditures that are eligible for financing under the Project; (ii) procuring a stand-alone off-the-shelf accounting software (where necessary) to record and process transactions to facilitate timely Project financial reporting given the operational challenges with IFMIS; (iii) including the project within MAL's Internal Audit annual work program (iv) Assigning a dedicated accounting staff with adequate qualifications and experience, reporting to the Chief Accountant, with overall Project accounting responsibilities; and (v) Enforcing a system of submitting interim quarterly progress report (IQPR) not later than 30 days after end of each quarter, in addition to the annual audited financial statements and management letter as per the requirements of the Bank's general conditions.

19. The financial management and disbursement arrangements for PMP satisfy the Bank's minimum requirements when the above measures are fully implemented.

20. Risk Assessment and Mitigation: The FM risk is assessed in order to ensure that appropriate risk mitigating measures are incorporated into design of the operation. The Table B.4.1 summarizes the risk identified, the risk rating, and mitigation measures if any.

Table B.4.1: Detailed FM Risk Assessment

Key: *H* = High; *S* = Substantial; *M* = Moderate; *L* = Low

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
Inherent Risk				
<p>Country Level Weak accountability, lack of follow up and implementation of audit findings, poor enforcement and compliance with existing regulations and procedures. Reporting challenges with IFMIS affecting timely generation of annual financial reports.</p>	S	<ul style="list-style-type: none"> ▪ On-going PFM reform supported by cooperating partners. ▪ On-going review and strengthening to help improve IFMIS functionality to improve control environment and accountability within MPSAs. 	S	No
<p>Entity Level The MAL FM assessment revealed some weaknesses particularly at the district and provincial resulting from shortage of staff. There is also delay in submitting required financial reports to the Bank under the on-going Bank-financed projects within the MAL resulting from challenges in IFMIS.</p>	S	<ul style="list-style-type: none"> ▪ There is on-going recruitment to fill all accounting vacancies; and the project will also have a dedicated accountant with acceptable qualification and experience to the Bank. ▪ Stand-alone off-the-Shelf accounting software will be procured (where necessary) to help process project transaction to ensure timely preparation of financial statements in readiness for audit. 	S	No
<p>Project Level Inadequate staffing in MAL to handle project transactions. Weak FM capacity at the decentralized levels.</p>	S	<ul style="list-style-type: none"> ▪ The project will have a dedicated Project Accountant with the requisite qualification and experience recruited through competitive process. ▪ Provincial and District Accounts Officers will benefit from support and guidance of Headquarters in line with MAL's procedures. ▪ MAL will also agree on FM reporting requirements with all decentralised implementing partners and formats of reports and relevant training will be provided. ▪ Bank FM Team will also provide training during project launch, with follow-up on-the-job coaching during FM 	M	Yes

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
		supervisions as well as through Bank Fiduciary Clinics.		
Overall Inherent Risk	S		S	
Control Risk				
Budgeting Weak budget preparation might result in inadequate resources for project.	M	<ul style="list-style-type: none"> ▪ Budget will be prepared based on approved Annual Work Plans and by the Steering Committee and the Bank. ▪ The MAL Finance Unit which will be responsible for overall financial management in support of the PTT, has prior experience in Budgeting from on-going Bank and other DP projects being implemented by MAL. ▪ Project's financial budgets will be linked to physical outputs through an operating plan. The IQPRs will be used to monitor variance analysis with budget in accordance with funding requirements, and all variations in budget will require prior approval by the Bank. 	L	No
Accounting Inadequate staffing in MAL to handle project transactions. Challenges with IFMIS could affect timely project transaction processing and reporting. Delays in accountability by the decentralized levels and other implementing partners could affect timely reporting by MAL to the Bank and other interested parties.	M	<ul style="list-style-type: none"> ▪ The project will have a dedicated Accountant whose qualification and experience will be acceptable to the Bank; and who will be supported by other accounting staff at the provincial and district level where necessary. ▪ Stand-alone off-the-Shelf accounting software will be procured (where necessary) to help process project transaction to facilitate timely reporting. ▪ Refusal to approve and replenish subsequent advances to the decentralized levels and other implementing partners will be used to ensure strict compliance. 	L	No
Internal Control Weak control enforcement of existing financial regulations could affect project's control environment.	S	<ul style="list-style-type: none"> ▪ The Project Procedures and Implementation Manual to be developed will provide guidance to project staff. ▪ The project would be covered by the MAL's Internal Audit Unit. ▪ Bank's FM Supervision and SOE reviews would also highlight weaknesses and make appropriate recommendations for addressing them. 	M	
Funds Flow Delays in preparation of	S	<ul style="list-style-type: none"> ▪ The Bank will provide disbursement training and 	M	No

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
and submission of justifications and payment requests could affect timely project implementation. Delays in releasing Government and beneficiary contribution could also affect project implementation.		guidance to project team in completing withdrawal applications; and most of the contracts would be made through direct payment method. <ul style="list-style-type: none"> ▪ All Government and beneficiary contribution would be in-kind in a form of office space, counterpart staff salaries, office supplies, and labour etc. 		
Reporting and Monitoring Poor quality and delays in preparing and submitting IQPRs and other reports, due to challenges with IFMIS operation Delays in submission of advance returns the decentralised and other implementing partners could affect timely financial reporting	S	<ul style="list-style-type: none"> ▪ Format for IQPR will be agreed with MAL/PTT during negotiation to ensure timely submissions to the Bank and other stakeholders. ▪ Financial transactions will be recorded and processed using the Stand alone Accounting Software to be procured. ▪ Incentives to provide timely information by the decentralized implementing units will include refusal to advance additional funds if fund justification statements/reports have not been received. ▪ MAL/PTT will agree on reporting format and deadlines with all decentralized/other implementing partners. 	M	No
External Audit and Public Oversight Delays in auditor recruitment could affect submission of annual audit reports.	S	<ul style="list-style-type: none"> ▪ Like most on-going donor-funded projects, the OAG will audit the project and where necessary, appoint a private external auditor based on terms of reference acceptable to the Bank. MAL will ensure that OAG include the project in their annual audit program. 	M	No
Overall Control Risk	S		M	
Overall Project Risk Rating	S		M	

21. Strengths: The main strengths includes, use of existing government financial management systems within the MAL with prior experience in implementing Bank-funded projects (Small-scale Irrigation Project/SIP and Livestock Infrastructure Support Project/LISP), the existence of an experienced Chief Accountant with many years prior experience to provide oversight, existing of comprehensive financial regulations and guidelines which guide financial management within the MAL.

22. Weaknesses: The weaknesses identified are: (i) non-fully operational IFMIS even though the system has been rolled out to the MAL and not at the Provincial and District levels; (ii).

inadequate numbers of appropriately qualified and experienced accounting staff especially at the provincial and district levels; (iii) weak control environment at all levels, Ministry headquarters, Provincial and District, arising from non-compliance and weak enforcement of existing financial rules and regulations; weak internal audit function that focuses on pre-audit of expenditure instead of systems and risk-based audit; (iv) possible delays in getting clearance and approvals for payment processing due to bureaucratic administrative procedures in GoZ; (v) delays in preparation of project financial reports in readiness for audit as experienced under Bank-funded projects within MAL; and (vi) weak follow-up of audit findings and recommendations.

23. **FM Action Plan:** To further strengthen the FM systems within the MAL/PTT and mitigate the identified risks, the following actions were discussed and agreed with MAL to be undertaken, as indicated in Table B.4.2.

Table B.4.2: **FM Action Plan**

#	Required Actions	By Whom	By When	Comment
1.	Prepare and submit a financial management procedures manual as part of the Project Implementation Manual (PIM)	Chief Accountant, MAL	Effectiveness	
2	Recruit a dedicated accountant for the project whose qualification and experienced is acceptable to the Bank.	Chief Accountant, MAL	Effectiveness	The borrower has undertaking to assign the required staff. This will be an effectiveness condition.
3	Procure (where necessary) a Stand-alone off-the-shelf accounting Software to help process project transactions to facilitate financial reporting.	Chief Accountant, MAL	Effectiveness	Alternatively, MAL could create a separate Database for the project within the similar software being procured under the LISP for cost-saving purposes. Procurement of the software is subject to Bank's approval.
4	Provide training in the Bank's financial management and disbursement procedures to the dedicated project accountant and MAL accounting support staff.	Financial Management Specialist, AfDB	Within 3 months after effectiveness.	The first training will be done as part of project launching, and further on-the-job coaching will be provided during Bank FM Supervisions.
5	Ensure that the project will be included as part of the Ministry's Central Internal Audit Unit work program.	Chief Accountant, MAL	Effectiveness	
6	Ensure that project is covered by the OAG annual audit work program; or Private external auditor recruited with OAG's involvement using the Bank's audit terms of reference (TOR) where necessary.	MAL / OAG	Within 6 months after project effectiveness	The OAG confirmed covering the project once timely request is received from MAL.

24. **Implementing Entity:** The project's financial management will be managed by PTT using the existing set-up in the MAL. The multi-disciplinary PTT to be set up within MAL's existing structures would coordinate all financial management issues in line with Bank requirements using the existing country fiduciary systems. The dedicated Project Accountant who would have a dual reporting responsibility, reporting technically directly to the Chief Accountant MAL, and administratively to the Project Coordinator will be supported by respective Provincial and District Accountants in the Project Districts (Sinazongwe, Gwembe, Chongwe, Rufunsa, Serenje and Chitambo) as prescribed within the Government financial structures. An assessment of MAL's financial management capacity for the implementation of the Project indicates that they satisfy Bank requirements to handle and coordinate the financial

management aspect under the Project. The implementation of the recommended actions will further enhance the existing systems.

25. Planning and Budgeting: The budgeting system within MAL as a Government institution is quite comprehensive and in line with GoZ's budgeting procedures. Consequently, the operation will follow the existing Government principles for budgeting as issued by Ministry of Finance. The PTT/MAL will prepare an annual work plan and budget for implementing project activities taking into account the specific components of this project, and link it to the IFMIS Chart of Accounts with APMEP separately identified for financial reporting purposes. These plans and budgets will be submitted to the Project Steering Committee for approval and thereafter to the Bank for review and endorsement.

26. Accounting Policies, Procedures and Information Systems: All Project transactions will be processed using the Government's integrated IFMIS system which is rolled out to most Government ministries, including MAL. The IFMIS is currently being upgraded following the re-basing of the Kwacha, as well as addressing some identified system reporting deficiencies, and expected to be fully operational before Project effectiveness. However, stand-alone of-the-shelf accounting software could be procured (where necessary) to process Project financial transactions. Accounting for the proceeds of the Grant will follow the existing GoZ accounting policies and rely on internal approval processes, payment voucher preparation, and authorization and approval processes. The format for IQPR will be agreed during negotiations and copies made available to the PTT during project launching. Where funds are transferred to the Provincial and District levels to finance Project local activities, the Provincial and District Accountants would coordinate the accounting functions at the decentralized levels in line with Government existing systems and submit copies of all appropriate documents and reports to the Project Accountant at the PTT for consolidation and reporting purposes.

27. Internal Control and Audit. Consistent with the decision to adopt and use some aspects of country systems, the Project's internal controls will rely on GoZ's established accounting and internal control guidelines as documented in the Finance Act (2004) and Financial Regulations (2006). The PIM which will include accounting and administrative procedural manual to be produced by the PTT/MAL and approved by the Bank would guide day to day implementation of the Project with clearly defined roles and responsibilities allowing for segregation of duties. The procedures manual as well as Project's Detailed Cost Table (DCT) would also highlight expenditures eligible for financing under the project. In addition, the expenditure initiation and related controls will follow the authorization and approval processes as pertains within MAL.

28. Funds Flow and Disbursements Arrangements: All disbursements under the Project would be in accordance with rules and procedures as set out in the Bank's Disbursement Handbook (that can be accessed from the Bank's website) as applicable. The project would make use of the Bank's various disbursement methods including (i) Direct Payment, (ii) Special Account (SA) and (iii) Reimbursement methods. The SA method will be used for smaller local eligible operating cost payments, whereas the Direct Payment method will be used for larger (goods, work and services) contracts to be agreed under the financing agreement. One Special Account in foreign currency will be opened at the Bank of Zambia (BoZ) to receive the Grant proceeds to be managed by MAL. Funds will be transferred from the SA into the Project Kwacha sub-account to be held at BoZ and managed by MAL. To facilitate payment of eligible operating costs and in line with GoZ's treasury requirements, seven (7) (1 each in Lusaka, Sinazongwe, Gwembe, Chongwe, Rufunsa, Serenje and Chitambo) mirror local Kwacha Accounts linked to the Kwacha sub-account at BoZ, would be opened at local commercial banks with wider network branches especially at the Project Provinces and Districts, and acceptable to the Bank. In terms of operational procedures for the local sub-account, MAL will issue instructions to BoZ requesting funds to be transferred from the Kwacha sub-account at BoZ

into the respective mirror local kwacha in the Commercial Banks based on quarterly approved eligible operational expenditure cash flow projections prepared from the Project's approved annual work programme and budget. Consequently, the Chief Accountant (MAL) will ensure that no excessive or idle funds remain in the respective mirror accounts at the commercial banks; but will effectively manage the cash flow cycle to ensure availability of funds at the local level (where necessary) to facilitate Project implementation.

29. Releases of funds to finance activities of any other implementing partner(s) will be based on the requirements in respective Memorandum of Understanding (MoU) to be signed between MAL and those respective partners/institutions, and based on the eligibility criteria as outlined in the PIM as well as approved work programs and budgets of those partners/institutions. All subsequent transfers to the province/districts as well as all implementing partners (if any), would be approved subject to justification and submission of statements of expenditures for at least 50% of the preceding advance, and 100% of any previous advances. To facilitate payment and transaction processing for financial reporting purposes, all approved invoices/payment certificates for larger (goods, works and services) contracts (if any) will be submitted by the respective implementing partners to MAL for processing using the Direct Payment method.

30. The GoZ through the MoF will be required to submit to the Bank, details of all Bank Accounts as well as specimen signatures of authorized signatories for signing withdrawal applications and direct payments. The fund flow arrangement is depicted in the diagram below.

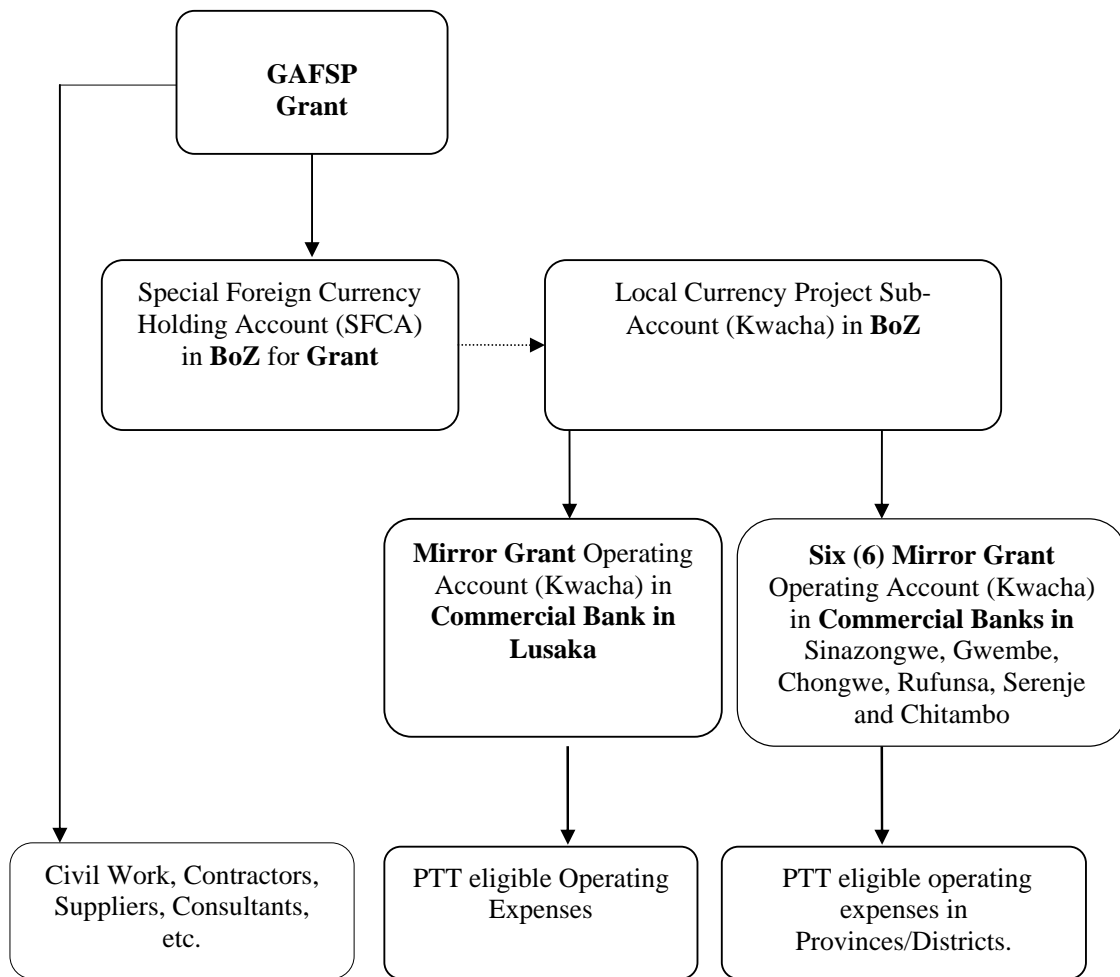
31. *Counterpart contribution:* GoZ and beneficiaries contributions estimated around 10.7% of the total project costs will be in-kind as indicated under Technical Annex B.2. Consequently, no separate Bank account will be opened for GoZ and beneficiary contribution.

32. Financial Reporting: The overall responsibility for financial management (including preparation and submission of withdrawal applications and payment requests to the Bank) will rest with the Chief Accountant, as the head of MAL's Finance Department. In accordance with the Bank's financial reporting and audit requirements, the project will be required to prepare and submit to the Bank Interim Quarterly Progress Report (IQPR) not later than 30 days after the end of each calendar quarter.

33. All implementing partners will be required to submit quarterly reports to the MAL to be consolidated as part of the overall MAL's IQPR to be submitted to the Bank. The assessment revealed there may be delays from the Province/Districts and implementing partners in meeting deadlines for submitting returns and the required reports. To address this weakness, standard reporting templates will be designed to guide quarterly progress reporting, with constant follow up and periodic visit by the dedicated Project Accountant at PTT/MAL to enforce strict compliance. In addition, there is an added incentive for the local levels and other implementing partners to meet reporting requirement since subsequent transfers to them will be based on full submission of returns and accounting for fund use. Format for IQPR would be provided by the Bank and agreed upon during negotiations.

34. FM Supervision: The Project would be implemented in a "Moderate" risk environment. Despite the "Moderate" risk rating, there would be two Supervision Missions in the first year to ensure adequate start-up of Project activities. Financial Management (FM) training as well as the required reporting templates would be provided to the FM staff as part of capacity strengthening by the Bank FM team. Other supervision activities would be desk reviews of the IQPRs, annual audit reports, and management letters for follow-up actions. The outcome of these reviews would inform the intensity of subsequent FM supervisions.

Funds Flow Diagram (GAFSP Resources)



B.5 Procurement Arrangements – Procurement of Goods, Works and Consultancy Services

B.5.1 National Procedures and Regulations - Use of Country Procurement System

35. The Bank has undertaken an assessment of the National Competitive Bidding Procurement procedures in Zambia and identified areas of deviation from best international practices as adopted under Bank procedures. These weaknesses are being addressed by the government. Therefore in the current form the National Procedures cannot be used for Bank financed contracts until the concerns identified in the report are addressed to the Bank's satisfaction. The Bank has been engaging in dialogue with the Government on the identified deviations as outlined in the Global Action Plan (GAP) (included in this Annex), which affect the basic principles underlying the Bank's fiduciary obligations. The deviations relating to the Bank's "fiduciary obligations" have constituted the basis for the dialogue between the CPs and the Government. The CPs have engaged the relevant Government bodies and pointed out provisions of the national procurement law which the country needs to amend in order to meet the required standards under international procurement practices. The Zambia Public Procurement Authority (ZPPA) is currently developing a Strategic Plan which will among other things focus on reforms that will address these issues.

36. The ZPPA is mandated to oversee public procurement to ensure Procuring Entities (PEs) comply with the Act. The internal control of procurement processing is considerably effective. Procurement activities are subject to regular auditing by the Office of the Auditor General (OAG). Furthermore, Zambia has recently put in place a new anti-corruption policy and the institutional arrangement for investigations of corruption cases. Under the Act, suppliers, contractors, and consultants are suspended or barred from participating in procurement for any fraudulent and corrupt activities. Sections 72-74 of the Act provide for code of conduct by public officials, bidders and suppliers (including contractors and consultants). The ZPPA has also recently drafted a code of conduct for the public officers involved in public procurement as well as bidders and suppliers. Essentially, therefore, the necessary institutions and mechanisms are in place for internal controls of the public procurement environment.

B.5.2 Procurement Arrangements

37. All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rules and Procedures: "Rules and Procedures for Procurement of Goods and Works", dated May 2008, revised July 2012; and "Rules and Procedures for the Use of Consultants", dated May 2008, revised July 2012, using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Financing Agreement.

38. The responsibility for the management of the procurement processes and accountability for implementation of all components will rest with the PTT under the MAL. The ZPPA will ensure oversight of all the procurement carried out during Project implementation.

39. The various items under different expenditure categories and related procurement arrangements are summarized in Table B.5.1 and B.5.2 below:

Table B.5.1: Procurement Arrangements

No	Project Categories	NCB	Shopping	QCBS	IC	Other ⁴	Non-Bank Funded (NBF)	Total
1	Civil Works							
1.1	Expansion and Construction of Irrigation Schemes including Environmental Mitigation	5,749.2						5,749.2
1.2	Watershed Management	-					2.3	2.3
1.3	Maize /Feed Mill and Cassava Mill Establishment	806.0						806.0
1.4	Aquaculture Establishment Activities : (Fish Pens and Cages)	514.5						514.5
1.5	Community Market Linkage Infrastructure (Agro Market Centres, Road Side Markets, Access Roads and Culverts)	1,886.4						1886.4
1.6	Support to Mechanisation, Seed Multiplication and Crop Intensification	1,880.7						1880.7
Sub-total		10,836.8					2.3	10,839.1
2	Goods							Total
2.1	Computer and Office Equipment		16.4					16.4
2.3	PSU Office Furniture		12.8					12.4
2.4	Vehicles		125.7					125.7
2.5	Motor Cycles		58.1					58.1

⁴ Applies to the use of "other" procurement methods, as outlined in Table B 5.2.

