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Report No: PAD2241

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROPOSED CREDIT

IN THE AMOUNT OF SDR XX MILLION
(US$160 MILLION EQUIVALENT)

AND A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$5.59 MILLION

TO THE

REPUBLIC OF MALAWI

FOR A

SHIRE VALLEY TRANSFORMATION PROGRAM - I
{RVP/CD CLEARANCE DATE – same date as on MOP}

Water Global Practice
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Feb 25, 2017})

Currency Unit	=	
	=	US$1
US$	=	SDR 1

FISCAL YEAR
January 1 - December 31

ABBREVIATIONS AND ACRONYMS

AAD	Annual Average Damage
AfDB	African Development Bank
AGCOM	Agricultural Commercialization Project
ASWAp	Agricultural Sector Wide Approach
ASWAP-SP	Agricultural Sector Wide Approach – Support Project
BWO	Bulk Water Operator
CAADP	Comprehensive Africa Agriculture Development Program
CAS	Country Assistance Strategy
CBRLDP	Community Based Rural Land Development Project
CDD	Community Driven Development
CLA	Customary Land Act
CLC	Customary Land Committee
CSO	Civil Society Organizations
DA	Designated Account
DoI	Department of Irrigation
DNPW	Department of National Parks and Wildlife
DNRDM	Department of National Relief and Disaster Management
DoE	Department of Energy
DoF	Department of Forestry
DoFi	Department of Fisheries
DoS	Department of Surveys
DP	Development Partners
DPO	Development Policy Operations
DRM	Disaster Risk Management
DWR	Departments of Water Resources
EAD	Environmental Affairs Department

EGENCO	Electricity Generation Company
ESCOM	Electricity Supply Corporation of Malawi
ESIA	Environment and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESW	Economic Sector Work
FAO	Food and Agriculture Organization
FM	Financial Management
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gasses
GIS	Geographic Information System
GNI	Gross National Income
GoM	Government of Malawi
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GV	Group Villages
ha	Hectare
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFMIS	Integrated Financial Management Information System
IFRs	Interim Financial Reports
IMT	Intermediate Means of Transportation
IPCs	Internal Procurement Committees
IPF	Investment Project Financing
IRLADP	Irrigation, Rural Livelihoods and Agricultural Development Project
IRR	Internal Rate of Return
ISM	Implementation support mission
ISP	The Implementation Support Plan
JICA	Japan International Cooperation Agency
LNP	Lengwe National Park
LUCs	Land Use Changes
LUSIP	Lower Usuthu Smallholder Irrigation Project
M&E	Monitoring and Evaluation
MDTF	Multi Donors Trust Fund
METT	Management Effectiveness Tracker Tools
MGDS	Malawi Growth & Development Strategy
MIGA	Multilateral Investment Guarantee Agency
MIS	Management Information System
MITC	Malawi Investment and Trade Center
MoLGRD	Ministry of Local Government and Rural Development
MoLHUD	Ministry of Lands, Housing and Urban Development
MoNREM	Ministry of Natural Resources, Energy and Mining

MoAIWD	Ministry of Agriculture, Irrigation and Water Development
MoFEPD	Ministry of Finance, Economic Planning and Development
MOM	Management, Operation and Maintenance
MoNREM	Ministry of Natural Resources, Energy and Mining
MoU	Memorandum of Understanding
MoITT	Ministry of Industry, Trade and Tourism
MoTPW	Ministry of Transport and Public Works
MPA	Multi-Phase Programmatic Approach
NAO	National Audit Office
NAP	National Agricultural Policy
NCB	National Competitive Bidding
NDC	Nationally Determined Contribution
NIP	National Irrigation Policy
NPV	Net Percent Value
NRM	Natural Resource Management
NWDP	National Water Development Program
ODPP	Office of Director of Public Procurement
PAPs	People affected by the projects
PDO	Project Development Objectives
PFM	Public Finance Management
PIM	Project Implementation Manual
PMP	Pest Management Plan
PMT	Project Management Team
PPA	Project Preparation Advance
PPD	Public Private Dialogue
PPIAF	Public Private Infrastructure Advisory Facility
PPP	Public-Private Partnership
PPPC	Public Private Partnership Commission
PRAMS	Procurement Risk Assessment System
PS	Principal Secretary
PSC	Program Steering Committee
PTC	Program Technical Committee
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plans
REDD+	Reduce Emissions from Deforestation and Forest Degradation
RPF	Resettlement Policy Framework
SAEZ	Special Agricultural Economic Zone
SCADA	Supervisory Control and Data Acquisition
SMEs	Small and Medium Enterprises
SPUs	Specialized Procurement Units
SOCFEs	Smallholder Owned Commercial Farm Enterprises
SPV	Special Purpose Vehicle
SRBMP	Shire River Basin Management Program

SRWB	Southern Region Water Board
SVIP	Shire Valley Irrigation Project
SVTP	Shire Valley Transformation Program
T&C	Trade and Competitiveness
TA	Traditional Authority
TLMAs	Traditional Land Management Areas
ToRs	Terms of References
TTL	Task Team Leader
TWGs	Technical Working Groups
UNDP	United Nations Development Program
VDCs	Village Development Committees
VNRMCs	Village Natural Resource Management Committees
WB	World Bank
WBG	World Bank Group
WPA	Water Purchase Agreements
WUA	Water User Associations

Regional Vice President:	Makhtar Diop
Country Director:	Bella Bird
Senior Global Practice Director:	Guang Zhe Chen
Practice Manager:	Jonathan S. Kamkwalala
Task Team Leader(s):	Pieter Waalewijn, Efrem Zephnath Chilima, Valens Mwumvaneza

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[ ] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[✓] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
17-Oct-2017	31-Dec-2023	A - Full Assessment

Bank/IFC Collaboration	Joint Level
Yes	Complementary or Interdependent project requiring active coordination

Proposed Development Objective(s)

The program development objective (PDO) for the Shire Valley Transformation Program is to increase agricultural productivity and commercialization for targeted households in the Shire Valley; and to improve the sustainable management and utilization of natural resources.

The SVTP-I Project Development Objective is to provide access to reliable gravity fed irrigation and drainage services, secure land tenure for smallholder farmers, and strengthen management of wetlands and protected areas in the Shire Valley.

Components

Component Name	Cost (US$, millions)
Irrigation Service Provision	135.80
Land Tenure and natural resources management support	27.29
Agriculture Development and Commercialization	56.60

Project Management and Coordination	8.90
PPA repayment	6.00

Organizations

Borrower : Ministry of Finance, Economic Planning & Development

Implementing Agency : Ministry of Agriculture, Irrigation and Water Development

PROJECT FINANCING DATA (US$, Millions)

[ ] Counterpart Funding	[ ] IBRD	[✓] IDA Credit	[ ] IDA Grant	[✓] Trust Funds	[ ] Parallel Financing

Total Project Cost:	Total Financing:	Financing Gap:
234.59	234.59	0.00
	Of Which Bank Financing (IBRD/IDA): 160.00	

Financing (in US$, millions)

Financing Source	Amount
African Development Fund	50.00
Borrower	7.20
Global Environment Facility (GEF)	5.59
International Development Association (IDA)	160.00
Foreign Private Commercial Sources (identified)	11.80
Total	**234.59**

Expected Disbursements (in US$, millions)

Fiscal Year	2018	2019	2020	2021	2022	2023	2024
Annual	5.00	12.00	30.00	35.00	35.00	35.00	8.00
Cumulative	5.00	17.00	47.00	82.00	117.00	152.00	160.00

INSTITUTIONAL DATA

Practice Area (Lead)

Water

Contributing Practice Areas

Agriculture
Environment & Natural Resources
Trade & Competitiveness
Social, Urban, Rural and Resilience Global Practice