No	Project Categories	NCB	Shopping	QCBS	IC	Other ⁴	Non-Bank Funded (NBF)	Total
2.6	Various Seeds – Crop Diversification and Intensification		89.0					89.0
2.7	Farm Mechanisation Equipment	580.5						580.5
2.8	Equipment for community level Value Addition (Various)	687.8						687.8
2.9	Small-Livestock for Pass on Scheme		185.9					185.9
	Sub Total	1268.3	538.7					1807.0
3	Services							
3.1	Consultancy Services :							
3.1.1	Nutrition Security and Gender				455.9			455.9
3.1.3	Supervision of Scheme Construction				147.5			147.5
3.1.4	Environmental Site Specific Project Briefs				199.5			199.5
3.1.5	Aquaculture Development				80.6			80.6
3.1.6	Mid Term Review				54.2			54.2
3.1.7	Baseline Survey				34.8			34.8
3.1.8	Beneficiary Impact Assessment				55.3			55.3
3.1.9	Project Completion Review				56.4			56.4
3.1.10	Agro Processing and Value Chain					132.5		132.5
3.1.11	Development of M&E System			110.7				110.7
3.1.12	NGO Livestock Pass on Scheme			508.6				508.6
3.1.13	Financial Audit					252.3		252.3
	Sub Total			718.3	1198.2	384.8		2,027.0
3.2	Training							
3.2.1	Training Women and Youth Groups in Agro-Processing					6.7		6.7
3.2.2	Training in Food Based Interventions					626.6		626.6
3.2.3	Facilitate Community Level Value Addition					37.0		37.0
3.2.4	Staff Training (Market Linkages)					30.2		30.2
3.2.5	Farmer Training (Market Linkages)					105.3		105.3
3.2.6	Market Information					25.3		25.3
3.2.7	Training – Irrigation and Aquaculture Support					1,541		1,541.0
	Sub -Total							2,450.1
4	Miscellaneous							
4.1	Matching Grant Facility (Agro-dealers only)					279.5		279.5
4.2	Nutritional Campaign Activities					1,810.10		1,810.10
4.3	Agro Dealer Capacity Support					12.9		12.9
4.4	Provincial Review and Annual Work Plan Meetings (M and E)					1,143.40		1,143.4
4.5	Aquaculture Preparatory Activities					10.8		10.8
4.6	Provincial Scheme Review –Reports and Drawings					10.7		10.7
	Sub Total							3267.3
5	Operating Costs							
5.1	Nutritional Security and Capacity Building					253.7	150.5	404.2
5.2	Market Linkages					100.3	146.2	246.5
5.3	Monitoring and Evaluation					180.6	100.3	280.9
5.4	Project Management					498.8	252.3	751.1

No	Project Categories	NCB	Shopping	QCBS	IC	Other ⁴	Non-Bank Funded (NBF)	Total
5.5	Crop Diversification and Intensification					47.8	327	374.8
5.6	Irrigation Development					168.3	323	491.3
5.7	Agro-Processing Infrastructure					100.3	186.3	286.6
5.8	Livestock Development					101.6	107.6	209.2
	Sub-Total							3044.6

Table B.5.2: Other Methods of Procurement (UA million)

Item	Amount (UA 000)	Method
Services		
Agro Processing and Value Chain	132.5	CQS
Financial Audit	252.3	LCS
Training		
Training Women and Youth Groups in Agro-Processing	6.7	Based on Bank Approved Training Programme, Work Plan and Budget
Training in Food Based Interventions	626.6	CQS
Facilitate Community Level Value Addition	37	Based on Bank Approved Training Programme, Work Plan and Budget
Staff Training (Market Linkages)	30.2	Based on Bank Approved Training Programme, Work Plan and Budget
Farmer Training (Market Linkages)	105.3	Based on Bank Approved Training Programme, Work Plan and Budget
Market Information	25.3	Based on Bank Approved Training Programme, Work Plan and Budget
Training – Irrigation and Aquaculture Support	541	Based on Bank Approved Training Programme, Work Plan and Budget
Miscellaneous		
Nutritional Campaign Activities	1,810.10	CQS
Agro Dealer Capacity Support	12.9	CQS
Provincial Review and Annual Work Plan Meetings	1,143.40	Internal Operational Systems of Executing Agency
Aquaculture Preparatory Activities	10.8	Bank Approved Annual Work Plan and Budget
Provincial Scheme Review –Reports and Drawings	10.7	Bank Approved Annual Work Plan and Budget
Operating Costs		
Nutritional Security and Capacity Building	404.2	Internal Operational Systems of Executing Agency
Market Linkages	246.5	Internal Operational Systems of Executing Agency
Monitoring and Evaluation	280.9	Internal Operational Systems of Executing Agency
Project Management	751.1	Internal Operational Systems of Executing Agency
Crop Diversification and Intensification	374.8	Internal Operational Systems of Executing Agency
Irrigation Development	491.3	Internal Operational Systems of Executing Agency
Agro-Processing Infrastructure	286.6	Internal Operational Systems of Executing Agency
Livestock Development	209.2	Internal Operational Systems of Executing Agency

40. Civil Works: Contracts of works valued equal to or greater than UA 3 million will be carried out under International Competitive Bidding (ICB) procedures using the Standard Bidding Documents. Unless determined otherwise during implementation the use of the ICB method will not apply because the proposed procurement packages are below UA 3.00 million. Works contracts valued at less than UA 3.00 million will be procured using the National Competitive Bidding (NCB) procedures and these works contracts are estimated in aggregate at UA 10.83 million while each contract package will be less than UA 3 million. These works will comprise development of irrigation schemes including environmental mitigation measures (UA 5.749 million), maize/feed mill and cassava mill establishment (UA 806,000), aquaculture establishment, fish pens and cages (UA 514,500), community market linkage infrastructure, agriculture service (agro-market) centres, road side markets, rural feeder roads and culverts (UA 1.886 million) and support to farm mechanization including seed multiplication and crop Intensification (UA 1.880 million). The contracts for civil works are packaged taking into

consideration the various site locations and scope with minimal lots. This is done in order to enhance competition and interest and streamline the administration of the contracts. Additionally, this will ensure that contracts are awarded to contractors with the capacity to execute work in distant locations. The Packages and lots are defined in the Procurement Plan which is part of this Annex. The use of NCB for the civil works is justified as the works are (i) scattered in three provinces over a wide geographical area, and (ii) the size, scope and financial values are small which are unlikely to attract bids from outside the country.

41. **Goods:** Contracts for procurement for goods grouped to an aggregate value equal and exceeding UA 300,000, International Competitive Bidding (ICB) will be used. Unless determined otherwise during implementation the use of the ICB method will not apply because the proposed procurement packages are below UA 300,000. Where the estimated value of contracts is between UA 300,000 and UA 100,000, NCB will be used and goods below the value of UA 100,000 will be procured using the shopping method. Such goods will include goods contracts for farm mechanisation equipment (UA 580,500) and equipment for community level value addition (UA 687,800), computer and office Equipment (UA 16,400), PTT office furniture (UA 12,800), vehicles (UA 125,700), motorcycles (UA 58,100), various seeds for crop diversification and intensification (UA 89,000) and pilot livestock for pass-on scheme (UA 185,900). The National Shopping will be used for values up to UA 100,000 because the type of goods required within these thresholds are available locally and there are enough established suppliers for such items with strong representation in Zambia. In addition such low value procurements are not likely to attract international suppliers.

42. **Consulting Services:** Procurement of consulting services whose contracts are valued above UA 200,000 will be procured using the Quality and Cost Based Selection (QCBS) method. The procurement of consulting services involving the livestock pass-on scheme to be undertaken by an NGO (UA 508,600) will use the QCBS method while the contract for and the development and management of M&E system (UA 210,700), agro-processing and value chain (UA 132,500) selection based on Consultant's Qualifications (CQS) will be used and Least Cost Selection (LCS) will be used for the financial audit (UA 252,300).

43. **Training:** Training activities as part of enhancing the quality of the interventions valued in total at UA 2.45 million for both staff and community/farmer groups will be carried out on the basis of approved annual training plans and work programs that will identify the general frame work of training activities for the year, including nature of training; duration; number of trainees; cost estimates; location of training and to be prior reviewed and approved by the Bank. Training providers will be identified based on their proven capacities and experience in the area of training and cost effectiveness.

44. When the amount of the contract is less than UA 200,000, the Borrower may limit the publication of a Specific Procurement Notice (SPN) requesting for expressions of interest to national or regional newspapers. However, any eligible consultant, being regional or not, may express his desire to be short-listed.

45. **Miscellaneous Activities and Operation Costs:** *Miscellaneous project activities* amounting in total to UA 3.267 million covering items such as matching grant for agro-dealers, nutritional campaign activities, agro-dealer support, etc. will be will be procured using the Internal Operational system of the Executing Agency based on Bank prior approved work plans and budgets. *Operating expenses* valued in aggregate at UA 3.044 million which include personnel costs, maintenance of motor vehicles and equipment as well as incremental allowances and other approved general administrative and operating expenses will be administered using Executing Agency internal administrative/accounting procedures.

46. Review Thresholds: Procurement of Goods, Works and Services: Procurement decisions subject to Prior Review by the Bank as stated in Appendix 1 to the Bank Rules and Procedures for Procurement of Goods, Works and Services will be as indicated in Table B.5.3a and B.5.3b. Zambia thresholds for NCB and Shortlist (National Consultants) are indicated in Table B.5.4.

Table B.5.3a: Prior-Review Thresholds – Goods and Works

No	Procurement Method	Prior-Review Thresholds UA
1	ICB (Works)	All contracts
2	NCB (Works)	Above 500,000
3	ICB (Goods)	All Contracts
4	NCB (Goods)	Above 100,000
5	Shopping (Goods)	Above 50,000
6	Direct Contracting (Goods and Works)	All Contracts Regardless of Value

Table B.5.3b: Prior-Review Thresholds – Consultants

No	Selection Method	Prior-Review Thresholds (UA)
1.	Competitive Methods (Firms)	Above 200,000
2.	Competitive Method (Individual)	Above 20,000
3.	Single Source (Firms/Individual)	All Contracts Regardless of Value

Note: Shortlist comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than UA 200,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Rules and Procedures for the Use of Consultants.

Table B.5.4: Zambia Thresholds: NCB and Short List (National Consultants)

Country	NCB (UA'000)		Short List National Consultants (UA'000)
	Works	Goods	
Zambia	3,000	300	200

47. Review Procedures: For Prior Review Contracts, the following documents are subject to review and approval before promulgation in compliance with the Bank's Prior Review requirements (*Appendix 1 of the Bank Rules*) and for audit purposes: (a) specific procurement Notices, (b) Prequalification Invitation Documents [*if appropriate*], (c) Tender Documents or Requests for Proposals from Consultants, (d) Tender Evaluation Reports or Reports on Evaluation of Consultants' Proposals, including recommendations for Contract Award, (e) Draft contracts, if these have been amended from the drafts included in tender invitation documents.

48. Frequency of Procurement Post Review Missions: In addition to the Prior Review, Supervision Missions, bi-annual procurement post review missions will be conducted by the Bank. However, the Bank reserves the right to conduct its procurement audit at any time during the Project implementation. The Executing Agency will maintain all relevant procurement records in accordance with Bank requirements for all procurements subject to post review. **Post Review** is recommended where the works, goods and services involved are of small values. Information on procurement processing will be collected by the PTT/MAL and shall be included in detail in the Project Quarterly Progress Report to be submitted to the Bank.

49. General Procurement Notice: The GPN text will be discussed and agreed with the GoZ at negotiations and this will be issued for publication in the "United Nations Development Business Journal" upon approval of the Financing by the Bank's Board of Directors.

50. Assessment of the Executing Agency: The MAL will be responsible for the procurement

of goods, works, consulting services and training services (*as appropriate*). An assessment of the capacity of the Executing Agency to implement procurement actions for the project has been carried out by the Bank. The assessment reviewed the organizational structure for implementing the project and the interaction between the Project's staff responsible for procurement activities and the MAL's relevant support for administration and finance. The resources, capacity, expertise and experience of the MAL are adequate though shall require additional support with project specific staff to carry out the day to day management of the project including procurement activities. Most of the issues/risks concerning the procurement component for implementation of the project have been identified and include from past experience poor and delayed procurement processing leading to low disbursements. This has been one of the key factors accounting for the unsatisfactory Project performance among the majority of Bank financed projects in the country especially where a Government Ministry was the designated executing agency. The corrective measures which have been agreed include putting in place implementation arrangements designed such that procurement processing is not hindered through institutional bottlenecks while ensuring accountability and transparency in the execution of the project. Additionally 3 Project specific staff will be competitively recruited.

51. The MAL practices adequate procurement and financial record keeping and has been handling similar projects efficiently. The MAL has adequate control mechanism in procurement processing. The Project staff shall prepare all procurement requisitions which shall be approved by superiors in conformity with project requirements. The Specific Procurement Notices (SPN) shall be approved and advertised where necessary while a minimum of three quotations shall be obtained for the approval of one supplier or service provider where internal systems shall apply based on prior approved work plans. All tenders are evaluated by an appointed evaluation committee whose recommendations are submitted to the Ministry's tender committee for approval before contract award. Internal audit arrangements are in place.

52. The appointment of a fully qualified PTT Procurement Specialist and other project management staff with a provision of an allocation of UA 2.98 million shared between the Project and GoZ financing has been included in the procurement arrangements to finance these services. The Bank will also continue carrying out procurement training in Bank's procedures for relevant staff (procurement, technical and financial experts) involved in procurement activities in the overall country portfolio. Recruitment of the Procurement Specialist will be undertaken in accordance with the Bank's Rules and Procedures for the Use of Consultants.

53. Risk Assessment and Mitigation Measures: The MAL's risk is rated as *low* and adequate measures have been taken as described above to mitigate any possible risks that the Bank anticipates in project implementation and specifically procurement based on experience on other similar projects and the lessons locally learnt. Some of the measures are the provision of specific project staff to support implementation on a day to day basis.

54. Procurement Plan: The Procurement Plan (Table B.5.5) for project implementation which provides the basis for the procurement packages and methods has been developed for the initial period of 18 months. This Procurement Plan will be updated by the PTT on quarterly basis or as required to reflect the actual project implementation needs and improvements in institutional capacity. Any revisions proposed to the Procurement Plan shall be submitted to the Bank for no objection. The Borrower shall implement the Procurement Plan in the manner in which it has been agreed with the Bank.

55. Global Action Plan for improvement to National Procurement Procedures: The following discrepancies with the Bank's Rules and Procedures have been identified in the national procurement law for Zambia (ZPPA Act) and regulations and hence the National Procurement Procedures shall not be used for procurement activities financed by the Bank. The Table B.5.5

shows the issues and required actions as outlined in the National Procurement Procedures assessment report conducted by the Bank in June 2011.

Table B.5.5: Global Action Plan for Improvement of National Procurement Procedures

Issues Raises in NPP Assessment Report for Zambia	Required Changes
Discrepancies identified in the National Procurement Act and its Regulations – Zambia	
Principle of Eligibility: Eligibility of foreign bidders	Revise the Act to include provisions for Eligibility of foreign bidders (Bank Rules Clauses 1.6)
Principle of Fairness: Independent Complaints Review and Appeals Mechanisms: No independent complaint and appeals review mechanism	Revise the Act to include provisions independent complaint and appeals review mechanism (Rules Clause 1.2).
Principle of Fairness: Application of margin of domestic preference: Unclear margin of domestic preference	Revise the Act to include provision margin of domestic preference (Bank Rules Clause 2.55),
Principle of Fairness: Dual role of ZPPA in procurement decisions and oversight.	Revise the Act to remove provision on the dual role of ZPPA in procurement decisions and oversight (Bank Rules Clause 1.2).
Discrepancies identified in the National Standard Bidding Documents	
The SBDs for Goods and Works do not meet Bank requirements due various deviations reflected in the Act and regulations.	Revise the Act and subsequently the SBDs for Goods and Works taking into account all Bank's Rules and/or based on Bank's SBDs and issue them for use by Procuring entities.

Table B.5.5: Procurement Plan

PROCUREMENT PLAN

1. General		Fill gray cells only!
Country/Organisation:	ZAMBIA	
Project/Programme:	GAFSP - AGRICULTURE PRODUCTIVITY AND MARKET ENHANCEMENT PROJECT	
Loan No:		
Implementing Agency, Address:	MINISTRY OF AGRICULTURE AND LIVESTOCK	
Bank's Approval Date of Procurement Plan:		
Date of General Procurement Notice:		
Period Covered by these Proc. Plans:	JUNE 2014 - DECEMBER 2015	

GOODS

2. **Prior Review Threshold:** Procurement decisions subject to Prior Review by the Bank as stated in the Appraisal Report

Goods and Non-Consulting (see Note 1)

Procurement Method	Prior review Threshold (UAequiv.)	Comments
1. ICB		
2.		
3. NCB		
4.		
5. Shopping		
6.		

3. Procurement Packages with Methods and Time Schedule

Description of Contract	Lot Number	BASIC DATA								Bid Documents		Bidding Period		Bid Evaluation		Contract Award			Contract Implementation	
		Estimated Amount in UA(000)	Procurement Method	Pre- or Post Qualification	Dom/Reg. Preference (Y/N)	Prior or Post Review	Expected Date Issue of Bid Docs	Expected Bid closing Date	Plan vs. Actual	Transmission Bid Does Date	No-objection Date	Bid Invitation Date	Bid Closing-Opening	Bid Evaluation Report	No-objection Date	Contract Amount in UA(000)	Contract Award Date	Contract Signature Date	Start Date	End Date
MOTOR VEHICLES (4X4)	1	199.40	SHOPPING	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
MOTOR CYCLES	1	58.50	SHOPPING	POST	N	POST	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
BICYCLES (PUSH BIKES)	1	16.80	SHOPPING	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
SEEDS (VARIOUS)	1	18.90	SHOPPING	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
LAPTOP/DESKTOP-COMPUTERS AND OTHER OFFICE EQUIPMENT	1	31.90	SHOPPING	POST	N	POST	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
HONEY PRESSES	1	223.30	NCB	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
SOLAR DRYERS (FOR FRUITS AND VEGETABLES)	1-2	732.1	NCB	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
FARM MECHANISATION EQUIPMENT	1	207.5	NCB	POST	N	PRIOR	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
THERMAL STABLE VACCINE - CVRI	1	10.9	SHOPPING	POST	N	POST	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
NEWCASTLE DIAGNOSTIC EQUIPMENT	1	15.6	SHOPPING	POST	N	POST	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
START-UP DRUG BOXES	1	36.0	SHOPPING	POST	N	POST	31/07/2014	31/08/2014	Plan Actual	01/07/2014	11/07/2014	31/07/2014	31/08/2014	19/09/2014	30/09/2014		10/10/2014	14/10/2014	14/10/2014	30/06/2015
Total Cost																	0.00			
																	0.00			

PROCUREMENT PLAN

1. **General** Fill gray cells only!

Country/Organisation:	ZAMBIA
Project/Programme:	GAFSP - AGRICULTURE PRODUCTIVITY AND MARKET ENHANCEMENT PROJECT
Loan No:	
Implementing Agency, Address:	MINISTRY OF AGRICULTURE AND LIVESTOCK
Bank's Approval Date of Procurement Plan:	
Date of General Procurement Notice:	
Period Covered by these Proc. Plans:	JUNE 2014 - DECEMBER 2015

WORKS

2. **Prior Review Threshold:** Procurement decisions subject to Prior Review by the Bank as stated in the Appraisal Report

Works (see Note 2)

0.00

Procurement Method	Prior review Threshold (UAequiv.)	Comments
1. ICB		
2.		
3. NCB		
4.		
5. Shopping		
6.		

3. **Procurement Packages with Methods and Time Schedule**

Description of Contract	Lot Number	Estimated Amount in UA (000)	Procurement Method	Pre- or Post Qualification	Dom/Reg. Preference (Y/N)	Prior or Post Review	Lumpsum or Bill of Quantities	Expected Date Issue of Bid Docs	Expected Bid closing Date	Plan vs. Actual	Bid Documents		Bidding Period		Bid Evaluation		Contract Award			Contract Implementation	
											Transmission Bid Dues Date	No-objection Date	Bid Invitation Date	Bid Closing-Opening	Bid Evaluation Report	No-objection Date	Contract Amount in UA(000)	Contract Award Date	Contract Signature Date	Start Date	End Date
CONSTRUCTION OF SMALL SCALE IRRIGATION SCHEMES	1-4	10,201.2	NCB	POST	N	PRIOR	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF MINI-SCALE/COMMUNAL IRRIGATION SCHEMES	1-12	1,068.3	SHOPPING	POST	N	POST	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF RURAL ACCESS ROADS	1-4	327.8	NCB	POST	N	PRIOR	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF MAIZE/FEED MILLS	1	494.1	NCB	POST	N	PRIOR	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF CASSAVA MILLS	1	98.8	NCB	POST	N	PRIOR	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF AGRICULTURE SERVICE CENTRES/AGRO-MARKETS	1-3	603.9	NCB	POST	N	PRIOR	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
CONSTRUCTION OF ROAD-SIDE MARKETS	1-6	65.9	SHOPPING	POST	N	POST	BOQ	01/09/2014	10/10/2014	Plan	04/08/2014	21/08/2014	01/09/2014	10/10/2014	24/10/2014	07/11/2014		14/11/2014	21/11/2014	28/11/2014	29/07/2016
										Actual											
										Plan											
										Actual											
										Plan											
										Actual											
										Plan											
										Actual											
Total Cost										Plan											0.00
										Actual											0.00

Note: The works will be tendered in lots, according to geographical location and readiness. Mini-scale irrigation schemes will have numerous contracts under one NGO.

PROCUREMENT PLAN

1. **General** Fill gray cells only!

Country/Organisation:	ZAMBIA
Project/Programme:	GAFSP - AGRICULTURE PRODUCTIVITY AND MARKET ENHANCEMENT PROJECT
Loan No:	
Implementing Agency, Address:	MINISTRY OF AGRICULTURE AND LIVESTOCK
Bank's Approval Date of Procurement Plan:	
Date of General Procurement Notice:	
Period Covered by these Proc. Plans:	JUNE 2014 - DECEMBER 2015

CONSULTANTS

2. **Prior Review Threshold:** Procurement decisions subject to Prior Review by the Bank as stated in the Appraisal Report

Consultants (see Note 3)

Procurement Method	Prior review Threshold (UAequiv.)	Comments
1. QCBS (Firms)		
2. Single Source/Firms/Individual		
3. Individual Consultants		
4. Consultant Qualification		
5. Training		
6.		

3. **Procurement Packages with Methods and Time Schedule**

Description of Assignment	BASIC DATA						Request for Expression of Interest				Request for Proposal & Short List				Bid Proposals				Bid Evaluation Technical (T) & Financial (F)				Contract Award			Contract Implementation		
	Estimated Amount in UA (000)	Selection Method	Prior/Post Review	Lumpsum or Time-Based	Expected EOI Date	Expected Proposals closing Date	Plan vs. Actual	Submission Date	No-objection Date	Date Published	Submission Date	Plan vs. Actual	Submission Date	No-objection Date	Invitation Date	Submission/Opening Date	Submission Evaluation Report (T)	No-objection Evaluation Report (T)	Opening Financial Proposals	Submission Eval Report (T & F)	Submission Negotiations Report	No-objection Award & Negotiations	Plan vs. Actual	Contract Amount in UA (000)	Contract Award Date	Contract Signature Date	Start Date	End Date
SUPERVISION OF WORKS	550.1	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
AQUACULTURE DEVELOPMENT	584.7	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
FINANCIAL AUDIT	79.8	LCS	PRIOR	LUMPSUM	04/07/2014	22/08/2014	Plan	04/07/2014	18/07/2014	30/07/2014	22/08/2014	Plan	29/08/2014	05/09/2014	12/09/2014	14/10/2014	24/10/2014	07/11/2014	21/11/2014	28/11/2014	05/12/2014	12/12/2014	Plan		17/12/2014	18/12/2014	05/01/2015	31/12/2019
							Actual					Actual											Actual					
ENVIRONMENTAL MONITORING	67.8	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
NGO - LIVESTOCK PASS ON SCHEME	267.0	QCBS	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
AGRO-PROCESSING AND VALUE CHAIN	62.4	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
NUTRITION SECURITY	180.1	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
PTT - LOCAL EXPERTS (PROJECT COORDINATOR, PROCUREMENT SPECIALIST AND ACCOUNTANT)	516	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
DEVELOPMENT AND MANAGEMENT OF M&E SYSTEM	252.2	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
ASSESSMENT AND SURVEYS (VARIOUS)	233.2	INDIVIDUAL	PRIOR	LUMPSUM	N/A	N/A	Plan	04/07/2014	N/A	N/A	21/08/2014	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Plan		04/09/2014	11/09/2014	01/10/2014	31/10/2018
							Actual					Actual											Actual					
Total Cost																								#REF!				
																								#REF!				

B.6 Audit Arrangements

56. Annual audited financial statements including the auditor's opinion and management letter will be submitted to the Bank not later than six (6) months after the end of each fiscal year during project implementation. A separate audit opinion will be issued on project financial statements, statement of expenditures and internal control environment. As per their mandate and consistent with the use of country FM systems, the Zambia's Office of the Auditor General (OAG) will conduct the audit of the project's financial statements. The audit of the project can however be subcontracted as may be necessary to a firm of private auditors to be procured through Shortlist (LCS), with the involvement of OAG, using the Bank's rules and procedures for procurement. The cost of audit (UA 0.25 million) will be financed from the Grant if carried out by a private firm. In addition to the financial audit, two technical and performance audits (including procurement reviews) will be undertaken during project mid-term and at completion respectively, to be based on technical audit terms of reference to be agreed between the Bank and GoZ. Emphasis will be placed on assessment of proper use and accountability of funds, procurement, physical implementation and quality of the civil works, and social and environmental monitoring. The technical audit would be conducted by an independent firm having expertise in similar work. It is expected that once the project is signed and declared effective, MAL will formally inform the OAG so that a decision is made on whether the OAG will undertake the audit using their in-house personnel and financial resources or will subcontract the audit to an independent private audit firm for the necessary procurement processes to be initiated on time. This is to ensure that there are no delays in meeting the financial covenants for audit submission.

B.7 Economic and Financial Analysis

57. Despite a large endowment in terms of land, labour, water and diversified agro-ecologies, the agriculture sector contribution to the national economy remains below expectation. Overall agricultural contribution to GDP is less than 20% and the 2013 Hunger Index (GHI) was at 24.1, which is an alarming hunger situation. The development of the sector is hampered by the predominance of rain-fed agriculture, low productivity, poor market related infrastructures including storage and processing facilities, and poor feeding conditions.

58. The Project will foster food security through the enhancement of crop diversification and productivity, the development of related basic infrastructures and market linkage. Focus will be made on maize and other non-traditional crops such as cassava, sorghum, soya beans and sweet potatoes. The introduction of new high yielding varieties and extension of new farming systems, including irrigation schemes, good agricultural practices and environmentally friendly production technologies such as soil conservation, agroforestry and crop rotation will increase productivity leading to increased scale of production and revenues accruing to the beneficiary farmers. The development of market related infrastructures including agro-processing plant and community-level processing/value addition will increase the added value and improve the market supply of the different products, fostering the income increase of all stakeholders along the value chain, job creation and food security. Capacity building in modern farm management practice, including the use of improved technologies and in food processing and preservation and, targeted nutrition education will improve productivity and overall nutritional status, mainly for vulnerable groups including children. Specifically designed activities targeting women and youth, mainly in livestock and aquaculture will enhance their empowerment.

59. The Project will promote (i) crop diversification in 5,300 ha, (ii) crop intensification on 6,700 ha, and (iii) irrigation on 2,927 ha. An estimated 75,000 people, of which at least 45%

woman headed, will directly benefit from the project. At least 7,000 poultry-keeping households will have access to the Newcastle vaccine.

60. **Hypothesis:** The economic and financial analysis was based on the incremental net benefit arising from the project investment. The main assumption underlying the economic and financial analysis is an anticipated increase in the productivity of the main crops, milk production and fish captures as a result of the modernization of the farming systems, including irrigation, the development of value added related infrastructure and the improvement of the agricultural service delivery pattern.

61. **Agriculture:** Crop diversification and intensification will be enhanced under rainfed agriculture and irrigation. It is assumed that seed multiplication activities would supply the required seeds to both patterns. **Rainfed agriculture:** It is estimated that about 26,000 ha will be under rainfed cultivation. The main crops are maize, cassava, soya beans, sorghum, groundnuts, sunflower, cowpeas and orange sweet potatoes. The rainfed farming system is mixed cropping with one cycle per year. Maize is the most common crop and it is assumed that 70% of the cultivated area is cropped with maize and 30% with other crops. It is also assumed that 80% of the farmers would adopt the proposed new cropping pattern by the end of the project. **Irrigation:** The irrigation scheme will cover about 2,927 ha. The cropping pattern would be rotational on a year round basis (at least 2 or 3 crops per year). The basic crops are similar to the ones under rainfed but will not include perennial crops. It is a small low-cost labor intensive agriculture using surface irrigation.

62. The table below summarizes the expected productivity of the main crops:

Crops	Rainfed		Under irrigation (t/ha)
	Without project (t/ha)	With project (t/ha)	
Maize	1.9	3	9
Cassava	15	20	30
Sorghum	0.65	1.5	3
Soya beans	1	2	4
Sweet potatoes	4	6	10
Groundnuts	0.5	1	4
cowpeas	1.5	2.5	4
Mixed beans	0.50	1	1.5
Tomatoes	6	10	15

63. **Aquaculture:** The project will develop 280 fish pens and 340 fish cages. The average pen and cage size will be 216m³ with a stocking density of 150 fingerlings per m³. The average selling size is 250 g per fish. The production costs are essentially feed (80%) and labor. It is assumed that there will be 2 harvest cycles per year. The table below gives the expected fish production in metric tonnes.

Items	Number	Unit Size	Total Size	Stocking Density	Fingerlings Stocked (x 1000) (2 cycles/yr)	Sales (MT)
Fish Cages	340	216 m ³	73,440	150 /m ³	25,920	6,480
Fish Pens	280	216 m ³	60,480	150/m ³	25,920	6,480
Total					65,040	16,260

64. **Poultry (Village/Local Chickens):** The Project will promote improvement of health and productivity of local/village chicken which is constrained by outbreak of Newcastle disease. At least 7,000 poultry-keeping households will have access to the Newcastle vaccine. It is expected that as a result, the off-take will increase by 20 chickens a year per household.

65. Project Costs and Prices: The production costs were derived from (i) the Irrigation Subsector Study funded by AfDB, (ii) the Suitability and Economic Viability Study of the Agricultural Service Centers realized by the Zambia National Farmers' Union, and (iii) computed field data from Zambia. Prevailing 2013 market prices were used for input and output valuation. O&M costs including pumping cost have been incorporated in the crop budgets.

Crops	Production Costs/ha (ZMW)			Prices (ZMW)	
	Rainfed		Irrigation	Market	Farm
	Without Project	With Project			
Crops					
Maize	1,038	1,200	1,600	1,700	595
Cassava	1,200	1,400	1,700	2,000	700
Sorghum	700	1,100	1,400	1,500	525
Soya beans	1,300	1,600	2,000	2,700	945
Sweet potatoes	1,200	1,500	1,800	2,000	700
Groundnuts	1,200	1,400	1,750	3,000	1,050
cowpeas	1,100	1,400	1,900	2,500	875
Mixed beans	1,300	1,600	2,300	3,500	1,225
Tomatoes	1,700	2,100	2,500	1,500	525

66. Other Assumptions: (i) Although maize is not exported, it was treated in the analysis, as a traded good since it offers an important export potential; and (ii) Post-harvest losses 30%.

67. Financial Internal Rate of Return (FIRR): All project costs and prices were estimated on the basis of constant market prices for a span of 25 years. The FIRR is 20.0% with a NPV of USD 2.8 million at a capital opportunity cost of 12%.

68. Economic Internal Rate of Return (EIRR): Maize was considered as a traded good and its market price was adjusted to reflect its economic value. For the other crops, the market prices were used since they were not import substitutes. The unskilled labour wage in the mining sector was used to assess the cost of family labor used in the farm. All subsidies have been excluded. The EIRR is 26.0% for a NPV of USD 3.2 million at a capital opportunity cost of 12%. GoZ's heavy subsidies of inputs explain the large difference between the FIRR and the EIRR.

FINANCIAL ANALYSIS						
ITEMS	1	2	3	4	5	6 to 25
Revenue (ZMK)						
Agriculture	-	-	37 783 165	43 939 078	50 094 990	50 094 990
Fisheries			3 962 700	7 925 400	13 209 000	13 209 000
Poultry			1 225 000	1 837 500	2 205 000	2 450 000
Livestock			493 290	616 613	698 828	822 150
Total inflow	-	-	43 464 155	54 318 590	66 207 818	66 576 140
Costs						
Investments	190 939 511	-	-	-	-	-
O&M	1 500 000	5 800 000	7 400 000	8 750 000	14 750 000	14 750 000
Total outflows	192 439 511	5 800 000	7 400 000	8 750 000	14 837 379	14 750 000
Net Flows	- 192 439 511	- 5 800 000	37 618 015	46 386 628	51 738 761	51 826 140
FIRR	20%					
NPV	ZMK 15,510,650					

ECONOMIC ANALYSIS						
ITEMS	1	2	3	4	5	6 to 25
Revenue (ZMK)						
Agriculture	-	-	53 443 525	59 956 063	66 468 600	66 468 600
Fisheries			3 962 700	7 925 400	13 209 000	13 209 000
Poultry			1 225 000	1 837 500	2 205 000	2 205 000
Livestock			616 613	770 766	873 534	873 534
Total inflow	-	-	59 247 838	70 489 728	82 756 134	82 756 134
Costs						
Investments	190 939 511	-	-	-	-	-
O&M	1 500 000	5 800 000	7 400 000	8 750 000	14 750 000	14 750 000
Total outflows	192 439 511	5 800 000	918 750	8 750 000	14 750 000	14 750 000
Net Flows	- 192 439 511	- 5 800 000	58 329 088	61 739 728	68 006 134	68 006 134
FIRR	26%					
NPV	ZMK 17,493,928					

69. **Sensitivity Analysis:** The sensitivity analysis in the table below, shows that Both EIRR and FIRR are sensitive to change in prices and to some extent, cost variation.

Item	EIRR (26.0%)	FIRR (20.0%)
10% price increase	29%	22%
10% price decrease	24	18%
10% cost increase	25	19
10% cost decrease	27%	21

70. **Farmers' benefits:** To assess farmers' benefits, 4 farm models were developed for rainfed agriculture, irrigation, livestock and aquaculture, using farm gate prices. *Agriculture and Irrigation:* The average farm size per household is 0.5 ha under rainfed agriculture and 0.35 ha under irrigation. The incremental net annual income per household is ZMW 563 (about USD 100) under rainfed and ZMW 3,561 (USD 650) under irrigation. The fertilizers are heavily subsidized by the Government for maize and no fee is charged for the use of water. When the different subsidies are removed and the payment of water rights introduced, the net annual income is ZMW 338 (USD 60) under rainfed and ZMW 2,136 (USD 390) under irrigation. The main constraint to a significant increase of the beneficiary's income is the size of the farm per household. *Aquaculture:* The annual average income per household generated by aquaculture (fish-farming) activities is ZMW 3,625 (USD 662) for fish cages and ponds and ZMW 10,530 (USD 1923) for fish ponds. *Livestock:* The supply of Newcastle vaccine is expected to increase poultry-keeping household income by ZMW 350 (USD 64) per year.

Crops	Production Costs/ha (ZMW)			Prices (ZMW)	
	Rainfed		Irrigation	Market	Farm
	Without Project	With Project			
Maize	1,038	1,200	1,500	1,700	595
Cassava	1,200	1,400	1,600	2,000	700
Sorghum	700	1,100	1,300	1,500	525
Soya beans	1,300	1,600	2,000	2,700	945
Sweet potatoes	1,200	1,500	1,800	2,000	700
Groundnuts	1,200	1,400	1,650	3,000	1,050
Mixed beans	1,300	1,600	2,200	3,500	1,225
Tomatoes	1,700	2,100	2,500	1,500	525

B.8 Environmental and Social Analysis

71. The National Conservation Strategy (NCS) was adopted as a policy document by the GoZ in 1985 which led to the establishment of environmental legislation and institutional set up in the country. The Environmental Impact Assessment (EIA) process in Zambia is governed by the provisions of the Environmental Protection and Pollution Control Act (EPPCA) No. 12 of 1990, Statutory Instrument No. 28 of 1997—the Environmental Impact Assessment Regulations. Under EPPCA, it is mandatory that all development plans, policies and projects undergo a process of environmental impact assessment and the administrative clearance by the Zambia Environmental Management Agency (ZEMA) in conformity with the provision of the Act. ZEMA is a statutory body created under the EPPCA in 1992 with the mandate of environmental protection, pollution control, and monitoring implementation of mitigation measures highlighted in environmental and social management plans. APMEP is covered by a Strategic Environmental and Social Assessment (SESA) which was prepared by MAL with assistance of an Environmentalist (Individual Consultant) in accordance with the Zambia Environmental Regulations and Bank's Environmental and Social Assessment Procedures (ESAP).

72. The Project is classified as Environment Category 2 using Bank's ESAP. The infrastructure investments supported by the Project will generate localized and short-term

negative environmental impacts which will largely occur during the construction/rehabilitation phase of the project. The negative impacts will include: (a) *increase in soil erosion* related to construction and rehabilitation activities particularly in degraded lands with loose soils, (b) *Increased turbidity in water sources* from effluent or runoff containing high content of suspended solids from construction sites. In addition, accidental spillage of fuel, lubricants and other chemicals used in the construction process and wastewater from workers' camp would likely be a source of water contamination, (c) *Clearance of vegetation covers* during the construction phase. Limited vegetation clearance may occur at the construction sites, and at borrow pits. Removal of vegetation cover would increase erosion potentials and dusts generation into the air. The level of impacts depends on: land area to be cleared and density of existing vegetation cover, which associated with the amount of waste to be generated and physical characteristics of the soil, (d) *Increased localized noise levels and vibration due to earthmoving equipment and machinery*, construction plants and construction activities such as piling, excavation or installation of equipment, loading of construction materials, concrete pouring, drilling. Increased localized noise levels usually occur in short term. The scope of impacts would depend on (i) number, frequency and working durations of noise sources, and (ii) time of the day (night time), and (e) *Reduced localized air quality due to dust from construction sites* and surrounding areas, include the areas along materials transportation route affect localized air quality. Increased dust level along the road used for transportation of as granular construction materials drop, dust from temporary loading of granular construction materials such as sand or stockpile from excavation works, dusts from construction waste dumping sites. The impacts usually last in a relative short time, are of low magnitude but can causes nuisances to local people, and disturb local daily life. The scope of impacts depends on, (i) the number and frequency of vehicles in use, (ii) the quantity of granular materials to be temporarily loaded at a time, (iii) the size of the granular materials, and (iv) weather conditions, and dust emissions.

73. The Project is likely to generate positive social and economic impacts that could lead to reduced poverty levels, improved food security through increased crops, fish, livestock production, creation of jobs for the local population and youths especially during the construction phase of the Project, diversified agricultural resource base and improved household income. The Project will also generate positive environmental impacts which will include: (i) reduced land/soil degradation through watershed management, and (ii) reduced water pollution from adoption of proper effluent and solid waste management systems. In order to mitigate the potential negative impacts the MAL will implement the following mitigation measures: (a) re-vegetating cleared land, and (b) restoration of borrow-pits, and (c) watershed management.

74. Institutional Arrangements: The MAL has a robust capacity for both environmental and social safeguards implementation. In addition, ZEMA as a regulatory agency is professionally staffed with demonstrated effective enforcement of environmental regulations. ZEMA works closely with the Environmental Officers at the line Ministries who are responsible for site level environmental management of project activities. MAL, with assistance of the Environmental Consultant to be recruited by the Project, will be required to prepare site-specific design stage ESIA studies during implementation of the Project in compliance with the Zambia EIA Law and the Bank's ESAP. The PTT bears the full responsibility of preparing the studies. During project implementation, supervision and monitoring will be very crucial to ensure that the proposed mitigation measures are implemented. The PTT together with ZEMA will be responsible for monitoring of the environmental and social aspects of the Project. Indicators for monitoring changes in the physical, biological and socio-economic environments are included in the ESMP, as indicated in Table B.8.1. The Environmental and Social Monitoring Plan is in Table B.8.2.

75. The cost of environmental activities including mitigation measures is UA 92,300 (from the GAFSP Grant) in addition to amounts incorporated in the civil works and reflected in

bidding documents. Environmental monitoring is one of the APMEP activities.

76. Green Growth: Zambian society, economy and environment are interlinked in that the majority of rural households are dependent on agriculture and the larger society is dependent on smallholder rural households to properly manage land and water resources for sustained food and water supply. By investing in agricultural infrastructure, APMEP will enhance crop, fish and livestock production potential by minimizing the supply constraints and enhancing agro-processing and market linkages. The Project will contribute to economic growth and beneficiary (men and women) development through use of available resources in a sustainable manner by mitigating the adverse impacts to environmental change and resource constraints. The Project has incorporated solutions to the negative impact on environmental changes such as land degradation, natural resource depletion and climate change which will result in improved well-being of beneficiaries and also social equity.

77. Inclusive Growth: In the context of extensive based and pro-poor growth, the Project has promoted inclusive growth with equitable allocation of available resource to component activities which will mainly benefits all levels of the participating society. This approach will increase the involvement of rural male and female beneficiaries into the growth process of the country thereby contributing to the reduction of poverty. APMEP has deliberately targeted women and youths in order to ensure their access to project resources.

78. Social Analysis: Poverty rates have remained high in Zambia and recent statistics indicate that about 60% of the population is still living below the poverty line (less than 1USD/day). Other social challenges include high levels of unemployment especially among the youths and rural areas are characterised by high illiteracy rates, high incidence of HIV/AIDS, limited access to infrastructure and services. In the education sector, rural\urban and female\male gaps in literacy continue to remain wide. Poor school infrastructure in rural areas affects enrolment and completion rates. Unemployment especially among the youth has increased from 22% in 2008 to 28% in 2010⁵. The prevalence and incidence of HIV/AIDS is estimated at 16% among adult ages 15–49. Although the epidemic is showing signs of stabilization in urban areas, the rates continue to rise in some rural areas. The risk posed by HIV/AIDS pandemic will be mitigated by awareness campaigns and incorporation of HIV/AIDS messages in training. The project will use MAL's HIV/AIDS extension tools in disseminating HIV/AIDS prevention, treatment and care information for staff and farmers. The project will also improve the nutritional status of affected rural households and communities through consumption of meat and milk products which are rich in proteins. The broader stakeholder participation and partnerships in project activities will enhance social coherence and stability which are key ingredients for inclusive growth and development. This will be achieved through improved access to employment opportunities and decreasing social exclusion of certain groups (women and youth). The project will offer opportunities for transfer of skills (value addition training and training of artisans) which directly lead to a greater accumulation of human capital. The project will also contribute to poverty reduction through the provision of income and better livelihoods to participating communities.

79. Involuntary resettlement: There will be no involuntary resettlement or land acquisition envisioned within the implementation of the Project activities.

⁵ Combined 2011-2015 Zambia Strategy Paper and Country Portfolio Performance Review, AfDB, January 2013.