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	High
5. Institutional Capacity for Implementation and Sustainability	High
6. Fiduciary	High
7. Environment and Social	High
8. Stakeholders	Substantial
9. Other	
10. Overall	High

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

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

Projects in Disputed Areas OP/BP 7.60	✓

Legal Covenants

Conditions

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Pieter Waalewijn	Team Leader(ADM Responsible)	Sr. Water Resources Mgmt Specialist	GWA09
Efrem Zephnath Chilima	Team Leader	Sr. Private Sector Specialist	GTC01
Valens Mwumvaneza	Team Leader	Sr. Agriculture Economist	GFA13
Steven Maclean Mhone	Procurement Specialist(ADM Responsible)	Sr. Procurement Specialist	GGO01
Anthony Aggrey Msendema	Procurement Specialist	Procurement	GGO01
Trust Chamukuwa Chimaliro	Financial Management Specialist	FM Specialist	GGO31
Bruce Douglas Carrie	Team Member	Public Private Partnerships	CASPA
Caroline Plancon	Team Member	Sr. Land Policy Specialist	GWA07
Christine Makori	Team Member	Senior Counsel	LEGAM
Ekaterina Romanova	Social Safeguards Specialist	Social Development Specialist	GSU07
Ekaterine Gureshidze	Counsel	Principal Counsel	CLEMG
Esther Angellah Lozo	Team Member	Operations Assistant	AFMMW
Francis Samson Nkoka	Team Member	Sr. DRM Specialist	GSU13
Francois Onimus	Team Member	Sr. Water Resources Specialist	GWA05
George Campos Ledec	Environmental Safeguards Specialist	Lead Ecologist	GEN01
Hawanty Page	Team Member	Quality Assurance	GFA13
Helen Z. Shahriari	Social Safeguards Specialist	Sr. Social Scientist	GSU05

Jane Jamieson	Team Member	Sr. Infrastructure Specialist	GTPPP
Jonathan Mills Lindsay	Team Member	Lead Counsel - Land Tenure	LEGEN
Joop Stoutjesdijk	Team Member	Lead Irrigation Engineer	GWA02
Lucson Pierre-Charles	Team Member	Processing	GWA09
Maiada Mahmoud Abdel Fattah Kassem	Team Member	Finance Officer	WFALA
Mercy Chimpokosera-Mseu	Team Member	Environmental specialist	GFA13
Nicola Ruggero Saporiti	Team Member	PPP Specialist	CASPU
Nigel Ross Hughes	Team Member	Sr Natural Resources Management Specialist	GEN01
Regassa Ensermu Namara	Team Member	Sr. Water Res. Economist	GWA08
Richard Everett	Social Safeguards Specialist	Social Safeguards Specialist	GSU01
Rupinder Kaur Rai	Team Member	PPP Specialist	GTPPP
Steven R. Dimitriyev	Team Member	Lead Private Sector Specialist	GTC01
Tamara Juvenile Mwafongo	Team Member	Team Assistant	AFMMW
Time Hapana Fatch	Team Member	Senior Agriculture Economist	GFA13
Victoria Hilda Rigby Delmon	Team Member	Senior Counsel	GWA02
Zeria Ntambuzeni Banda	Team Member	Communications	AFREC
Zione Edith Kansinde	Team Member		AFMMW

Extended Team

Name	Title	Organization	Location
Andrew Macpherson	Value Chain and Agribusiness Specialist	FAO	
Fabrice Edouard	Lands Officer	FAO	
Jean Risopoulos	Economist	FAO	Rome,Italy
Sam Magombedze	Project Financial/Economic Management Analyst	FAO	
Yesuf Abdella	Rural Engineer,	FAO	Rome,Italy