Table B.8.1: Summary of Environmental and Social Management Plan

REF	PROJECT ACTIVITY	IMPACT	MITIGATION/ENHANCEMENT MEASURES	RESPONSIBILITY	CAPACITY BUILDING	SCHEDULE/FREQUENCY
5.2	POSITIVE ENVIRONMENTAL IMPACTS					
(i)	Catchment Restoration					
	<ul style="list-style-type: none"> Catchment Management Conservation works and agro-forestry programmes in the hinterland of rehabilitated reservoirs, and irrigation schemes Tree planting programmes. 	<ul style="list-style-type: none"> Improve and integrate management of land, water and related biological resources in order to achieve the sustainable and balanced use of these resources. controlling soil erosion and stopping land degradation from productive lands 	<ul style="list-style-type: none"> Support tree nurseries, plantations, fencing of protected areas Facilitate efforts to restore habitats, Encourage regeneration and the development of fauna. Carry out Conservation works and agro-forestry programmes. establishment of conservation works like planting vertiver grass, construction of swells and contours ridging 	<ul style="list-style-type: none"> PTT Local Government Agriculture and Forestry Officers beneficiaries 	Catchment Management	continuous
(ii)	Waste Management					
	<ul style="list-style-type: none"> Installation of Industrial effluent treatment facilities at agro-related sites Rehabilitation and installation of sanitation facilities in at the agricultural facilities Organic fertilizer production – composting waste. 	<ul style="list-style-type: none"> there will not be any effluent discharges that will pollute the environment reducing the pollution from open defecation It reduces the amount of waste that was being dumped into the environment. 	<ul style="list-style-type: none"> Establish treatment plants at agro-processing plants Irrigate field and pastures using treated effluent. Install sanitation facilities at irrigation schemes, road side markets, etc Produce organic fertiliser from agro-waste 	<ul style="list-style-type: none"> PTT Local Government Agriculture and Forestry Officers beneficiaries 		On inception and continuous thereafter.
5.3	NEGATIVE ENVIRONMENTAL IMPACTS					
(i)	Temporary Visual Intrusions					
	Rehabilitation/construction of agriculture, irrigation fishery and Value addition infrastructure will require extraction of sand from the rivers; rocks from the mountains and other borrow pits.	Rehabilitation/construction of agriculture, irrigation fishery and Value addition infrastructure will change the characteristics of the area and leave a marred landscape	<ul style="list-style-type: none"> Construction teams should ensure minimum footprint of construction activities. All altered landscapes (Sand pits, borrow pits, brick moulding sites etc) should be rehabilitated by contractor. 	<ul style="list-style-type: none"> PTT Construction teams, RDCs ZEMA 	none	At end of construction phase.
(ii)	Water logging and Salinisation					
	<ul style="list-style-type: none"> seepage from canals and ditches 	<ul style="list-style-type: none"> Water logging in the scheme 	<ul style="list-style-type: none"> Institute proper water management to avoid over-irrigation. 	PTT, Local Government, MAL, & beneficiaries		
(iii)	Loss of Vegetation Cover					
	<ul style="list-style-type: none"> Vegetation clearing of project sites may occur during rehabilitation/construction of the Agriculture, irrigation, Livestock and Fisheries infrastructure. Over-stocking of goats. 	<ul style="list-style-type: none"> Over abstraction of resources (tree cutting) may occur for construction purposes and firewood. Sensitive habitats may be affected as materials are sought, e.g. Grass from wetlands. Land left bare from site clearing and overgrazing...prone to erosion 	<ul style="list-style-type: none"> preservation of protected plant species, use of alternative sources of energy, awareness campaigns Sensitive habitats should be avoided. Clearing should be limited to working areas only. Revegetation and reforestation must be prioritized. Habitat restoration must be done where ever needed. Sustainable catchment management must be practiced 	<ul style="list-style-type: none"> GoZ, ZEMA Construction teams, Project staff, RDCs Social Services Officers Agric. Officers, Beneficiaries 	Environmental awareness training	continuous
(iv)	Soil and land degradation					
	<ul style="list-style-type: none"> Vegetation clearing, digging of foundations, soil trampling and compaction from construction activities. extraction of construction materials from quarries and borrow pits Construction activities in marginal lands. Accidental discharges and oil leaks from machinery. 	<ul style="list-style-type: none"> Increased soil erosion due to vegetation clearing, soil trampling and compaction. Increased rapid runoff due to vegetation clearing and soil compaction diminishing infiltration capacity. Deterioration of soil characteristics due to increased erosion. Further degradation of marginal lands. Soil and water pollution from oil leaks. 	<ul style="list-style-type: none"> Stabilization of loose soil, controlled excavation, preservation of vegetation cover, controlled transportation of raw materials, Appropriate landscaping. Soil erosion control measures (e.g. re-vegetation, reseeding of grasses, land preparation, terracing, use of gabions, etc) Restoration of borrow pits, sand and quarry stone abstraction sites and brick moulding sites. Use of good machines. 	<ul style="list-style-type: none"> GoZ, ZEMA Construction teams, Project staff, RDCs Social Services Officers Agric. Officers, Beneficiaries Construction teams, Project staff, 	Environmental awareness training	Continuous and at end of construction phase
(v)	Bio-Diversity Changes					
	<ul style="list-style-type: none"> Drastic land use changes including converting virgin lands into cultivated land – monoculture Infestation of areas due to new crops 	<ul style="list-style-type: none"> monocultures affect bio-diversity and introduce pests and diseases 	<ul style="list-style-type: none"> Use of Integrated pest management Introduce diversification at irrigation schemes 	<ul style="list-style-type: none"> Beneficiaries Project staff, 		
(vi)	Loss of fragile ecosystems					

REF	PROJECT ACTIVITY	IMPACT	MITIGATION/ENHANCEMENT MEASURES	RESPONSIBILITY	CAPACITY BUILDING	SCHEDULE/FREQUENCY
	<ul style="list-style-type: none"> Establishment of facilities in fragile ecosystems like wetlands and mountain tops. Overgrazing from animals 	<ul style="list-style-type: none"> erosion of the mountain tops and sides loss of the natural purpose of these systems (systems failure) 	<ul style="list-style-type: none"> Sustainable use of fragile ecosystems. Instituting proper wetlands management. 	<ul style="list-style-type: none"> Beneficiaries Construction teams, Project staff, 		
(vii)	Pollution of Ambient air					
	<ul style="list-style-type: none"> Land preparations, Infrastructure construction excavations, digging of foundations, roads, culverts etc processing plant operations 	<ul style="list-style-type: none"> Production of smoke and dust polluting the air. Air Quality will be impacted by emission of waste from land preparation, construction activities, and use of infrastructure. Dust can affect workers and public – bronchial disorders, impaired visibility and plant growth. 	<ul style="list-style-type: none"> Waste from rehabilitated infrastructure must be handled properly to avoid smells. Construction teams should use dust screens or nets in windows, doorways and ventilators of rooms where demolition or other dusty construction activities are occurring. Dust suppression measures, like spraying of water. 	<ul style="list-style-type: none"> Project Management Construction teams RDCs 	Environmental awareness training	continuous
(viii)	Pollution of Ambient water					
	<ul style="list-style-type: none"> Increased use of chemicals in the agricultural processes, fertilisers, herbicides etc. Processing of agro-products releasing effluents. Actual act of clearance, Digging and excavating, Rehabilitation works e.g. roads will release materials into the nearby water bodies, thus polluting them. 	<ul style="list-style-type: none"> Ambient water polluted by erosion materials from works. Ambient water polluted by agro-chemicals Ambient water polluted by agro-processing effluents. Natural pollution from over-abstraction of groundwater. 	<ul style="list-style-type: none"> Use of existing servitudes for access Avoiding massive clearing of vegetation during the rainy season or dry windy periods when erosion is likely to be high. Onsite limit clearance Institute integrated Pest Management methods. Handle agro-processing effluents properly 	<ul style="list-style-type: none"> MEWD Project Management Construction teams RDCs 	Environmental awareness training	continuous
(ix)	Noise					
	<ul style="list-style-type: none"> Digging and excavations for rehabilitation works. Noise and vibrations from machinery. Movement of labour, and equipment 	<ul style="list-style-type: none"> Small Magnitude: if manual methods are used affect the quietness of the communities hearing impairments due to prolonged noisy conditions disturb the normal roaming patterns of wild animals 	<ul style="list-style-type: none"> Use Protective masks. Restrict activities to daytime. Instil good behaviour among the workers. Use manual methods, if possible avoid heavy machinery. 	<ul style="list-style-type: none"> Project Management Construction teams RDCs 	Environmental awareness training	continuous
5.4	POSITIVE SOCIAL AND HEALTH IMPACTS					
(i)	Improvement in livelihoods and local economies					
	<ul style="list-style-type: none"> Improved communal infrastructure like roads, clinics, bridges, schools Targeting and selection of beneficiaries. Implementing extension work Engagement in different activities using the infrastructure like irrigation schemes, roads, mills. Engagement in value addition activities. Undertaking post harvest activities. 	<ul style="list-style-type: none"> Enhancement of the livelihoods of the communities, raising their incomes and hence further improving productivity and lifestyles. Social conflicts may arise due to increased wealth differentials among the population. Job opportunities for the beneficiaries. Expanded opportunities arising from the infrastructure result in creation of job opportunities. 	<ul style="list-style-type: none"> Leadership should promote viable economic activities. Awareness on replication by others should be a continuous process Offer appropriate training for scheme members to manage the improved facilities. 	<ul style="list-style-type: none"> APMEP local leadership PTT 	Training in Business Management	Continuous At inception and at end of construction phase.
(ii)	Gender and Youth Empowerment					
	<ul style="list-style-type: none"> increasing access to project activities for women and youths. increasing their participation in project implementation, community representation and decision-making support, at least 30%, involvement of women 	<ul style="list-style-type: none"> women, and youth empowered improvement of the life of women, in particular, and the household in general 	<ul style="list-style-type: none"> deliberately target women small ruminants for women 			
(iii)	Food security and risk reduction					
	<ul style="list-style-type: none"> Intensification of agricultural production from irrigation schemes and nutrition gardens improved access to markets and better access to the opportunities of investment 	<ul style="list-style-type: none"> Communities receive better harvest from improved facilities 	<ul style="list-style-type: none"> improve access to markets to help beneficiaries to make better production decisions Employment good farming practices to maintain productivity. 	<ul style="list-style-type: none"> APMEP, PTT Agricultural facility management 	Commercial approach to agriculture.	Monthly and seasonally
(iv)	Improved access to Social services					
	<ul style="list-style-type: none"> Rehabilitation of link roads and bridges. 	<ul style="list-style-type: none"> improved road conditions will provide increased access to social services, and markets Service and goods providers easily access rural areas. improving the health situation of the populations 	<ul style="list-style-type: none"> Maintenance teams to be stationed at readily accessible places for the roads. Planned maintenance of infrastructure to be instituted. 	APMEP, Min. of Transport RDCs, PTT, Infrastructure facility management	Maintenance of rehabilitated infrastructure	monthly
(v)	Improved aesthetics and life of Communal Assets					

REF	PROJECT ACTIVITY	IMPACT	MITIGATION/ENHANCEMENT MEASURES	RESPONSIBILITY	CAPACITY BUILDING	SCHEDULE/FREQUENCY
	<ul style="list-style-type: none"> Rehabilitation/construction of communal assets Restoration of infrastructure 	<ul style="list-style-type: none"> Improvement of the aesthetics of communal assets. Assets receive a new lease of life and become more durable. 	<ul style="list-style-type: none"> Maintenance teams to be stationed at readily accessible places for the communal facilities. Planned maintenance of infrastructure to be instituted. 	APMEP, PTT, Infrastructure facility management	Maintenance of rehabilitated infrastructure	monthly
5.5	NEGATIVE SOCIAL AND HEALTH IMPACTS					
(i)	Lack of Project Ownership					
	<ul style="list-style-type: none"> Poor participation of communities, staff members and other stakeholders in the planning and designing of the project. 	<ul style="list-style-type: none"> Project planning process impaired. Information not available Lack of ownership of the project 	<ul style="list-style-type: none"> All relevant stakeholders should be continuously involved and attend meetings from planning to construction 	<ul style="list-style-type: none"> APMEP PTT 	None	Monthly meetings
(ii)	Loss of assets or access to assets					
	<ul style="list-style-type: none"> Establishment of sub-projects in some areas interfering with communal assets. 	<ul style="list-style-type: none"> Grazing and hunting grounds either cut off or taken up. Foot paths disrupted 	<ul style="list-style-type: none"> Avoid land acquisitions. Build alternative foot paths, bridges and crossing facilities. 	<ul style="list-style-type: none"> APMEP PTT 	None	
(iii)	Loss of natural and cultural heritage					
	<ul style="list-style-type: none"> The Rehabilitation/construction of the Agriculture, and fisheries infrastructure affecting some natural features excavations for the works will cause destruction of the natural features 	<ul style="list-style-type: none"> Natural landscapes, features or sceneries destroyed Cultural Heritage, antics and relics destroyed. 	<ul style="list-style-type: none"> Avoid sites with cultural heritage. Use chance finds procedure in case of any finds. 	<ul style="list-style-type: none"> APMEP ZEMA, PTT Construction teams 	None	At inception Continuous throughout the programme.
(iv)	Social misdemeanour					
	<ul style="list-style-type: none"> Coming together of large groups of people to form the construction gangs. Having a source of income to engage in other social activities. 	Impacts associated with the construction teams include: <ul style="list-style-type: none"> Disposal of liquid and solid wastes. Theft, alcoholism and sexually transmitted diseases (especially HIV/AIDS). 	<ul style="list-style-type: none"> Construction team leaders to curb thefts and misbehaviour through a code of conduct. Construction team to manage any of its waste properly. 	<ul style="list-style-type: none"> EPAMEP ZEMA, PTT Construction teams 	None	At inception Continuous throughout the programme.
(v)	Outbreak of social conflicts					
	<ul style="list-style-type: none"> Employment of migrant labour in favour of locals Wealth differentials between beneficiaries and non beneficiaries. Use of land previously designated for other use like grazing. Over abstraction of water in competition with other uses. 	<ul style="list-style-type: none"> Social conflicts. Sabotaging of the project Fighting etc 	<ul style="list-style-type: none"> Local labour must be employed especially for all non technical work. Manual labour must be used to create employment for the youth. Resources must be shared equitably. 	<ul style="list-style-type: none"> APMEP, PTT Project Management 	Conflict resolution	At inception and throughout the programme.
(vi)	Occupational Health and Safety risks					
	<ul style="list-style-type: none"> The movement of trucks to and from the site, the operation of the various simple equipment e.g. picks, shovels The actual use of the infrastructure e.g. agricultural activities injuries. Generation of Pollutants such as dust and noise 	<ul style="list-style-type: none"> Exposure of the workers to work-related accidents. Health of workers compromised by dust and noise. 	<ul style="list-style-type: none"> All safety precautions must be enforced. Provide PPE to all workers. Institute dust and noise suppression measures. 	<ul style="list-style-type: none"> APMEP, PTT RDCs 	Application of various PPE and their proper use.	Continuous
(vii)	Outbreak of Water-borne or water-related diseases					
	<ul style="list-style-type: none"> The introduction of irrigation. Poor maintenance of irrigation canals Allowing stagnant pools to develop. 	<ul style="list-style-type: none"> Outbreak of malaria, bilharzia (schistosomiasis) and river blindness (onchocerciasis) increased use of agrochemicals, deterioration of water quality, and increased population pressure in the area 	<ul style="list-style-type: none"> proper and planned maintenance of canals regular cleaning of canals not allowing water stagnation provision of clean water points in the irrigation schemes proper water irrigation management 	<ul style="list-style-type: none"> APMEP, PTT RDCs 	Application of various PPE and their proper use.	Continuous

Table B.8.2: Environmental and Social Monitoring Plan

ISSUE	METHOD OF MONITORING	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	COST (USD)	RESPONSIBLE AUTHORITIES
Soils	The Developer should make a daily inspection of earth works, and ensure that slopes are suitably graded. Once earthworks are complete the PTT should monitor the restoration measures implemented by the Contractor, such as re-vegetation	<ul style="list-style-type: none"> • Soil erosion • Conservation activities • Rangelands management 	an absence of rills, gullies or other erosion features occurs	Regularly and ongoing as project is implemented	282.35	Department of Forestry
Vegetation	The farmers must clear area to be used and site works only.	<ul style="list-style-type: none"> • Clearing of the project site and disturbance of animals. • flora and fauna 	No unnecessary vegetation cleared	Regularly and ongoing as project is implemented	282.35	<ul style="list-style-type: none"> • Department of Forestry • Zambia Environmental Management Agency (ZEMA).
Birds	Interference with nesting sites	<ul style="list-style-type: none"> • Nesting sites • Migratory routes 	Reproductive patterns of birds undisturbed	Regularly and ongoing as project is implemented	282.35	<ul style="list-style-type: none"> • Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority
Small mammals habitat loss	Ensure that no unnecessary habitat loss occurs.	<ul style="list-style-type: none"> • Animal habitats 	No Mammals are displaced from their habitats.	Regularly and ongoing as project is implemented	282.35	<ul style="list-style-type: none"> • Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority
Crime	The PTT should Liaise with police department if crime/theft becomes a problem.	<ul style="list-style-type: none"> • Criminal activities in the area 	Crime theft kept to a minimum. Incidences of stock theft and house breaking minimized.	Regularly and ongoing as project is implemented	282.35	<ul style="list-style-type: none"> • Zambia Wildlife Authority • Police department • District Administrator
Noise	Noise monitoring should be carried out on an ad-hoc basis by the Environmental Monitor or the PTT to establish noise levels in the work areas.	<ul style="list-style-type: none"> • Noise Levels 	Noise levels at the nearest sensitive receiver would be kept to a minimum.	Regularly and ongoing as project is implemented.	282.35	<ul style="list-style-type: none"> • Ministry Of Health • Zambia Environmental Management Agency (ZEMA).
Health	The PTT must ensure that education and awareness campaigns are implemented. The Ministry of Health, local authority should carry out awareness campaigns on animal related diseases, water-borne diseases and carry out vector control methods such as regular spraying of potential breeding sites (ponds)	<ul style="list-style-type: none"> • Public health • Ensure that stagnant water is sprayed to destroy mosquito larvae. • Waste management at Sub-project sites. • Disease outbreak due to concentration of people at the Sub-project sites. • Disease outbreak due to dust and water pollution. • Control and management of various animal diseases 	Reduction in number of cases of such diseases as Avian flu, foot and mouth, AIDS/STD related diseases recorded at hospital and medical clinic Reduction in number of diseases such as malaria and cholera	Regularly and ongoing as project is implemented	282.35	<ul style="list-style-type: none"> • Health ministry • PTT • MAL
Archaeology	Provision should be made to allow archaeologists to be present on site during the excavation periods if they so wish. The PTT should inspect all excavations, and where archaeological remains are found work must stop until the PTT has given the all clear to proceed. The PTT should contact the Museums Authorities in the event of a significant archaeological find.	<ul style="list-style-type: none"> • Archaeological Findings 	Archaeological remains not excavated, disturbed or destroyed.	<ul style="list-style-type: none"> • Regularly and ongoing as project is implemented • Room for chance finds 	282.35	<ul style="list-style-type: none"> • National Heritage Conservation Commission
Energy	The Developer must inspect the provisions made by the Contractor to supply energy to the workforce, and ensure that fuel wood is not being collected. ZEMA should enforce legislation which prohibits cutting down of trees. ZEMA, and local leadership (cultural and political) should sensitize workers against cutting down of trees.	<ul style="list-style-type: none"> • Types of energy sources used in the project 	Energy supplied by electric generator or other suitable source. Deforestation and resultant erosion controlled and reduced	Regularly	282.35	<ul style="list-style-type: none"> • Department of Forestry. • Zambia Environmental Management Agency (ZEMA).
Air Pollution	Observations should be made on the level of dust generated during the Agricultural Activity implementation by the Environmental Monitor or PTT. Dampening should be carried out if levels are unacceptable.	<ul style="list-style-type: none"> • Levels of dust emissions 	Deposition of dust on surfaces should decrease with increased dampening	Regularly	282.35	<ul style="list-style-type: none"> • Health ministry • PTT • MAL

ISSUE	METHOD OF MONITORING	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	COST (USD)	RESPONSIBLE AUTHORITIES
Water resources	<ul style="list-style-type: none"> Water resources should be managed well 	<ul style="list-style-type: none"> Watercourses and impoundments. Surface water quality 	<ul style="list-style-type: none"> Water made available for environmental concerns. Pollution of water resources monitored/detected early and remedial measures taken on time 	Tests for water pollution to be done regularly	282.35	<ul style="list-style-type: none"> Health ministry PTT MAL Department of Water Development, (DWD) ZEMA
Landscape	The PTT should make visual inspection of earth works to ensure that excessive excavation is not being carried out. Temporary screening may be appropriate in some cases.	<ul style="list-style-type: none"> Visual intrusions Aesthetics 	Landscape alteration reduced to a minimum	Monthly	282.35	<ul style="list-style-type: none"> National Heritage Conservation Commission Zambia Environmental Management Agency (ZEMA).
Complaints	The PTT should inspect the record of complaints made by local residents, to be kept by the farmers, and should check that action is taken quickly and that the number of complaints do not rise significantly.	<ul style="list-style-type: none"> Complaints 	Number of complaints decreases.	Regularly	282.35	<ul style="list-style-type: none"> PTT MAL Zambia Environmental Management Agency (ZEMA).
Local governance	<p>MLGC to ensure the following</p> <ul style="list-style-type: none"> compliance to designs Employment opportunities and recruitment are transparent. Allocation of land is overboard Cultural values are respected. 	<ul style="list-style-type: none"> Land management Land allocations Socio cultural issues Local governance Social Aspects, Land rights 	<ul style="list-style-type: none"> Disputes over land reduced Cooperation of local leadership is secured Locals employed in the projects 	Regularly	282.35	<ul style="list-style-type: none"> Ministry of Local Government District Councils PTT MAL
Agricultural Activities	<ul style="list-style-type: none"> Ensure that Agricultural Activities follow designs and recommendations given for proper agricultural practices. Ensure overall management of the Programme. Appropriate land use downstream is done and no pollution of crops from contaminated water from spillages occur. 	<ul style="list-style-type: none"> Siting of works, plan 	Land degradation curbed Program running smoothly	Regularly	282.35	<ul style="list-style-type: none"> PTT MAL
TOTAL COSTS OF MONITORING ALL THE PARAMETERS PER DISTRICT					4,799.95	

80. **Millennium Development Goals (MDGs):** The Project will contribute to the achievement of indicators of the MDG Goal 1 (eradicate extreme poverty and hunger) through improved agricultural production, processing and marketing which will lead to job creation, increased household income, food security and nutritional security, and Goal 7 (ensure environmental sustainability) implementation of the mitigation measures (environmental and social management plan) including watershed management. The MDG indicators which will be addressed by the Project are tabulated below and shown in bold. Although the Project will be involved in awareness campaigns for HIV/AIDS and malaria through the civil works contracts (BoQs) mitigation measures, its contribution cannot be monitored under MDG Goal number 6 since the official indicators are different.

Goals and Targets (Millennium Declaration)	Indicators for monitoring progress
Goal 1: Eradicate extreme poverty and hunger	
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below \$1 (PPP) per day 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below \$1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption
Goal 7: Ensure environmental sustainability	
Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	7.1 Proportion of land area covered by forest 7.2 CO2 emissions, total, per capita and per \$1 GDP (PPP) 7.3 Consumption of ozone-depleting substances 7.4 Proportion of fish stocks within safe biological limits 7.5 Proportion of total water resources used 7.6 Proportion of terrestrial and marine areas protected 7.7 Proportion of species threatened with extinction
Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums

81. **Gender Analysis:** Women in Zambia account for 51% of the total population. Women are mainly involved in agriculture and micro-enterprise as well as household tasks while men dominate the mining sector and small/medium/large enterprises. At least 78% of the women are engaged in agriculture. Although agriculture remains the main opportunity for employment and income for rural women, they continue to have limited access to credit, extension services and markets. They are also affected by various factors such as high incidence of HIV/AIDS, discrimination and marginalisation, poverty and gender inequality. In the Project area, male headed households account for 78.4% while female headed households account for 21.6% of agricultural households. Men own more livestock than women. Over 80% of the rural population in Zambia depend on agriculture related activities for their livelihood⁶. Agriculture is the main source of income and employment especially for rural women. Rural women participate in both production and post-production activities and constitute more than 50% of the total rural workforce⁷. The agriculture sector generates employment and incomes for rural people and contributes to crop production by supplying manure and draught power. In the project area, men own more livestock than women. Cattle are predominantly owned by men and women own small

⁶ Central Statistics Office (CSO: 2006). Living Conditions Survey

⁷ The Zambia 2010 Census.

livestock (chicken, goats). Generally all household members are involved in livestock production in one way or another. Livestock rearing (especially cattle) is the domain for men and boys. Livestock meant for fattening at home are taken care of by women and girls. The responsibility of labour for activities such as feeding, milking, health care, processing and marketing differs between men and women.

82. A gender analysis carried out also shows that generally women do not own land in their own right but through members of the family. However, in the event of divorce or being widowed, women are permitted to continue to use the land. Access to credit is a major constraint for female farmers because they lack collateral security. Most cattle related decisions rest with men. Women are consulted on decisions to sell or slaughter an animal. Women do make decisions regarding smaller stock which they can easily sell and get income to meet small household expenses. There are few women in local leadership/management positions in village and district committees and commodity associations. The other major constraints faced by women in the livestock sector include livestock diseases, low productivity and slow growth rates as well as poor access to livestock services. Taking into account the gender differences between men and women in the project area and the specific constraints that women face in the livestock sector, the gender mainstreaming strategy in APMEP will focus on increasing access to project activities for women as well as increasing their participation in project implementation, community representation and decision making. The Project will have the following specific interventions.

83. In the short term, the expected outcome of the project is improved and equal access by both men and women to modern agriculture production and productivity. The project outcome is aligned with the gender specific agenda outlined in SNDP (2011–2015) which entrenches gender as one of the cross-cutting issues and prioritizes the need to mainstream gender in the development process. The main objectives of the SNDP (2011-2015) (as far as gender is concerned) are to develop gender responsive policies and legal framework, to enhance capacity of women to participate in national development and to strengthen institutional capacities for effective gender mainstreaming. Specific gender mainstreaming activities include capacity building, gender audit, gender analysis and legislative and policy reviews.

84. The national Gender Policy (2000) recognizes the need for equal and full participation of women and men at all levels of national development. The national gender policy outlines priority areas for the agriculture sector and these include (i.) facilitating the strengthening of the provision of agricultural services (credit, extension, research) to smallholders particularly women farmers, (ii) construction of rural infrastructure to assist smallholder farmers especially women to acquire inputs and market their produce on time, (iii) facilitating and promoting research and dissemination of information on agriculture targeted at women, (iv) facilitating the formation of women farmer groups so that they can benefit from agricultural programmes, and (v) encouraging the development of agro-industries in rural areas where most rural women live. The NAP (2004) highlights that women and young farmers have in the past not benefitted much from agriculture services such as credit, extension and labour saving technologies despite the vital role they play in agriculture. In order to address this situation, the policy promotes gender equity in resource allocation and access to agricultural services focusing more on women and young farmers. The strategy among other things focuses on (i) creating gender awareness among policy makers and farmers, (ii) building capacity of MAL staff at national and field levels in gender analytical skills and techniques, and (iii) mainstreaming gender in curricula of agricultural training institutions.

85. The Ministry of Gender and Child Development which was upgraded in 2012 from the Gender in Development Division (GIID), is the lead national gender machinery. The ministry is responsible for implementing, coordinating and evaluating the national gender policy with a mandate to achieve gender responsive development. It works with Gender focal points (GFPs) in line ministries in promoting gender issues in sectoral policies and programme interventions. Within the NGO sector the Non-Governmental Organisation Coordinating Council (NGOCC) plays a “watchdog” role in the

ratification, implementation of national, regional and international instruments on gender in the country. MAL has the mandate to coordinate and ensure gender mainstreaming in the agricultural sector. To discharge this responsibility, a gender focal point is assigned (within the policy and planning department) to work with a gender committee composed of technical staff from various departments.

86. The UNDP Human Development Report which presents Human Development Index (HDI) is a summary measure for assessing long-term progress in three basic dimensions of human development: (a) **long and healthy life** (measured by life expectancy), (b) **access to knowledge** (measured by mean years of schooling for the adult population, which is the average number of years of education received in a life-time by people aged 25 years and older; and expected years of schooling for children of school-entrance age, which is the total number of years of schooling a child of school-entrance age can expect to receive if prevailing patterns of age-specific enrolment rates stay the same throughout the child's life), and (c) **decent standard of living** (measured by Gross National Income/GNI per capita expressed in constant 2005 international dollars converted using purchasing power parity rates). The Zambia's HDI value for 2012 was 0.448, in the low human development category, positioning the country at 163 out of 187 countries and territories. Zambia's 2012 HDI of 0.448 was below the average of 0.466 for countries in low human development group and below the average of 0.475 for countries in Sub-Sahara.

87. The UNDP Inequality-adjusted HDI (IHDI) takes into account inequality in all three dimensions of the HDI by 'discounting' each dimension's average value according to its level of inequality. The HDI can be viewed as an index of 'potential' human development and the IHDI as an index of actual human development. The 'loss' in potential human development due to inequality is given by the difference between the HDI and the IHDI, and can be expressed as a percentage. Zambia's HDI for 2012 was 0.448. However, when the value is discounted for inequality, the HDI falls to 0.283, a loss of 36.7% due to inequality in the distribution of the dimension indices. The 2012 average loss due to inequality for low HDI countries was 33.5% and for Sub-Saharan Africa it is 35.0%.

88. The UNDP Gender Inequality Index (GII) reflects gender-based inequalities in three dimensions – reproductive health, empowerment, and economic activity. Reproductive health is measured by maternal mortality and adolescent fertility rates; empowerment is measured by the share of parliamentary seats held by each gender and attainment at secondary and higher education by each gender; and economic activity is measured by the labour market participation rate for each gender. The GII replaced the previous Gender-related Development Index and Gender Empowerment Index. The GII shows the loss in human development due to inequality between female and male achievements in the three GII dimensions. Zambia had a 2012 GII index value of 0.623, ranking it 136 out of 148 countries since 11.5% of parliamentary seats were held by women, and 25.7% of adult women reached secondary or higher level of education compared to 44.2% of their male counterparts. For every 100,000 live births, 440 women died from pregnancy related causes; and the adolescent fertility rate was 138.5 births per 1,000 live births. Female participation in the labour market was 73.2% compared to 85.6% for men.

B.9 Project Preparation and Supervision

89. Project Identification: The Project was identified through development of the Zambia proposal (May 2013) which was submitted to the GAFSP Technical Advisory Committee in June 2013. The Bank, as selected Supervising Entity, fielded a Mission to support the GoM in drafting the Proposal in line with the NAIP. The GoZ GAFSP Technical Team was established, in April 2013, to coordinate stakeholder consultations and the activities are on-going. Farmer associations including women groups have particularly been targeted in the APMEP design. The Bank Mission and GoZ GAFSP Technical Team extensively consulted key stakeholders during proposal preparation which was also presented and debated at a consultative workshop in May 2013.

90. Project Preparation was carried out in October/November 2013. The Bank's Preparation Mission visited all the 6 Project Districts in order to appreciate the physical conditions and also engage with Provincial and District field staff including beneficiaries to get their inputs to the Project design. The Mission consulted MAL staff, CPs, CSOs/NGOs, farmers and also private sector entities especially in agriculture production, agro-processing and commodity value chain development. A consultative workshop attended by various participants from farmer organisation, private sector agribusiness, civil society, academia and Government Departments was held, in October 2013, to discuss the Project design including definition of key components, activities, implementation and sustainability arrangements. The APMEP has been prepared based on the Zambia GAFSP Proposal (2013) and GAFSP Technical Advisory Committee's recommendations. The Preparation Report and Project Concept Note (PCN) were submitted to the Zambia Country Team (Regional Director) for approval and clearance in December 2013. The PCN was cleared by the Country Team on 16th January 2014.

91. Project Appraisal: The Bank's Appraisal Mission was based on the Preparation Report that fine-tuned the Project design. Soon after the approval and clearance of the PCN, a Bank Appraisal Mission was fielded to appraise the APMEP. The Project shall be submitted to the Board, for consideration, on 26th March 2014, per the processing schedule, Table B.9.1.

Table B.9.1: Project Processing Schedule

Project Concept Note				Appraisal Report					
Sector Manager	Country Team	Sector Director	Regional Director	Sector Manager	Country Team	Sector Director	VP-ORVP	Negotiations	Board
Dec 2013	Jan 2014	Jan 2014	Jan 2014	February 2014	February 2014	March 2014	March 2014	5 th March 2014	26 th March 2014

92. Project Implementation will be carried out, in a participatory manner, through the GoZ existing structures and beneficiary organisations. Three (3) technical experts will be recruited under the project to reinforce the Government structures. The direct beneficiaries (men, women and youths) will be fully involved in implementation, supervision, monitoring of planned activities. The beneficiaries will also take part in watershed management.

C. ADDITIONAL TECHNICAL ANNEXES

C.1 Agricultural Development and Policy Context

1. Zambia is a landlocked country, which has total land surface area of 752,616 km², lying between 1,000 and 1,600 m above sea level. The Zambezi, Kafue, Luangwa and Chambeshi-Luapula rivers form the main drainage system of the country. Annual rainfall range is 500 mm to 1,500 mm, falling from November to March. The water resources support the country's economic activities in agriculture, fisheries, wildlife and tourism.

2. Zambia has experienced positive economic growth over the past decade (2001–2011), with annual average of 6% GDP. The growth was triggered by high global copper prices and robust investments in sectors such as telecommunication, construction, retail and manufacturing. However, Zambia's poverty rates have remained persistently high at more than 62% since 2011. Robust agricultural sector investments are seen as the only hope to move rural people out of poverty. The growth rate of agriculture, fisheries and forestry has been robust at more than 10%, but has been highly volatile and inadequate to make any dent on poverty. The high growth volatility results mainly from poor rainfall patterns. Even though GoZ spending on agriculture and rural development has increased, this was mainly due to supplementary spending for maize marketing that together with the Farmer Input Support Programme (FISP), consumed more than 60% of the agriculture budget. Zambia has also continued to experience chronic food and nutrition security problems. Stunting rates in Zambia stand at 45%, with 21% being severe. Stunting remains the most common nutritional disorder affecting under-5 children in Zambia, above the sub-Saharan Africa average of 42%. Nearly half of the country's rural population, 45% have daily caloric intakes below 1,750 per day while their families spend nearly 80% of their incomes on food. Only 2% of calories consumed by Zambians are from pulses, vegetables, and nuts highlighting the dire need for dietary diversity. Shortage of nutrients in diets limit growth, weakens immunity and increase mortality. The Rural Agricultural Livelihoods Survey (RALS) conducted in 2012 showed that 42% of rural households experienced food shortages between May and September, a period that should normally coincide with the harvest season in Zambia.

3. The nature of investment and policy changes required to stimulate increased and sustained agricultural sector growth include raising farmers' productive capacity and productivity and competitiveness. The main constraints to these include low use of improved technology, weak extension, low financing, poor infrastructure, weak input supply systems, and a high dependence on rainfed agriculture. Low investments in the sector are attributed to weak and uncertain policy environment that leads to a high level of perceived risk in prices and weather related factors. The GoZ has formulated a National Agriculture Policy (2004) and a National Agricultural Investment Plan (NAIP: 2014-2018) under the Comprehensive Africa Agriculture Development Programme (CAADP). CAADP is an initiative that aims to accelerate agriculture development in African countries through a minimum annual agricultural sector growth of 6%. This would be realized through the allocation of at least 10% of the national budget to the agricultural sector. Towards this goal, Zambia developed and signed a CAADP Compact in January 2011, to support the implementation of SNDP (2011-2015).

4. The NAIP (2014-2018) was developed based on CAADP and is organized in four interlinked Programmes: (i) sustainable natural resources management; (ii) agricultural production and productivity improvement; (iii) market access and services development, and; (iv) food and nutrition security and disaster risk management. Support services are dealt with separately while crosscutting issues have been embedded in the whole NAIP (2014-2018). The private sector will be key in driving the agenda for Zambia's agricultural development and economic growth, with GoZ providing the necessary facilitatory environment.

C.2 Matching Grant Concept

5. A matching grant is a one-off, non-reimbursable transfer of funds to Project beneficiaries, specifically agro-dealers. According to an IFAD manual, matching grants have increasingly been used in the context of international development by multilateral and bilateral institutions. In Zambia, both IFAD and the World Bank have used matching grants in their projects to provide public good and to finance productive assets and investments by communities, groups and private individuals. Matching grants are used to stimulate investment and business activity where the intended beneficiaries operate under severe constraints such as insufficient equity or where the innovations have higher risks/unpredictable profits. The matching grant facility will be introduced to address market failures and distortions that have dwarfed the development of agro-dealer activities which will stimulate the interest of private sector.

C.3 Support to Agro-dealer Development

6. The agro-dealer (AD) development initiative has been piloted by various organisations in Zambia. It is motivated by the need to create a community based network of input sellers to increase food and income security for smallholder farmers in the outlying rural parts of Zambia. The agro-dealer is a necessary component in the input supply and distribution system which supports the efforts to develop a sustainable “*Last Mile*” input supply chains for smallholders. The agro-dealer shortens the trip for the rural buyer from 70-90 km in the nearest town, to less than 5 km. This decreases travel time and cost to acquire farm inputs required to increase farm productivity and competitiveness.

7. Several institutions and cooperating partners have supported the development of agro-dealers. These include ACTESA, Alliance for a Green Revolution in Africa (AGRA), Nutri-Aid Trust (NAT) and MUSIKA. Some notable projects include the Agro-Dealer Project (ADAPT) and the Support to Agro Dealer Development Project (SADDP) has been piloting agro-dealer support since May 2008 in 12 districts of the Copperbelt, Eastern and Central provinces. The project aims at increasing food and income security of smallholder by improving access of the smallholder farmers in rural areas of Zambia to agriculture inputs and technologies. 620 agro-dealers were recruited of whom 143 were female. About 513 agro-dealers were trained in business management trainings. Also 431 agro-dealers were trained in technical trainings. About 211 start-ups ADs accessed the innovation fund valued at USD 149,000. Over 265 demonstration plots were established. Over 71 seed fairs and 117 field days conducted with above 27,000 farmers attending. Over USD 32 million in inputs sold through the agro dealer network. The project established 9 District Agro-dealer associations. The pilot project has generated some people level impact with over 90,000 small holder farmers accessing improved inputs from Agro-dealers. Farmers’ expenditure on travel has reduced. The point of sale extension is now easier within the farming community and the improved quality of inputs has increased productivity. The model has raised rural employment opportunities e.g. shop attendants & service providers.

8. The main challenges faced in the AD promotion includes low inventory among some ADs, problems with supply chain pre-financing, weak communication infrastructure, low technical knowledge, and low women agro-dealer participation due to lack of start-up finance. These challenges notwithstanding, most players agree that the AD programme is the most sustainable way to improve access of smallholder farmers in remote areas to improved agricultural inputs and that it is worthy scaling up countrywide. The AD programme provides a suitable platform for the electronic voucher system planned for implementation by GoZ in 2014.

C.4 Agro-Processing and Value Addition

9. Agro-processing Infrastructure Development: In Zambia, agriculture is a major employer of about half the total workforce. Primary agriculture alone is not enough to bring about meaningful development. There is need for diversification from primary agriculture into agro-processing. Alternative or additional income generating opportunities are needed to support the millions of poor families who can no longer support their livelihoods from the land alone. Agro-processing is the transformation of primary agricultural products into processed commodities for market. Currently, the agro-processing industry and also the manufacturing industry contribute about 11% to Zambia's Gross Domestic Product (GDP) with increase investment it is hoped that the sector can contribute more to Zambia economic well-being and bring about tangible benefits to the Zambian people such as employment creation and poverty alleviation. Agro-processing aims to increase income and access to food for the poor, by establishing small-scale, appropriate and sustainable processing businesses that are flexible, require little capital investment and can be carried out without the need for sophisticated or expensive equipment. Agro-processing opportunities in Zambia are in peanut butter production; cashew nut processing; animal or stock feed production; cassava processing; grain milling (rice, maize, wheat, etc); edible oil production; fruit canning and juice extraction; meat, dairy, leather and leather products; fish canning and fish meal production; cotton spinning and textiles; bio-diesel production and ethanol production and honey processing. agro-processing forms range from simple preservation (such as sun drying) to more modern and capital intensive methods such as articles as textiles, pulp and paper. The agro processing sector in Zambia generally is one of the most important sectors that have experienced rapid growth in terms of production and export performance in the recent years. Huge investment inflows in the various value chains have been restricted to urban areas.

10. The main constraints faced by the agro-processing sector are inadequate raw material supplies, limited access to appropriate technology, limited capacity to maintain existing technologies, failure by locally processed products to compete against imports, low viability of existing agro processing enterprises and limited access to credit. Other weaknesses are lack of export infrastructure for perishables, transport cost for inland and port transit, small domestic market, small production volumes, long distances to global markets and weak management skills. Even though there are tremendous opportunities posed by the changing demand patterns, AGOA, NEPAD and Free Trade Agreements, the main lingering threats to expansion are subsidized production and exports in developed nations, environmental issues and climate change, trade barriers, market entry barriers and increasing demand for transparency in supply chains. Despite these challenges, the Zambian agro-processing sector remains a viable area for investment because of rich raw material base, favorable agricultural conditions, steady growth of the domestic market, competitive costs and attractive incentives.

11. In Zambia, innovative manufacturers and processors like Wildlife Conservation Society's Community Markets for Conservation (COMACO), in Serenje District, has proved that pro-poor market base can be used to launch successfully processed products on the commercial market. COMACO sells a Zambian-wide brand of healthy food products and designed to incentivize low-income small-scale farmers to adopt energy-saving, higher-yielding, climate-smart farming technologies for achieving food security, increased income, and conservation results. The approach works across large rural landscapes associated with biodiversity-rich areas through a cost-effective supply chain model that integrates urban-based consumers with commodity producers, now totalling over 80,000 farmer members. COMACO helps to transform farming communities with skills and markets that take the place of destructive land use practices, like poaching or charcoal-making, used to mitigate hunger and poverty. COMACO operates as a hybrid organization that combines commercial operations with non-commercial farmer support activities. The former relies largely on sales revenues with a combination of investments from loans and grants, while the latter is entirely supported through donor grants. All of COMACO's products are sold under the brand, *It's Wild!*, and in recent years have

become nationally recognized for their quality, fair price, and nutritional value, as well as their commitment to help uplift poor farmers out of poverty in exchange for supporting conservation. Products currently on the shelf include: peanut butter (smooth and crunchy in different size bottles), white and brown rice (varying package size), yummy Soy (an instant porridge, cereal or malt drink sold in different size, fortified with minerals and vitamins), crunchy breakfast cereal (three grains, fortified with minerals and vitamins), beans, wild honey, dried mangoes and dried wild mushrooms.

12. Another key player in agro-processing is Zambia Cooperative Federation (ZCF) that has recently rebranded itself, produced a strategic plan and followed up with a proposal to establish 25 milling/processing plant in rural Districts. The milling plant will shorten the distance farmers have to move their produce to the millers and bring refined products closer to the rural consumers. The main infrastructure shall be a mill house, plant and warehouses for grain (30,000mt) and finished products. Each mill will be managed independently of ZCF and BDS services will be provided to improve management. The unit cost of each mill is estimated at USD 844,000. There are other agro-processing initiatives that would integrate smallholder producers through market or outgrower linkages such as Mt. Meru Soya processing plant in Chisamba, ZAMANITA Oil plant.

13. **Local/Village Chicken Value Chain:** In 2007/08, about 988,658 (66.6%) small-scale farming households raised chickens, with the highest number of chicken owners located in Eastern Province. The total number of village chickens in Zambia is estimated at 14 million. Village chicken production tends to have extremely low input since they rarely receive vaccinations (particularly for Newcastle disease). Village chickens are rarely given supplemental feed and most are left to scavenge for food. Few are kept in containment facilities. Though recent official production figures are lacking, results from research stations suggest that low input village production contributes to low production levels. Village chickens take 20-22 weeks to reach maturity compared to 6 weeks for the broiler chickens and lay 70 eggs per annum (compared to 300 for commercial layer). The egg weight is between 40-42g (120g for commercial layer). The number of eggs brood by the bird 7-18 at a time with a hatchability of 85-90% with 14.55% mortality in chicks. Village chicken markets are highly informal, with most farmers selling small numbers of chickens to meet pressing financial needs. Women feature prominently in village chicken rearing and marketing. Evidence from Chibolya market (Lusaka) suggests that 60% of producers and 50% of retailers are women. Focus should also be attached to veterinary interventions so that losses due to viral diseases are minimized.

14. **Cassava Value Chain:** In 2009/10, there were 562,249 cassava-producing HH, making up 37.9% of total smallholder population. Cassava production has a strong regional dimension: (i) Luapula Province 157,885 producers (92.16%); (ii) Northern Province 210,706 producers (80.13%); and (iii) Northwest Province 74,618 producers (67.95%) which account for 78.8% of all cassava producers in Zambia. Cassava yields vary dramatically between producers using traditional cassava varieties (1 mt/ha dry) and improved varieties (2-3.5 mt/ha dry). On farm yields are significantly lower than yields obtained under controlled situations (2 tonnes traditional 7-11 improved varieties) (Table below). In terms of the production of cassava chips, Zambia produced 421,790,490 kg in 2009/10. 74% (316,268,352 kg) were produced within the three primary cassava producing provinces.

	Farm		Research	
	Dry	fresh	Dry	fresh
New cassava Varieties	2-3.5 tons	6-12 tons	7-11 tons	22- 41 tons
Local cassava varieties	1 tons	3.5 tons	2 tons	7 tons

Source: Chitundu, Droppelmann, and Haggblade 2006; Simwambana et al. 2004.

15. Cassava markets are primarily informal in nature. Of the 421,790,490 kg of cassava chips produced in Zambia in 2009 only 32,933,502 kg were sold (7.8%), the remainder was retained for home consumption. Animal feed and other industrial uses of cassava are estimated to be minimal, totalling 1000 mt dry weight. Formal and informal exports of cassava to DRC and Angola are estimated at 4000 mt dry weight. The expansion of industrial processing of cassava and its increased use in animal feeds is projected to drive increased demand for cassava in the future. Cassava leaves also serve as an important food source in Zambia. The low labour intensity of cassava production makes it an important crop for labour constrained female-headed households.

C.5 Agriculture Service Centres and Roadside Markets

16. Among the key principles and values of the Vision 2030 objectives is Private-public Partnerships (PPP).

17. Agricultural (agro-market) Service Centre (ASC) is infrastructure set up to open markets, bring markets closer to the farmers and improve productivity of small scale Agricultural Sector in Zambia. The prime goal is to improve agricultural productivity and market access for small scale farmers, as means to stabilize food prices, and stimulate positive agricultural and economic development. Despite being owned by ZFU, ASCs are privately operated on lease basis. The Zambia National Farmers Union (ZNFU) with support from the European Union (EU) has pioneered ASCs to improve farmers' access to agricultural inputs, marketing and trade information, agricultural commodity markets, and other agribusiness services. An ASC is a one-stop business centre designed to facilitate private sector delivery services which include: (i) input supply (seeds, fertilizer, veterinary drugs, implements, machinery, etc); (ii) grain commodity marketing and storage; (iii) livestock auctioning; and (iv) weighbridge services; and laboratory and quality assurance services. At a minimum, the critical infrastructure at each ASC includes: (a) warehouse for input supply services; (b) grain commodity trading slabs and other bulk grain commodity storage facilities; (c) commercial weighbridge; (d) commercial laboratory facility for crop and laboratory facilities; (e) banking facilities; (f) livestock auctioning facility; and (g) support facilities – guardhouse, ablution facilities, power and road network.

18. Most successful ASCs are in Choma and Mumbwa Districts. Choma ASC is increasingly becoming an all-year-round distribution hub for both inputs supply and commodity marketing because of its central location in the Province. The district has also a good number of private sector players who could easily lease storage space for either inputs or commodities. Mumbwa ASC provides a best business opportunity for the establishment of an all year round inputs distribution and commodities marketing centre for most of small scale farmers unable to hire transport to transport commodities or get inputs from Lusaka.

19. Roadside Markets are a key traditional infrastructure for smallholder agribusiness promotion and to link smallholder Zambian farm producers to markets locally and abroad. New demand points for agriculture products enjoy substantial supply response if they are linked effectively to the smallholder farm sector. Strengthening these supply chains by linking smallholder farmers to urban consumers can improve the lives of rural producers in Zambia. As urban population and earned incomes rise, this creates major opportunities for local farmers as domestic market demand for food rises. In Zambia, weak linkages between rural production points and urban demand points have put enormous stress on the supply chains, thus limiting the ability of farmers to commercialise and respond to any rise in demand. This requires efficient marketing systems to ultimately link producers to consumers. The role of urban wholesale markets and rural roadside markets in this supply chain has thus far been neglected despite its importance. Under-investment in formal public agriculture markets and roadside markets, coupled with an overwhelming rise in volumes of agriculture commodities and an explosion in the numbers of informal traders, has raised major concerns about congestion, chaos, poor hygiene, food

safety concerns, exposure to weather elements and exploitation of rural suppliers by middlemen.

20. In general: (a) primary agriculture and fresh products form an important part of the urban consumers' daily diet, with vegetables and fruits ranking second to cereals and staples in the share of the monthly food budget; (b) urban households largely procure their fresh produce from traditional informal market systems and the market share of modern market systems is still very small accounting for less than 5%; (c) over 90% of affluent urban consumers acquire their vegetable and fruits from traditional market systems; (d) Lusaka is a major destination for significant supplies of agricultural products from rural areas, including Chongwe, Mkushi, Mumbwa, Chibombo, Lusaka and Chipata-Mugabi which are collected from roadside markets; and (e) intermediation involving a mixture of brokerage transactions depends on the crop product, type of seller, size of consignment being sold and gender. Farmers and women are much more likely than traders to sell through brokers. The brokerage commission ranges from 1-20%. Brokerage has some advantages: less thefts, find buyers faster; brokers provide inputs and market information; broking allows farmers to do other things; and some farmers have developed stable relationships with brokers.

21. The traditional urban wholesale market system and its linkage with rural roadside markets therefore, is well established, but poorly equipped to handle growing volumes of agricultural products. Investments in hard and soft infrastructure are required to provide backward linkages with farming communities. The market need not be as elaborate provided it has provision for a paved platform, shelter from sunlight, wind and rain, good drainage, refuse disposal, toilets and water, loading and offloading bays for vehicles, public car park, provision for overnight storage and value addition operations and banks and restaurants. Markets in Zambia provide opportunities for employment and income generation to the ever-growing informal sector.

C.6 Aquaculture Development for Smallholders in Zambia

22. The annual demand for fish in Zambia is estimated at 120,000 tonnes. Per capita fish consumption along with catch from capture fisheries is falling in Zambia. A persistent decline in per capita fish consumption has arisen from 16.5 kg in 1971 to 6.2 kg in 2000. In 2002, Government figures reported approximately 6,500 smallholders with 14,000 fishponds producing nearly 550 tonnes of fish annually whilst 12 commercial farmers were reported to have combined annual harvests of 210 tonnes. Government has identified aquaculture as a mechanism to provide needed additional fish supplies as well as being a tool for economic growth and employment generation. The development of artisanal cage aquaculture in Zambia contributes to providing protein for human consumption and also to creating employment in local communities. In an effort to revitalize the aquaculture sub-sector, Government launched the National Aquaculture Strategy (NAqS) in 2006 with set of guidelines outlining new business-orientated approaches to aquaculture. Among others, the guidelines focused effort on (i) market-driven profitable aquaculture with a specific emphasis on aquaculture micro, small and medium-enterprises (MSMEs); (ii) engagement of the private sector with private sector supply of production inputs (e.g., seed and feed); (iii) concentration of activities in high potential zones (HPZs); and, (iv) redefining Government's role to that of facilitation and monitoring. A project funded by FAO implemented some of the management recommendations identified in the NAqS (2006). A Planning Task Force was formulated and the first Aquaculture Plan developed in 2008/2009. A CGIAR Research Program on Aquatic Agricultural Systems in Zambia was launched in 2012.

23. Fish is an important source of high quality nutrition for the rural poor in Zambia. In addition to providing over 30% of protein, it is often a main source of vital micronutrients. Surveys suggest that fish consumption is particular important among the poor who can access small and easily divisible quantities of fish. Within households, fish is more equally shared by women, men, children, and the elderly than most other animal-based food. These benefits can make significant contributions to

addressing major malnutrition challenges in Zambia including protein, vitamin, and mineral deficiencies. Aquaculture can meet the strong demand for fish among the poor communities. Several tilapia species are being farmed that are generally well suited for aquaculture expansion and intensification. Managing tilapia production for small size food fish allows two or three harvests a year in most parts of Zambia and can regularly yield large quantities of fresh fish products. Overview of aquaculture production systems in Zambia is indicated below:

Farming system/ category	Key features/ locations	Species produced	Productivity and estimated output (mt)	Number of farmers	Key constraints	Issues and potential
Extensive pond aquaculture	Reliant on on-farm and local inputs; large clusters of farmers in Eastern, NW, Northern and Central Provinces	Various local tilapia species	2-3 tons per ha 1,200 mt +	Over 8,500	Seed quality and regular access to seed;	Potential to stabilize production levels and scale-out proven integrated technologies; able to reach vulnerable rural populations in most parts of Zambia;
Semi-intensive or intensive ponds	Purchase seed and feed: (i) semi-intensive – locally; (ii) intensive – nationally; Clusters in Copperbelt, Lusaka and Lower Zambezi	Various local tilapia species; Nile tilapia Nile tilapia preferred by most intensive producers	5-6 tons per ha 2,400mt +	30 (?)	Quality seed; feed quality and price;	Strong potential to increase production with reliable access to improved seed and feed;
Intensive cage culture	Purchase seed and feed nationally; own hatcheries; Clusters in Lake Kariba and Lower Zambezi;	Nile tilapia	7-8 tons per cage (size?) 680mt	9 (?)	Sites; feed; seed; disease(?)	Potential to grow further in specific sites; requires risk management and environmental monitoring;
Small water bodies (dams, reservoirs)	Intermittently stocked and self-seeding; no supplementary feed; Southern Province, Eastern Province	Various local tilapia species; Nile tilapia	0.5 tons per ha 1,700mt +	700 small water bodies	Tenure and access; productivity;	Potential to increase productivity and production through introduction of small cages; tenure and access issues to be resolved;

C.7 Irrigation Development

24. Zambia has in recent years suffered intermittent and often alternating patterns of unreliable rainfall, leading to flooding and droughts in many areas. This is partly attributed to global climatic changes. Rainfed agriculture is widely practiced in Zambia and has failed to smoothen out the established seasonal cycles of hunger and food deficits. The Bank, various CPs, the private sector and non-governmental organisations (NGOs) have supported the GoZ to develop various types of irrigated agriculture. Various models of intervention ranging from purely technical and infrastructural provision to wider and integrated approaches have been used. But the actual impact of investments in water management and irrigation on Zambian agriculture remains low.

25. Pursuant to the NAP (2004) of promoting irrigation development, MAL with assistance of FAO prepared the Irrigation Policy and Strategy (IPS: 2004) with the objective of (i) promoting well regulated and profitable irrigation sector that is attractive to both private investors and Zambia's development partners and (ii) ensuring food security through increased irrigated crop production. The IPS (2004) aim is to expand the emerging farmer base in Zambia by promoting commercial irrigation enterprises and building on the experience of the large-scale commercial sector. Four programmatic paths have been identified: (i) enabling environment (marketing, support services, capacity building, legislation); (ii) alternative sources of irrigation (water harvesting, dambo development); (iii) improving existing assets (rehabilitation and upgrading of irrigation infrastructure, irrigation management); and, (iv) promoting new investment (public/private development, new infrastructure). The SNDP (2011-2015) prioritizes irrigation development, targeting to develop irrigation schemes to cover an additional

70,000 hectares which are premised on availability of good quality data on the performance of existing irrigation models so that good decisions can be made and guide stakeholders on value for money.

26. Informal irrigation has been carried out in wetlands and dambos for several generations by smallholders without Government intervention, using shallow water wells and buckets. Promotion of formal irrigation started in the 1960s and in 1964, a pilot scheme of 120 ha was developed by the GoZ in Makambala with FAO assistance. This was followed, in the 1980s, by an upsurge in irrigation development mainly in the commercial and semi-parastatal categories. This period witnessed a number of large scale GoZ supported schemes such as the Kaleya Smallholder Company in Mazabuka District. During the same period, big commercial schemes like Mpongwe Development Company, Kalangwa Estates, Mununshi Banana Scheme and Kawambwa Tea Estates were established. By 1991, it was estimated that about 46,400 ha were under formal irrigation, 18,000 ha under commercial estates, 12,400 ha under parastatal and semi-parastatal farms while 16,000 ha was estimated to be under smallholders of which 3,669 ha were government supported smallholder irrigation schemes. JICA irrigation inventory carried out in 2004 reported that total irrigated area in Southern and Eastern Provinces covered 41,975 of which 7,761 ha (Southern province) and 360 ha (Eastern Province) were irrigated by private commercial farmers. There is no updated irrigation inventory carried out for the other provinces, although recent statistics indicate that formal irrigation covers 56,017 ha (2011).

27. The hydrological network in Zambia lies entirely within two large river basins, the Zambezi River basin and the Congo River basins. There are three major river systems within the Zambezi River basin and three within the Congo River basin. The Zambezi River system consists of the upper Zambezi which is joined by the Kafue River and the Luangwa River. The Congo River basin comprises the Chambeshi River, the Luapula River and the Tanganyika basins. The Zambian climate provides between 650 to 1,800mm of annual rainfall, depending on which part of the country. Through the six river basins, Zambia provides on average of about 144,080 million m³/year of renewable water resources of which 86,580 m³/year is surface water and 57,500 million m³/year is underground water.

28. The surface water resources are currently captured using dams. The gross capacity of the six largest dams in Zambia is about 192,484 million m³. Lake Kariba accounts for 96% of this surface water with its 185,000 Mm³ capacity. The Itzhi Tezhi dam, also located in Southern province has a capacity of 5,700 Mm³. Others are Mulungushi (255 Mm³), Lunsemfwa/Mita Hill (680 Mm³) and the Kabwe Water Supply (9.5 Mm³) dams located in Central province; and the Kafue Gorge dam located in Lusaka province with a capacity of 840 Mm³. It is estimated that there are about 2,000 small to medium dams (up to 15 meters height) in Zambia that were constructed since the 1950's whose condition and storage capacities (volume of water in the reservoir) are not properly documented.

29. According to the Water Act Cap 198, any user abstracting surface water for purposes other than drinking must apply for a Water Right issued by the Water Board. Many users including farmers continue to use water without renewing their water rights. Water right regulations do not apply to groundwater abstraction and therefore the users and the amount of water used for irrigation from ground water is not known. The Water Board bases the irrigation water use on 150 days of effective use. The current Water Act does not regulate Western province and the international water bodies along the borders. The Water Board is not able to effectively monitor water use and compliance of water rights.

C.8 Crop Productivity and Conservation Agriculture

30. Zambia's agriculture system is predominantly based on the importance of increased crop production and productivity to ensure food security, generate income and provide employment opportunities. Small-scale crop-based farming systems in Zambia are characterized by low yields and limited levels of diversification. Overwhelmingly, farming systems are dedicated to the production of

maize. In 2010, over 82 percent of small-scale farmers grew maize, covering a total area of over 1 million hectares as the result of both its position as the national staple food and the Government's spending support for maize output and input markets. Other crops of importance in Zambia are cassava (38% of farmers) in Northern, Luapula, Western and North-western Provinces, Groundnuts (50%) and Sweet potatoes (20%). Cotton (7%) is Zambia's most important cash crop in Eastern, Southern and central Provinces.

31. The main challenges to increased crop productivity in Zambia include low levels of adoption of improved yield-enhancing technology, low price incentives due to under-investment in infrastructure, poor returns to fertilizer application under acidic soil conditions, limited funding for crop development and low adoption of sustainable agriculture methods, especially conservation farming methods, despite years of testing by MAL and the ZNFU-Conservation Farming Unit (CFU). The solution lies in the following interventions: Increasing adoption of yield-enhancing technology, raising the rate of return to fertilizer application under acidity through liming, phosphorus enhancers, and conservation farming practices, increasing funding for public agricultural research and extension, widening the supply of agro inputs in rural areas through agriculture service centres and agro-dealers, improving access and targeting of input subsidies, and improving price incentive for farmers.

C.9 PROJECT DESIGN

32. Sector Goal and Objectives: The sector goal is to contribute to economic growth and food security. The Project's objective is to contribute to economic growth and poverty reduction by ensuring food, income and nutritional security, among participating households. APMEP will seek to (i) sustainably increase agricultural production by 30%, (ii) increase market engagement to 50% of agricultural production, (iii) enhance institutional capacity of key agriculture sector players, and (iv) contribute to reduction of chronic malnutrition from 45% to 40% among under-5 children in participating Districts. The APMEP has 3 components namely (1) **Agriculture Production and Productivity Component** with 3 sub-components, (i) irrigation development, (ii) crop diversification and intensification, and (iii) livestock development, (2) **Value Chain Development and Market Linkages Component**, with 2 sub-components, (i) agro-processing infrastructure development, and (ii) market linkages, and (3) **Institutional Strengthening Component** with 3 sub-components, (i) nutrition security and capacity building, (ii) project management, and (iii) monitoring and evaluation. The component details are indicated in the following sections. *This Technical Annex should be read together with Technical Annex B.2 (Project Costs) for the detailed quantities, scheduling and costs for all the planned activities.*

33. Project's Target Areas: The Project will be implemented in Sinazongwe, Gwembe, Chongwe, Rufunsa, Serenje and Chitambo Districts. The main criteria for the selection of these Districts include (i) poverty, food insecurity and malnutrition prevalence, (ii) vulnerability to climate change and disaster risks, (iii) potential for growth and to respond to development interventions, (iv) potential to promote diversification to crops other than maize, and (v) facilitation of logistics during implementation. Poverty and food insecurity in Zambia are deeply entrenched. Some 70% of rural households, in target Districts, live below the poverty line i.e. population living below USD 1 a day per person, compared to 43% in the urban areas and there is high levels of under-5 malnutrition. Most rural people have no access to agribusiness and social services. Women farmers' needs in particular are not adequately recognized. The need for development and financial support in parts of Gwembe Valley (Gwembe and Sinazongwe Districts) stems from Government's resettlement program of the Tonga Community during the construction of Kariba Dam in the 1950s. Gwembe-Tonga farmers, living near the construction site were displaced to upland Gwembe Valley ended up engaging in rain-fed subsistence farming often on marginal lands, thus increasing the incidence of food insecurity and poverty. The Project Districts' basic data is provided below:

No	District	Province	District Area (km ²)	District Area (ha)	Rural Population	Total Population	Male	Female	Total HH	Farm HH
1	Serenje ⁸	Central	23,351	2,335,100	148,987	166,741	82,370	84,371	29,011	25,922
2	Gwembe	Southern	3,879	387,900	50,355	53,117	25,908	27,209	9,846	9,334
3	Sinazongwe	Southern	4,860	486,000	87,295	101,617	49,209	52,408	19,721	16,942
4	Chongwe	Lusaka	8,669	866,900	169,973	181,816	90,829	90,987	36,319	32,687
Total					456,610	503,291	248,316	254,975	94,897	84,885
						100%	49%	51%		

Source: 2010 Census of Population and Housing

No	District	Province	HIV/AIDS Prevalence (2004)	Per capita income (US\$)	Life Expectancy with AIDS	% Food Insecure HH (2003)	% Extremely poor (1998)	% moderate and severely underweight children	Under-5 Mortality per 100 births	% under-5 stunted
1	Serenje	Central	11.6	234	51.10	86	75	25.3	14.8	2.5
2	Gwembe	Southern	7.5	269	59.50	84	81	22.4	18.8	39.2
3	Sinazongwe	Southern	7.5	330	57.00	67	55	15.2	16.5	44.2
4	Chongwe	Lusaka	19.0	342	51.70	62	56	15.2	11.0	36.9

Source: 2007 Zambia Human Development Report

35. **Serenje District:** lies 400km from Lusaka on the Great North Road, on the central plateau, about 900-1,200 masl. The Luangwa valley on the east is difficult to access and the population is vulnerable and isolated, though rich with wildlife and minerals. The Lusiwasi and Luangwa rivers drain the district. Serenje is moderately deforested. The main soils are acrisols, lithosols, cambisols and fluvisols. The soils are characterised by good physical features, though with limited chemical properties. Serenje receives 1,000-1,400mm of rainfall per year. The average growing season is 140 days. Maximum temperature is about 26° Celsius. Serenje is an emerging area for commercial farming in the various settlement schemes including Nansanga Farm Block. **Sinazongwe and Gwembe District (are adjacent and similar):** They are in the Gwembe Valley that hosts the Tonga ethnic group who were resettled during the 1950s to pave way for the construction of the Kariba Dam (Lake Kariba). The Districts are about 300 km south of Lusaka at the end of Lake Kariba. The rural population is considered vulnerable and poor to very poor. GoZ has tried to develop the lakeside area with various irrigation schemes to avert the frequent drought and floods that affects the people. The average rainfall is 600 mm. Maximum temperature can rise to 35-40° Celsius. Farmers cultivate sorghum, maize and legumes. They harvest fish from Lake Kariba and keep cattle and goats. Farming is done on riverbeds and lake shores, practicing recession farming. **Chongwe District:** lies 50 km east of Lusaka on the central plateau, at 1,400 masl. It is relatively densely populated. It receives between 900-1,200 mm of annual rainfall but the distribution is erratic. Average temperature is 26.8° Celsius. Soil classification is predominantly sandy loam and shallow gravelly near the Muchinga escarpment edge on the east. Soils are generally well drained. The Kafue, Chongwe and Zambezi rivers drain the district. The main source livelihood is cattle grazing, hunting and fishing. Maize and cotton are main crops.

⁸ Serenje data covers Serenje and Chitambo Districts, and Chongwe data covers Chongwe and Rufunsa Districts (2013 re-demarcation).

C.9.1 COMPONENT 1: AGRICULTURE PRODUCTION AND PRODUCTIVITY

36. Sub-component 1.1 - Irrigation and Livestock Development will focus on enhancement of irrigated agriculture, aquaculture and livestock development in order to contribute to increasing agricultural production and productivity. Irrigation development is a major sub-component of APMEP since it will enable rural farmers to grow at least two crops per year which could otherwise not been possible under drought conditions. The first harvested crop will be used to feed the family (household consumption). The second/third crops will be excess and earmarked for sale whose proceeds will facilitate payment of school fees for the kids, purchasing of household items, setting up off-farm businesses. Eventually, the rural farmers will have better income, enhanced food and nutrition security.

A: Irrigation Development

37. *Development of Small-scale Irrigation Schemes:* This will include construction of 10 new irrigation schemes covering total area of 2,032 and 4,115 households will benefit from the schemes. The total development cost of the schemes is about USD 12 million giving an estimated development cost per hectare of USD 6,098. Only one scheme at Simupande has design and tender documents and is ready for implementation under Category 1, from PY1. The rest of the sites (Category 2) will be designed in PY1. The scheme development will include irrigable area, irrigation, drainage, road networks and associated structures. For sustainability, scheme-specific business plan and also the management entities will be established preferably starting from PY2, depending on readiness of the smallholder farmers. Staff and farmer training will focus on operation and maintenance of irrigation schemes, agronomy of irrigated crops, group dynamics, business management, financial management, and irrigation water management. The basic data of the identified potential irrigation sites and schemes are presented in Tables C.9.1.1 to C.9.1.12.

Table C.9.1.1: Basic Data of Target Sites/Schemes

No	Scheme	District	Scheme Area (ha)	Number of Farmers	Water Source	Estimated Cost (USD)	Estimated Cost per ha (USD)	Estimated Cost per HH (USD)	Readiness
Category 1									
1	Simupande	Sinazongwe	165	364	Lake Kariba	1,125,000	6,818	3,091	Design ready
Category 2									
2	Siatwinda	Sinazongwe	97	280	Lake Kariba	597,000	6,155	2,132	No design
3	Malima	Sinazongwe	215	430	Lake Kariba	1,680,000	7,814	3,907	Re-Design
4	Chabbobboma	Gwembe	210	430	Lake Kariba	1,130,000	5,381	2,628	No design
5	Saasa	Serenje	94	166	Saasa Dam	390,000	4,149	2,349	No design
6	Msangashi	Serenje	56	115	Msangashi Dam	370,000	6,607	3,217	No design
7	Mulembo	Serenje	65	120	Mulembo river	250,000	3,846	2,083	No design
8	Mazembe	Serenje	50	120	Mumbi stream	250,000	5,000	2,083	No design
9	Lusiwasi	Chitambo	720	1,310	Lake Lusiwasi	4,300,000	5,972	3,282	No design
10	Rufunsa	Rufunsa	360	780	Rufunsa dam	2,300,000	6,389	2,949	No design
Total			2,032	4,115		12,392,000	6,098	3,011	

Table C.9.1.2: Characterisation of Irrigation Sites (January 2014)

No	Scheme	District	Province	Current (ha)	Target (ha)	Crops	% Ha	Price (ZMW per Kg)	Yield (mt/ha)	Water Source	Water lifting technology	Irrigation system	Readiness	Works required
1	Siatwinda	Sinazongwe	Southern	34	97	Rice	100	8	1.5	Lake Kariba	Pumping and gravity	Flooding	No design	Expansion
						Green maize	100	4	5.0					
2	Simupande	Sinazongwe	Southern	0	165	Soya	100	3	2	Lake Kariba	Pumping and gravity	Flooding	Design ready	New
						Wheat	100	4	3					
3	Malima	Sinazongwe	Southern	60	215	Green maize	100	4	5.0	Lake Kariba	Pumping and gravity	Pressurized drag-hose	Re-Design	Expansion
			Southern			Soya	100	5	4					
4	Chabbobboma	Gwembe	Southern	6	210	Banana	100	5	5	Lake Kariba	Pumping and gravity	Flooding	No design	Expansion
5	Saasa	Serenje	Central	0	94	Irish Potato	100	3	4	Saasa Dam	Gravity	Flooding	No design	New
						Green maize	50	4	4					
6	Msangashi	Serenje	Central	0	56	Irish Potato	100	3	4	Msangashi Dam	Pumping and gravity	Flooding	No design	New
7	Mulembo	Serenje	Central	20	65	Tomato	100	4	4	Mulembo river	Gravity	Flooding	No design	Expansion
8	Kazembe	Serenje	Central	20	50	Tomato	100	4	4	Mumbi stream	Gravity	Flooding	No design	Expansion
9	Lusiwasi	Chitambo	Central	0	720	Irish Potato	100	3	4	Lake Lusiwasi	Pumping and gravity	Flooding	No design	New
10	Rufunsa	Rufunsa	Lusaka	0	360	Maize	100	4	5	Rufunsa dam	Pumping and gravity	Flooding	No design	New

Table C.9.1.3: Simupande Irrigation Scheme – Sinazongwe District (Southern Province)

Location	Simupande Irrigation Site is located 20km from Sinazongwe District along the shores of Lake Kariba
Technical Information	The site was designed under the AfDB financed Small-scale Irrigation Project (SIP) in 2008. The gross area is 165 ha to cater for 364 farmers. The source of water is the Lake Kariba. The required works: (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) complete with electro-mechanical equipment. The PS will consist of one pumping unit mounted on a floating pontoon, and one stand-by set. From the pumping station water will be delivered to two night storage reservoirs that will serve one block each; and (ii) Irrigation and Drainage Infrastructure: The works consist of construction of primary, secondary and tertiary canals with appropriate structures, and drainage network. In the field, flood irrigation method will be used.
Readiness	Category 1: Design, BOQ and Tender documents ready.
Institutional Information	The scheme was designed in 2008 by GoZ under the SIP. The Water Users Association is not yet registered. The preferred crops: rice, soya beans, green maize, bananas and wheat. There national electricity grid within the scheme. Access is by gravel road about 12km from Sinazongwe district and 7km from the Batoka-Maamba tarmac road. Cell phone coverage is available. The Cooperative Society will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Maamba, Sinazongwe and Choma towns. Traders from the same towns and also Lusaka and Livingstone shall be potential buyers of the agricultural produce.

Table C.9.1.4: Siatwinda Irrigation Scheme – Sinazongwe District (Southern Province)

Location	Siatwinda Irrigation Scheme is located in Siatwinda camp of Sinazongwe District.
Technical Information	Scheme expansion of irrigated area from 34 ha to 97 ha to benefit 280 farmers. The source of water is Lake Kariba. The proposed works: (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) complete with electro-mechanical equipment. The PS will consist of one pumping unit mounted on a floating vessel, deepening to the intake canal to convey the water from the shallow shores of Lake Kariba to the pumping station, a delivery pipeline from the pumping station to the night storage reservoir; and (ii) Irrigation and Drainage Infrastructure: The works consist of construction of primary, secondary and tertiary canals with appropriate structures, and drainage network. Three tertiary canals will be constructed whose works include lining of the two canals and repairs to the one existing lined canal. The main technology is pumping and gravity while water will be applied to the field through flood irrigation using siphons.
Readiness	Category 2: Requires redesign
Institutional Information	The initial 34 ha scheme (with 129 farmers) was established in 1972 by Gossiner Mission. The Siatwinda Cooperative Society is registered with Registrar of Cooperatives and has 129 members with 80 women. The society has an account with Zambia National Commercial Bank. The main crops being grown (34ha) are paddy rice, green maize, mixed vegetables. The water is also used for fishing, livestock and domestic purpose. National electricity grid is within the site. Access by good gravel road, 20km from tarmac road. Cell phone coverage is available. The Scheme has a PPP contract with a commercial operator who has leased 37 ha (adjacent area, additional area to the 34ha scheme & not covered in the 97ha) and pays ZMW 15,000 per year. The Cooperative Society will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Maamba, Sinazongwe and Choma towns. Traders from the same towns, including Lusaka and Livingstone come to buy produce. The cooperative has a rice mill, a tractor and a truck. They also have 22 deep-freezers where fishermen keep fish. Export market potential is in Zimbabwe and DRC.

Table C.9.1.5: Malima Irrigation Scheme – Sinazongwe District (Southern Province)

Location	Malima Irrigation Scheme is located 20km south of Sinazongwe District along the shores of Lake Kariba.
Technical Information	The current scheme covers an irrigation area of 60 ha (with 150 members) that was rehabilitated by an AfDB supported Small-scale Irrigation Project (SIP) in 2008. Scheme expansion will increase the area from 60 ha to 215 ha benefiting 430 farmers. The source of water is the Lake Kariba. The required works (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) complete with electro-mechanical equipment. The PS will consist of one pumping unit mounted on a floating vessel, to convey the water from Lake Kariba through a delivery pipeline to three night storage reservoirs; (ii) Irrigation and Drainage Infrastructure: The works consist of construction of primary, secondary and tertiary canals with appropriate hydraulic structures, and drainage network. The drag hose system will be used to irrigate crops.
Readiness	Category 2: Requires re-design
Institutional Information	The scheme was established in the 1970s by Gossiner Mission. The Malima Cooperative Society is registered with Registrar of Cooperatives. The main crops: green maize, bananas and mixed vegetables. There is national electricity grid within the scheme. Access by gravel road, fifteen (15) km from tarmac road at Sinazeze. Cell phone coverage is available. The Cooperative Society will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Maamba, Sinazongwe and Choma towns. Traders from the same towns, including Lusaka and Livingstone come to buy produce. The cooperative has a tractor, office block and storage sheds.

Table C.9.1.6: Chabbobboma Irrigation Scheme – Gwembe District (Southern Province)

Location	Chabbobboma Irrigation Scheme is located at Chipepo, 60km from Gwembe District along shores of Lake Kariba.
Technical Information	The current scheme is 6 ha (100 members) is using micro-sprinkler to irrigate bananas. Scheme expansion will increase the area from 6 ha to 210 ha benefiting 430 farmers. The source of water is Lake Kariba. The proposed works: (i) Bulk Water Supply Infrastructure: 2 electrically driven pumping station (PS) complete with electro-mechanical equipment. Each PS will consist of one pumping unit mounted on a fixed station, to convey the water from Lake Kariba through a delivery pipeline to night storage reservoirs; and (ii) Irrigation and Drainage Infrastructure: construction of primary, secondary (lined) and unlined tertiary canals with appropriate structures and drainage network. The scheme will have two sites, one 60 ha and another 150 ha block across the lagoon. Flood irrigation method using siphons from tertiary canals.
Readiness	Category 2: Requires design
Institutional Information	The 6ha scheme was established in the 1980s by Pilgrim Wesleyan missionaries. It is currently not operational as the diesel pump has broken down. The Chabbobboma Cooperative Society is registered with Registrar of Cooperatives and has 100 members, with 65 women. The society has a bank account. They have been growing bananas. The water is also used for fishing, livestock and domestic purposes. The national electricity grid is about 5km from the scheme. Access is by good gravel road. Cell phone coverage is available. The Cooperative Society will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Gwembe, Monze and Choma and Lusaka towns. Traders from the same towns, including Lusaka and Livingstone shall come to buy produce. Export market potential is in Zimbabwe and DRC.

Table C.9.1.7: Saasa Dam Irrigation Scheme – Serenje District (Central Province)

Location	Saasa Dam Irrigation Site is located in the Nansanga Farm Block, 112km from Serenje town.
Technical Information	The site has 8.5km furrow fed from Saasa Dam. The target area is 94 ha to benefit 166 farmers. The dam was built in 2011 by the Department of Water Affairs under Nansanga Farm Block. The required work: (i) raise the dam embankment by 1.5 m, rehabilitate the spillway; (ii) construction of irrigation and drainage networks and associated structures. Irrigation will be by gravity (no need for pumping).
Readiness	Category 2: Requires redesign
Institutional Information	The land is traditional and the scheme is targeted at local communities within the Nansanga Farm Block. There is a Water Users Association (WUA). Proposed crops: irish potatoes and green maize. The water is also used for domestic purpose. Access by good gravel road. No cell phone coverage. The WUA will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Serenje, Copperbelt and Lusaka towns. Traders from the same towns come to buy produce. Export market potential is in DRC.

Table C.9.1.8: Msangashi Irrigation Scheme – Serenje District (Central Province)

Location	Msangashi Irrigation Site is located in the Nansanga Farm Block, 120km from Serenje town.
Technical Information	Gross scheme area is 56 ha to benefit 115 farmers. Water source is Msangashi Dam which was constructed in 2011 by Department of Water Affairs under Nansanga Farm Block. The required works: (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) consisting of one pumping unit mounted on a fixed station, to convey the water from the dam through a delivery pipeline to the night storage reservoir; (ii) Irrigation and Drainage Infrastructure: construction of primary, secondary (lined) and unlined tertiary canals with appropriate structures and drainage network. Field will be irrigated through flood irrigation using siphons.
Readiness	Category 2: Requires redesign
Institutional Information	The scheme is within the Nansanga Farm block. There is Water Users Association. Preferred crops: irish potatoes and green maize. The water is also used for domestic purpose. The national electricity grid is about 2km away. Access is by good gravel road. No cell phone coverage. The WUA will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Serenje, Copperbelt and Lusaka towns. Traders from the same towns come to buy produce. Export market potential is in DRC.

Table C.9.1.9: Mulembo Irrigation Scheme – Serenje District (Central Province)

Location	Mulembo Irrigation Scheme is located in at Ndabala, 30 km before Serenje on the Great North Road
Technical Information	The weir and furrow were constructed off the perennial Mulembo stream by the Rural Investment Fund (RIF) in 1998 and serves an area of 20 ha (70 farmers). Scheme extension from 20 to 65 ha which will benefit 120 farmers, through improvement of the weir and furrow..
Readiness	Category 2: Requires redesign of the weir and furrow
Institutional	The land is traditional and the scheme is targeted at local communities. There is Water Users Association. The ideal

Information	crops: tomatoes and green maize. Access by good gravel road, 5km from the tarmac great north road. The WUA will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Serenje, Copperbelt and Lusaka towns. Traders from the same towns come to buy produce. Export market potential is in DRC.

Table C.9.1.10: Kazembe Irrigation Scheme – Serenje District (Central Province)

Location	Kazembe irrigation scheme is located near Kalwa farms in Teta community, 30 km east of Serenje, in Teta Camp, Chililabombwe Farm Block.
Technical Information	Currently, water is diverted by means of temporary diversion. The furrow was constructed off the perennial Mumbi stream by the Department of Agriculture. The 8.5km furrow currently serves an area of 20 ha with 30 farmers. A new scheme of 50 ha is proposed (traditional land) which will benefit 120 farmers.
Readiness	Category 2: Requires slight design of the weirs and furrow
Institutional Information	The land is traditional and the scheme is targeted at local communities. There is Water Users Association. Access by good gravel road, 8km from the tarmac Great North Road. No cell phone network coverage. The WUA will be transformed into Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Serenje, Copperbelt and Lusaka towns. Traders from the same towns come to buy produce. Export market potential is in DRC.

Table C.9.1.11: Lusiwasi Irrigation Scheme – Chitambo District (Central Province)

Location	Lusiwasi scheme site is located along the shores of Lake Lusiwasi, the third largest man-made lake in Zambia. It is located along the Great North Road near Chitambo Mission Hospital, 90km from Serenje town, in Mailo Camp in Kanona Farm Block.
Technical Information	Target area is 720 ha, to benefit 1,310 farmers. The source of water is the Lake Lusiwasi. The required works: (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) complete with electro-mechanical equipment. The PS will consist of one pumping unit mounted on a fixed station, to convey the water from Lake Lusiwasi through a delivery pipeline to night storage reservoir; (ii) Irrigation and Drainage Infrastructure: construction of primary, secondary (lined) and unlined tertiary canals with appropriate structures and drainage network. Field will be irrigated through flood irrigation using siphons.
Readiness	Category 2: Requires design
Institutional Information	The national electricity grid is about 5km from the scheme. Access by good gravel road, 5km from tarmac Great North Road and TAZARA rail line. Cell phone coverage is available. The Scheme will be managed by Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Lusaka and Copperbelt. Traders from the same towns, including Livingstone come to buy produce. Export market potential is in Tanzania and DRC.

Table C.9.1.12: Rufunsa Irrigation Scheme – Rufunsa District (Lusaka Province)

Location	Rufunsa site is located within Rufunsa town off the Great East Road in the Lusaka Province.
Technical Information	Target scheme area is 360 ha to benefit 780 farmers. The required works: (i) Bulk Water Supply Infrastructure: An electrically driven pumping station (PS) complete with its electro-mechanical equipment. The PS will consist of one pumping unit mounted on a fixed station, to convey the water from water source through a delivery pipeline to night storage reservoir; and (ii) Irrigation and Drainage Infrastructure: construction of primary, secondary (lined) and unlined tertiary canals with appropriate structures and drainage network. Field will be irrigated through flood irrigation using siphons.
Readiness	Category 2: Requires design
Institutional Information	The scheme will be established with the local community within the Farm Block. A limited company would be established to manage the scheme on behalf of farmers. The water would also be used for urban domestic use. Cell phone coverage is available. The Scheme will be managed by Limited Company owned by farmers. Training: irrigation scheme O&M, irrigation water management, commodity value addition, market skills, business management and financial management.
Commercial Information	Markets for inputs are available in Lusaka. Traders from the same town come to buy products. Export market potential is in Malawi.

38. *Development of Mini-scale (Communal) Irrigation Schemes:* The second irrigation development approach will be based on the development of mini-scale irrigation schemes through up-scaling the “*Community Water Management Improvement Project for Traditional Farmers in Mkushi, Kapiri Mposhi, Masaiti and Chingola Districts (2009-2013)*” which was implemented by the DAPP-Zambia under an Africa Water Facility (AWF) Grant (managed by

the AfDB) whose results have been good. Such development of irrigation schemes will focus on access to water lifting equipment that will be distributed by reputable micro-finance institution which will be used to (i) support smallholder farmers in sustainable and productive crop management and mini-scale irrigation including sustainable water use, financial literacy, marketing and linking them to agro dealers, (ii) organise the availability of irrigation equipment through links to private sector (equipment suppliers), and (iii) conducted field days and radio programmes to widely disseminated results. These activities will be up-scaled to all 6 APMEP Districts, covering an **additional 895 ha** of cropped area benefiting about 8,400 smallholders' farmers clubs (1,400 farmer clubs per District). The development of mini-scale irrigation schemes will be demand-driven, or induced demand through awareness campaigns, which will be facilitated by a local NGO to be recruited by the Project.

39. The AWF-model's features include: (1) *farmers organisation*: The farmers clubs will be organised to cooperate and collaborate with the GoZ agriculture extension services to technically support, mobilize and organize them into 280 clubs of 25 to 50 members (smallholder farmers). The club executives and lead farmers will be trained as trainers. All members of the farmers clubs will be trained by lead farmers/club executives. All members of the farmers clubs will also be trained through field visits and demonstrations. Farmer-to-farmer training will be done at farm level. Direct support and onsite training will be provided to each farmer in the club; (2) *irrigation technologies and capacity building*: club members will be trained in irrigation methods such as flooding using gravity, channels, field layout, use of treadle pumps, motorised/engine pumps, drip irrigation system and rope pumps where water is too deep for the other low cost options; (3) *water supply, conservation and harvesting*: ground and surface water resources will be promoted as the immediate options for irrigation purposes. Water conservation and harvesting methods such as contour ploughing, composting, use of manure, mulching and tree planting will also be used to increase water infiltration and increase the capacity for the soil to hold water; (4) *linkages to input*: the farmers' club project coordinating team are the contact focal persons for private sector partnerships, linkage and support for input; and (5) *joint crop marketing*: members of the farmers' clubs come together to target same markets by sharing transport costs and setting the price jointly. Through the crop marketing, farmers learn upfront planning, budgeting and how to run a farm as a business.

B: Aquaculture Development

40. Aquaculture Development intervention will be promoted to enhance income generating activities for smallholder farmers, with business focus. The overall objective of the project is to develop a viable and sustainable aquaculture programme for smallholder fish farmers towards contributing to a diversification of livelihoods, improved nutritional status, increased income-generating capacity, as well as improved employment opportunities. This will be achieved through the development of 280 fish-pens and 340 fish-cages for participating groups including men, women, and youths. The aquaculture intervention will benefit 32,000 fish farmers. Appropriate training will be provided to staff and farmers.

41. The Project will support (a) training and upgrading of skills for DoF field staff, (b) strengthening of producer associations (c) build the technical skills of producers to fabricate and manage fish cages (d) improve the business management and record keeping skills; and, (e) lay out demonstrating cage farms. Fish farming will be demonstrated at three pilot cluster sites at Siatwinda and Chipepo on Lake Kariba and Lake Lusiwasi, producing at least 1,000 kg/ha/year of fish per farmer. The private sector will supply fingerlings, fish feed and market for the fish products. The APMEP will provide short-term Individual Consultant assistance to

the Department of Fisheries in practical aquaculture production using fish-pens and fish-cages, and provide training in feed formulation, fish farming (using fish-pens and cages), cage/pen construction, business management and financial management. Linkages of farmers to hatcheries, feed mills and other enterprises will be supported to build fish value chains.

42. The fish cage technology will be an “open system” where the interactions between the cage and the environment are reciprocal. The hexagonal wooden or metallic cages will be tested for suitability in different areas. The selection of a suitable site for cage installation will take into account the impact of the cage on the environment and *vice versa*. **Only fish species that are indigenous to the water bodies will be promoted.** On an on-going basis, environmental studies will be conducted *in situ* to analyse physical, chemical, geological and ecological conditions in the water bodies and in consultation with local communities. The cage culture will be practiced in Sinazongwe, Gwembe and Chitambo at an average of 100 farmers for a cage per District. The expected production from each district from cages at the average selling size of 250g per fish will be 3,240 tonnes per District per year. Each fish farmer will have an average of a workforce of 6 and this will translate into 600 employees per district. The 600 employees with average family size of 6 will translate into 3600 beneficiaries per district.

43. Stakeholders and beneficiaries include all from the public and private sector players including fish farmers, feed suppliers, fry suppliers, GoZ staff and buyers. Participants (fish farmers) in Project sites will be direct beneficiaries. FAO and World Fish Centre (WFC) will be consulted to provide technical data. Other key stakeholders are the Agricultural Consultative Forum (ACF), Civil Society, Traditional leaders, Civil Society for Poverty Reduction, University of Zambia and Zambia Agriculture Research Institute (ZARI), Central Statistics Office (CSO) and Indaba Agricultural Policy Research Institute (IAPRI).

C: Livestock Development

44. Livestock Development aims at improving livestock production and productivity through increased use of good animal husbandry practices and animal breeds which will benefit about 900 farming families. Promotion of women and youths participation in livestock development will be enhanced through the goat/sheep pass-on scheme which will target 70 groups (60 women/men and 10 youth) and managed by a locally registered NGO to be recruited by the Project. The Project will also promote improvement of health and productivity of local/village chickens which is constrained by outbreak of Newcastle disease. At least 7,000 poultry (chicken)-keeping households will have access to the Newcastle vaccine. Training will be provided in poultry management. This will provide an opportunity for households to increase income and child nutrition through availability of chicken and eggs. The Project will procure about 100 incubators in order to increase the population of local/village chickens. The Project will procure Newcastle vaccine from the GoZ CVRI for distribution to chicken farmers. Newcastle vaccination campaign will be carried out by GoZ staff and community workers.

45. Considering inadequate MAL staffing capacity at camp level and with due respect to the existing legislation, the Project will promote use of private Community Animal Health Workers (CAHW) and Community Livestock Assistants (CLA). The MAL has trained some CAHWs and CLAs whose field performance and sustainability has been mixed since some of them are not able to charge the appropriate fees for the services due to traditional and family ties. The MAL staff will provide appropriate technical training including awareness and change management in order for the CAHWs and CLAs to commercially undertake basic disease control and livestock husbandry practices. After training, the Project will provide start-up drug

boxes on in-kind revolving fund basis to the CAHWs and CLAs. For sustainability, the MAL staff will closely supervise the said community workers.

46. The Project will offer training in livestock management for both male and female farmers which will be based on needs assessment. Control of diseases which affect poultry (e.g. Newcastle disease) will be pursued as it is a pertinent area for women involvement. The training will assist to increase gender awareness and develop capacities of women and men to address gender inequality issues in livestock management. Women will have at least 50% participation in mixed training sessions. The major constraints faced by women in the livestock sub-sector include livestock diseases, low productivity and slow growth rates, poor access to livestock services and credit. The Project will address many of the challenges through specific interventions targeted at women include access to livestock services, information and training in modern livestock management. Immediate benefits to women will be reduction in livestock losses, increased livestock production and improved productivity which will lead to increased household incomes.

D: Environmental and Social Issues

47. The Project will implement the ESMP based on Tables B.8.1 and B.8.2.

48. *Gender Issues:* Gender in this project will mainly focus on recognising the role of men and women in food and nutrition security, reducing inequality, redistributing the rights and ownership of assets, participation of women in decision making, representation of women in development at local level. Women and men play a vital role in ensuring household food and nutrition security, however their autonomy as food producers is usually very limited by significant obstacles they face in owning and accessing land, financial services, extension services and markets plus cultural and social barrier. This project will employ a gender sensitive approach in order to maximise the productivity of women at HH and community level. The Project will support, at least 45%, involvement of women in management of the agriculture and fisheries infrastructure, at least 80% in economic empowerment activities. Special attention will be given to women in this project through engaging them in activities that will empower them economically such as formation of women groups that will carry out livestock pass-on, local chicken breeding, small scale value addition and processing and preservation technologies of cassava, fruits and vegetables, oil pressing and training in business management and financial management. Equally young people are affected by rural poverty in Zambia, where 28% are registered as unemployed in the age group of 20-24 and 16% in the age group of 25-29years. These young people are strongly disadvantaged in the competition for approximately 700,000 jobs in the formal economy since they typically lack skills, work experience and have no or poor social networks of their older peers. Young people will be engaged in the value chain of the agriculture production and productivity.

49. The Project will support gender capacity building activities for APMEP stakeholders as shown in the table below.

Target Group	Type of Training
Farmers & Community Leaders	Gender awareness & sensitization.
Field & extension staff	Gender awareness & sensitization; and Gender mainstreaming.
MAL technical staff & programming staff	Gender awareness & sensitization; Gender mainstreaming; and Gender analysis tools and techniques.
APMEP Project staff & Implementing partners	Gender awareness & sensitization; Gender mainstreaming; Gender analysis tools and techniques; Gender based Monitoring, Evaluation and Reporting; and Learning on the job with support from Gender Specialist.

50. Gender Audit will be carried out in PY3 to assess the status and progress made in achieving gender equality within APMEP. The project will work closely with gender related organisations (NGOs, national institutions, donors) for purposes of sharing information on gender and women's empowerment in relation to livestock development. The project will document and share learning material on women's empowerment and gender equality with all the relevant stakeholders at district and national level. A stakeholder workshop will also be held to share lessons learnt and disseminate information on gender.

Activity
Gender awareness & Sensitization for MAL staff
TOT on Gender Analysis Techniques and Gender Mainstreaming
Gender Awareness & gender mainstreaming for staff
Gender awareness & gender mainstreaming for APMEP staff, implementing partners & NGOs
Gender Analysis Techniques and Gender based monitoring, evaluation & reporting for staff, implementing partners & NGOs
Gender Awareness/Sensitization for Farmers and Community Leaders
Gender Audit Study
Documentation & Dissemination of Information(including workshop)

51. The Project will put in place a monitoring and results tracking system to track the impact on women. Key indicators that will be monitored and suggested data analysis and collection methods are shown below.

Indicator	Data Collection Methods
Availability of food for female headed households	Household Surveys
Change in income for female headed households	Household Surveys
Number of women accessing livestock infrastructure and information	Household Surveys Group Interviews
Number of women in group and community based decision making bodies;	Group and Community Interviews
Changes in household and community perception of women and their capabilities.	Perception and Attitude Surveys

52. **Social Impact:** The social impact of the project is expected to be positive. The project will provide income and better livelihoods to participating communities. It is expected that average annual income of farmers will increase overtime. The project will help communities in the project area to diversify agricultural output. Other positive effects will include an improvement in the nutritional status of the population through consumption of meat and milk products rich in proteins and supply of mechanisation for land preparation and crop production. Rehabilitated rural feeder roads will generally improve trade in the targeted provinces and increased economic activity will significantly boost local development. Value addition training will improve skills and give employment to women and youth. Other employment opportunities will be created through the operation of the irrigation schemes, aquaculture infrastructure and agriculture service centres. The anticipated economic well-being resulting from higher family incomes will generate positive multiplier effects on social stability. The project will help curb rural exodus by retaining the population especially the youth in the project target areas.

53. Sub-component 1.2 - Crop Diversification and Intensification: The Project will diversify crop production by promoting improved seed systems for cassava, soya beans, sorghum, groundnuts, sunflower, cowpeas and orange sweet potatoes some of which are tolerant to drought, have low input requirements, high marketing potential and high nutritional value. The Project will procure about 13,500 packs of various seeds and planting materials for multiplication and demonstrations. The certified seed will be made available to smallholder farmers through a revolving scheme where they will give back to the farmer-groups' seed pool in the ratio of 1:2 seeds. The e-voucher system will be used for smallholder farmers to procure

seed from the private seed companies. About 500 seed growers will be supported by the Project. Seed fairs and field days will also be organised by the Project.

54. The Project will support the promotion of conservation farming on 4,300 ha and farm mechanisation on 16,000 ha for sustainable agricultural intensification on 6,700 ha and climate resilience, based on the model used the Zambia National Farmers Union - Conservation Farming Unit (ZNFU-CFU) to benefit 70,000 farmers. Based on this experience, ZNFU-CFU will be used to facilitate conservation farming. The Project will also take advantage of the EU funded and FAO-UN implemented Conservation Agriculture Scaling-Up Project (CASU) which already has staff on the ground. In both cases, a Memorandum of Understanding (MoU) will be signed with the Government. Key interventions will include: (i) provision of input vouchers for access to yield-enhancing inputs for selected vulnerable farmers; (ii) promotion of dry-season land preparation using minimum tillage methods, utilizing fixed planting stations (small shallow basins), retention of crop residue and use of other mulches or ground covers, and rotation of crops in the field; (iii) promotion of planting of agro-forestry multi-purpose trees like *Faidherbia albida* which will provide mulch and nutrients and reduce the need for chemical fertilizer; (iv) provision of farm mechanization equipment such as tractors and equipment through ZNFU-CFU; (v) provision of seed and planting materials for food and cash crops such as soya beans, cassava, sorghum and sweet potatoes which are tolerant to drought, have low input requirements, high market potential and nutritional value; (vi) training of seed growers on seed multiplication and packaging; (vii) organisation of seed fairs; and (viii) utilisation of e-voucher system to procure seed from the private seed companies.

C.9.2 COMPONENT 2: VALUE CHAIN DEVELOPMENT AND MARKET LINKAGES

55. Sub-component 2.1: Agro-processing Infrastructure Development: The project will establish 2 maize/feed and 2 cassava mills in partnership with ZCF or COMACO which includes civil works and associated mills/processing equipment. The project will facilitate installation of the processing plants through a matching grant (80/20) to District Cooperative Unions (DCUs) for industrial milling and processing of maize and cassava. These will be placed as follows: (i) 2 maize milling plant one in Serenje, and one in Gwembe District and (ii) 2 cassava milling plant at Serenje District for flour, starch and chips, or in any other Project District depending on the demand. The DCU, guided by ZCF will establish a management entity (Special Purpose Vehicle) to manage the milling/processing plant independently and overseen by a Board. Appropriate technical and management training will be provided to the management entity and also the DCU by the Project. The processing/milling plant management unit will establish market linkages with crop producers in the surrounding Districts to buy raw materials for processing. At community level, the Project will procure community-level value addition equipment, 40 honey presses and 70 solar dryers (fruit/vegetables) for women and youth groups which will provide the associated civil structures.

56. **Agro-dealer Support:** Access of inputs at community level remains a challenge in the adoption of profitable value chains. Consequently, the Project will promote community agro-dealer outlets. Community-based agro-dealers have a great role to play in bringing agro-inputs and services to smallholder farmers in their local communities. The Project would build on the initiatives of various organizations like AGRA, Care (ADAPT), Musika and Nutri-Aid Trust (NAT) who have successfully trained private agro-dealers in providing inputs to rural producers. The agro-dealers will be private sector traders with shops in local communities, since they form part of an effective approach to promoting affordable and reliable farm based

agribusiness and rural enterprise development. The agro-dealers also enhance the adoption of seed and other technologies among the small holder farmers through seed fairs and field days. The Project will also provide matching grant to enable agro-dealers to leverage start-up or scale-up resources on a 1:1 ratio. The targeted 60 agro-dealers will inject the funds in shop upgrade and diversifying the range of their inventory. The agro-dealer network will directly develop 180 groups (30% women) which will directly provide services to the impact group consisting of over 40,000 smallholder farmers. The agro-dealer development initiative shall encompass six main activities: (i) agro-dealer identification and characterisation (ii) AD capacity building (iii) creating demand for inputs among smallholder farmers (iv) linking input supplier such as Kamano seeds, Pioneer Seeds, Pannar Seeds & Seedco, MRI, ZAMSEED and Agro-chemical companies to agro-dealers (v) facilitating formation and training of District Agro-dealers Association.

57. The Project's matching grant is designed to reduce distortive effects and carefully targeted for the particular purpose of stimulating investments and typically to finance economic infrastructure, productive assets and income generating activities by agro-dealers. The matching grant will also be used to seal loopholes in agricultural value chains, promote innovation and technology adoption. In this context, the matching grant will be used to support wider scale up of agro-dealer activities for the benefit of rural producers. It will be applied to promote outgrower linkages with commercial processors and support farm diversification. Beneficiaries of matching grants will receive technical support from the Project to ensure that their enterprise remains viable. The matching grant co-financing of investments with private agro-dealer will be justified by positive externalities and spillover effects. Despite their short term high fiscal costs, matching grants allow for relatively quick results. They will be strategically used in these selected cases to kick-start local economic development, in combination with financial services.

58. Sub-component 2.1: Market Linkages: The main objective of the proposed intervention is to improve the linkages of rural producers to markets through improved roadside market facilities which will increase the income levels of poor rural households involved in production and trade of agricultural commodities. **Agriculture Service (Agro-Market) Centre (ASC):** The Project will empower ZNFU to set up agriculture service centres (ASC) which are one-stop shops for agricultural inputs and will include warehouse facility for produce storage of products. ZNFU has successfully developed and made operational FARMARAMA (ASC) shops in Choma, Mpongwe and Mkushi Districts. The Project will empower ZNFU to set up 6 Agro-Market Centres at Serenje, Sinazongwe, Gwembe, Rufunsa, Chitambo and Chongwe Districts but at a smaller scale to be designed based on the District requirements. ZNFU District Branches or Associations will manage the facilities.

59. **Rural Feeder Roads:** Rehabilitation of rural feeder roads will be carried out in the participating Districts, where there is great need, and not covered by the GoZ road rehabilitation programme. The Project will rehabilitate a total of 50 km or just appropriate crossing like culverts in order to connect smallholder farmers to markets and also existing major road networks. The feeder roads will also help to facilitate movement of agricultural inputs and outputs, thereby enhancing agro-business activities within the Districts while at the same time addressing the communities' access to the social services such as school, health, education and other recreational activities. **Road-side Markets:** The Project area is scattered with various roadside markets where farmers sell their agricultural products to motorists and assemblers. These roadside markets, while handling a significant volume of informally traded agriculture products, are poorly equipped with lay-by (parking-bay along the road), shelter,

storage, and sanitation facilities. The Project will identify 12 farmer-initiated roadside market centres and improve them for better trade. The Project will provide parking-bay along the road for motorists, shelter with appropriate stands and sanitation facilities. This will directly and indirectly benefit 9,000 and 20,000 farming households/traders respectively.

C.9.3 COMPONENT 3: INSTITUTIONAL STRENGTHENING

60. Sub-component 3.1 - Nutrition Education and Capacity Building: About 21% of children below 5 years old are considered to be severely stunted, while 14.6 % are underweight. Zambia still records 54% children under the age of 5 with Vitamin A deficiency, while iron, iodine and other micronutrient deficiencies still roams. The Project will respond to these malnutrition situations through (a) food based interventions and (b) nutrition education, as agriculture is positioning itself to produce with a nutrition lens. Nutrition education on the benefits of food based and micro nutrients such as vitamin A will be carried out in collaboration with the Ministry of Education and Ministry of Health particularly in schools and clinics. The training will involve conducting practical demonstrations on production, processing and utilization of orange fleshed sweet potatoes, legumes and other nutritious crops, including formulation of recipes on complementary feeding, so as to contribute towards their nutritional status. The Project also will support training of about 200 District/camp officers and 92,000 farming households, covering different types of recipes using crops being promoted under Components 1 and 2.

61. MAL is in the process of upgrading the Nutrition Unit with support from FAO-UN (Zambia). This is a welcome development. The Project will make a provision for a Nutrition Specialist (Individual Consultant), with predefined inputs, who will facilitate implementation of the planned activities and also support the MAL nutrition-initiatives.

62. **Food Based Interventions:** Production of special crops to meet specific nutritional requirements like orange and yellow fleshed fruits, bio-fortified crops (orange fleshed sweet potatoes, iron rich beans) legumes, dark green vegetables, soya beans, groundnuts. Training women groups and youth in processing, storage and utilisation of produced foods and specifically utilisation of goat milk for infants, production of cassava products from processed cassava, soya bean value chain promotion for young people as a business community level value addition and product development training targeting women nutrition groups and youth, training women groups and youth in appropriate processing technologies, business, leadership and entrepreneurship purchase of food processing machines and solar driers.

63. **Nutrition Education:** Promotion of school health and nutrition programmes (school gardens, school livestock units, health and nutrition clubs, hygiene and sanitation). This is an underlying nutrition intervention. Promoting nutrition among school going children is a viable way of reaching to an entire household. Carry out infant and young child feeding sessions once a week in target communities to train mothers and fathers on best feeding practices. These groups will form a class of learners who will rear goats for milk production for production of supplementary foods for use for infant feeding sessions, grow soya for infant feeding, home gardens for access to fresh vegetables, raise fish in ponds, raise chickens and linked to food based interventions, carry out household/family nutrition education at community level once a week, reproduce nutrition education materials (IEC), nutrition campaigns on radio, training of district and extension camp staff.

64. **Food security and nutrition information systems:** Activities include: (i) coordination with other partners involved in food and nutrition security surveillance and M&E to harmonize data collection and management methods, ensure information is complementary and thus better respond to programme needs: Contribute to food and nutrition security surveillance, in particular regarding the monitoring of food consumption patterns, through Diet diversification monitoring and seasonal food availability calendars; Introduction of indicators on food consumption and household access to food (e.g. diet diversity) to monitor the nutritional impact of food security interventions through strengthening of the Food Security and Nutrition Mapping System which tracks and maps food security and Nutrition actions at National Level.

65. Strengthening coordination in order to enhance agriculture sector's capacity to respond to nutrition will be through (a) National level agriculture technical working group formation which will support and inform the technical implementation of APMEP, (b) launch APMEP nutrition component at National and provincial level as a way of National/provincial level information sharing and positioning MAL Nutrition Unit as a lead in the campaign to position agriculture respond to nutrition objectives, (c) National/provincial level monthly coordination meetings, (d) review of nutrition-related capacities amongst professionals working in agriculture, and (e) collaboration with development partners working on nutrition education to strengthen the integration of nutrition education and communication in agricultural programme, (f) position agriculture sector through APMEP to lead the application of the nutrition lens in the food system. The key food and nutrition indicators will include (i) availability of food for female headed households; (ii) income for female headed households; (iii) number of women in group and community based decision making bodies; (iv) changes in household and community perception of women and their capabilities. Nutrition audit will be carried out in PY3 to assess achievements made, gaps, challenges and constraints in mainstreaming nutrition in APMEP and also make recommendations of how the project can improve on delivery during the remaining period.

66. **Capacity Building:** The Project will provide short-term in-service training for participating staff in the areas of aquaculture, livestock, agribusiness linkages and value chain development, contract farming, contract management, conservation farming and agro-dealer support. The Project will support strengthening of farmer institutions such as cooperatives, aquaculture groups, agro-dealer associations, women and youth groups as channel for sustainable agribusiness services.

67. Sub-component 3.2 - Project Management and Sub-component 3.3 - Monitoring and Evaluation have been elaborated in Technical Annex B.3.

C.9.4 SAMPLE JOB DESCRIPTION – CORE POSITIONS

9.5.1 Project Coordinator (PC)

Period: Five (5) years (1 Year, Renewable, Performance Based Contract)
Nature of Job: Full time at the PTT
Reporting: MAL - Director of Policy and Planning

Terms of Reference

The Project Coordinator (PC) will coordinate the activities of the APMEP and also the GAFSP Project Technical Team (PTT) members. S/he will be responsible for planning, administering and coordinating the activities of the PTT. S/he will ensure that the Project is implemented in

accordance with the Financing Agreement with AfDB and the Project Implementation Manual (PIM), and in compliance with AfDB and GoZ guidelines and procedures. S/he will have overall responsibility of monitoring, overseeing and guiding the implementation of the various components of the Project by the different stakeholders in all participating Districts including other public sector, private sector and community partners.

Specific Terms of Reference

Ensure that the provisions of the Financing Agreement are adhered to while using the Project Appraisal Report (Volumes I and II) as reference point in the process of implementation.

- Ensure that relevant GoZ and AfDB policies, manuals, guidelines and procedures are properly adhered to during implementation.
- Prepare timely the consolidated APMEP Annual Work Plan and Budget (AWP&B).
- Facilitate preparation of AWP&B by participating Districts.
- Coordinate the activities and functions of core GAFSP PTT members.
- Ensure that the Financing Agreement's covenants are met.
- Review and update the Procurement Plan, together with the Procurement Specialist, for works, goods and services including examining bid documents and consultants' ToRs in line with the Bank's procurement rules and procedures.
- Facilitate preparation of ToRs for consultants, in consultation MAL, and enter into agreement with consultants.
- Liaise with the MAL at National, Provincial and District levels directly and through the different offices of the PTT to ensure that proper implementation of the Project including timely financial, physical and impact reporting to MAL and the PSC.
- Liaise with the AfDB, including: Submit request for procurement of works, goods and services to the AfDB for "No Objection"; Ensure that the loan withdrawal applications are submitted to AfDB in a timely manner and in accordance to the Financing Agreement; Prepare and submit to the AfDB financial and physical progress reports as per the Financial Agreement; Coordinate and facilitate Project annual review meetings (No later than one month prior to each annual review meeting, send a detailed progress report to the AfDB and MAL for their review/comments); Facilitate the Mid-Term Review (MTR) and no later than six weeks prior to the MTR furnish to the AfDB and the Government a progress report describing the status of the implementation of each Project component; and Facilitate production of the Project Completion Report (PCR).
- Ensure that Designated Account(s) are opened following the AfDB and GoZ procedures. Submit requests to the AfDB to disburse the authorized allocations into the Designated Account(s).
- Facilitate the processing of Withdrawal Applications from Designated Accounts and authorize payments by the Bank as when and necessary.
- Liaise with OAG to ensure that annual Audits of the Project accounts are undertaken by Auditors and facilitate submission of the Audit Reports to the Bank, within six months after the end of each financial year.
- Monitor and follow-up all training sessions under the project.
- Follow-up the progress achieved in the implementation of the Project with special reference to monitoring indicators.
- Prepare and submit to the Bank/MAL quarterly Project Progress Reports which will include summary of activities undertaken as per the AWP&B.
- Perform the duties of secretariat/secretary to the PSC.
- Facilitate Gender and also Nutrition issues of the Project.
- Undertake any other duties, related to the Project that may be assigned by the MAL-DPP.

Qualifications and experience

- The candidate shall have a minimum of MSc degree in agriculture economics, agriculture science, civil engineering, irrigation engineering or related field.
 - Minimum of 10 years of proven experience in the management of development Projects.
 - Ability to use the Microsoft Office standard software (Word, Excel and Power Point).
 - Excellent interpersonal skills and ability to interact effectively with colleagues from diverse disciplines.
 - Strong organizing, work planning and scheduling skills.
 - Excellent communication and presentation skills in both oral and written English.
 - Experience with the civil service (Government) and also donor-funded projects will be an added advantage.
 - Knowledge in Gender and Nutrition issues will be an added advantage.
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9.5.2 Procurement Specialist

Period:	Five (5) years (1 Year, Renewable, Performance Based Contract)
Nature of Job:	Full time at the PTT
Reporting:	Project Coordinator/PC (PTT)

Terms of Reference

The Procurement Specialist will be responsible for the planning, supervising and coordinating procurement activities for works, goods and services according to the Procurement Plan and in line with the GoZ guidelines and Bank's rules and procedures.

Specific Terms of Reference

Under the supervision of the Project Coordinator, the Procurement Specialist will be responsible for the following:

- Prepare and update the Procurement Plans and updates in consultation with key stakeholders and PTT members.
- Develop institutional systems and procedures of procurement and give advice to implementing organizations (MAL, Provinces and Districts) to ensure that procurement is carried out according to GoZ guidelines and Bank's rules and procedures as applicable.
- Develop/update the procurement manual, as necessary, and ensure participating staff are aware of its provisions.
- Keep up to date database with domestic/local and international market trends and costs for works, goods and services.
- Take the lead in the pre-contract activities including preparation of bidding documents and requests for proposals in consultation with MAL using AfDB Standard Bidding Documents as applicable.
- Ensure compliance and approval requirements of the AfDB and the Government in the procurement.
- Guide the PTT/MAL, Provincial and District officers in negotiating as applicable and in finalizing and signing Purchase Orders or contracts with works contractors, suppliers or consultants.
- Work jointly with Project Accountant (Finance and Administration) on procurement issues.
- Receive and secure **original** Bid Bonds, performance and advance payment guarantees and track their validity, seek extensions as needed and ensure timely release.
- Working with the assigned Financial Management Staff and follow-up on all necessary

- process of securing Letters of Credit, shipping documents and clearance of goods etc.
- Establish Procurement Tracking System and monitor implementation of Project's procurement activities including dispatch of procurement documents, and arrangements for insurance etc.
- Guide/support the Project Manager assigned for each contract and ensure that there are effective contract management systems in place for timely execution of contract and that all payments are in line with contract provision.
- Prepare Periodic Status Reports on the procurement of works, goods and services under the Project for submission to MAL and AfDB.
- Conduct procurement and contract management training for participating staff MAL HQ, Province and District levels.
- Undertake any other duties, related to the procurement that may be assigned by the PC-PTT and MAL-DPP.

Qualifications and experience

- A minimum of Bachelor's Degree (BSc) in Purchasing and Supply Management or a Graduate Diploma in Purchasing and Supply Management (CIPS Level 6) or its equivalent.
- Minimum of 5 years work experience in procurement and supplies.
- Knowledge of public procurement, legal, administrative and institutional system of the AfDB and the GoZ.
- Ability to use the Microsoft Office standard software (Word, Excel and Power Point).
- Excellent interpersonal skills and ability to interact effectively with colleagues from diverse disciplines.
- Strong organizing, work planning and scheduling skills.
- Excellent communication and presentation skills in both oral and written English.
- Procurement experience with donor funded Projects will be an added advantage.

9.5.3 Project Accountant

Period: Five (5) years (1 Year, Renewable, Performance Based Contract)

Nature of Job: Full time at the PTT

Reporting: Project Coordinator/PC (PTT) and MAL Chief Accountant

Terms of Reference

The Project Accountant will be responsible for management of the Project financial transactions and will work closely with MAL Finance Monitoring Unit (FMU)/the Chief Accountant.

Responsibilities

- Assist the PC to develop the Project AWP&B.
- Monitor the execution of the annual budget while ensuring that funds to cover expenditures are properly allocated and used, as intended.
- Ensure timely and accurate payment of expenses after receiving genuine approvals.
- Prepare and file disbursement applications in compliance with the AfDB, disbursement procedures and processes, in line with the Bank's Disbursement Manual.
- Maintain up-to-date accounting records for the Project including assets registers.
- Perform regular bank account reconciliations, taking appropriate action to correct discrepancies between the Project and Bank records.
- Manage and control all cash and banking transactions including reports.

- Ensure timely reporting and feedback on financial transactions related to the Project.
- Prepare quarterly financial reports for submission to AfDB and MAL, to be annexed to the interim quarterly progress report (IQPR).
- Prepare financial statements, for the Project, that comply with AfDB requirements.
- Coordinate with the internal and external auditors of the Project to ensure that their work is carried out properly and on timely basis.
- Ensure that annual Audits of the Project accounts are being undertaken by Auditors and facilitate submission of the Audit Reports to the Bank in consultation with the PC, within six months after the end of each financial year.
- Ensure that recommendations by Bank missions, internal and external Auditors are timely and properly implemented.
- Undertake any other duties, related to the Project accounting that may be assigned by the Project Coordinator.

Education and Experience

- Bachelor's Degree (BSc) or Advanced Diploma in Accounting or its equivalent from an accredited University or Institution.
 - Master's Degree (MSc) in a related field or, ACCA, ACMA, CPA, CA certification will have an added advantage.
 - Minimum of five (5) years post qualification experience in accounting and/or auditing, preferably in the public sector.
 - Ability to prepare financial statements in accordance with International Accounting Standards (or equivalent), AfDB and other Development Partners reporting requirements.
 - Ability to use the Microsoft Office standard software (Word, Excel and Power Point).
 - Excellent interpersonal skills and ability to interact effectively with colleagues from diverse disciplines.
 - Strong organizing, work planning and scheduling skills.
 - Excellent communication and presentation skills in both oral and written English.
 - Detailed understanding of International Accounting Standards (or equivalent), knowledge of AfDB or other Development Partners financial management rules accounting procedures will be an added advantage.
 - Ability to use recognized accounting software, knowledge of Pastel will be an added advantage.
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