MALAWI
SHIRE VALLEY TRANSFORMATION PROGRAM - I

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I. STRATEGIC CONTEXT

A. Country Context

1. Malawi, nicknamed "the Warm Heart of Africa", is a landlocked country in southeastern Africa, defined by its topography of highlands split by the Great Rift Valley and enormous Lake Malawi. The latter feeds the Shire River, the largest tributary of the Zambezi. As one of Southern Africa's most densely populated countries, Malawi has an estimated 17.6 million people – 45 percent of whom is under 14 years old (2016) – living in an area of 118,484 square kilometers. With a population growth rate of 3.1 percent per annum (2016), the country's population is expected to reach 22.8 million by 2025. Malawi is also one of the world's poorest countries. It is ranked 173 out of 188 countries on the United Nations Human Development Index (UNDP, 2015). Gross National Income (GNI) *per capita*[1] was estimated at US$340 in 2015 and Malawi's real *per capita* Gross Domestic Product (GDP) has grown at an average of just above 1.5 percent per year between 1995 and 2014. Absolute poverty levels are still above 50 percent, and in particular the rural population saw a decline in *per capita* consumption in the last decade.

2. Approximately 85 percent of Malawi's population lives in rural areas with the majority engaged in low productivity rain-fed subsistence agriculture. Malawi's recent years have been difficult with weak fiscal policy, low investor confidence, and significant weather shocks with late arrival and early cessation of rains and major flooding having detrimental effects on agricultural output and food security. Drawdown of natural capital (e.g. soil fertility, biodiversity and forests) in recent years has been substantial. As measured by Adjusted Net Savings[2] as a percentage of GNI, data for Malawi shows negative values for most of the period since 1995. Changes in wealth *per capita* also show a strongly negative trend throughout the same period – reflecting a degrading underlying resource base and a rapidly expanding population. Malawi's economic growth is closely correlated with hydro-meteorological variability. In recent years Malawi has suffered from weather shocks with increasing frequency, including simultaneous floods and droughts in early 2015, followed by another major drought in 2016. The twin crises of vulnerability to climate variability and fiscal management challenges are unrelated but have a combined impact on poverty levels and declining growth rates (Malawi Economic Monitor, World Bank 2015).

3. A more climate-smart, diversified and connected agriculture sector is also required. Malawi is well endowed with agricultural and water resources and its neighbors are experiencing economic growth, creating an enlarged demand base for its produce. Major new infrastructure, such as the Nacala Rail Line, connecting Malawi to the Indian Ocean and to Northern Mozambique and the fast growing City of Tete in Mozambique have the potential of improving Malawi's integration with the regional economy. Overcoming the economic impacts of weather shocks on the agriculture-based economy will be important, especially in disaster prone districts (particularly in the Shire Valley) where over 80 percent of the population lives below the national poverty line and communities are frequently affected by both

[1] GNI *per capita* - atlas method (current US$)
[2] Adjusted Net Savings takes drawdown of natural capital as well as health damaging air pollution into account, alongside the standard measures of physical and financial savings. Human capital formation (spending on education) is added as an investment in the ANS calculation so that, overall, it provides a holistic measure of national wealth.

floods and droughts. It is clear that Malawi's natural assets, including forests, wetlands, and agricultural land, comprise more than 50 percent of its wealth and the challenge will be to ensure that any further transformation of this capital into human and social capital is done efficiently and in a sustainable manner to avoid further depletion of the country's resources.

B. Sectoral and Institutional Context

4. Agriculture is the main source of Malawi's economic activity, representing about 30 percent of GDP, 85 percent of employment and over 80 percent of total export earnings. The agricultural sector has experienced intermittent periods of strong growth and decline over the last decade. It is a priority sector for Malawi and public and private spending in the sector is significant. Total cultivated land in Malawi is approximately 5.3 million hectares (ha), the vast majority (over 97 percent) of which is rain fed. The agricultural sector is dualistic, comprising the smallholder subsector (2.7 million households) and the (private) estate subsector (approximately 30,000 farms). The predominantly subsistence smallholder farming system relies heavily on rainfall during the one short rainy season from November to March and is vulnerable to unreliable weather. More than 90 percent of the rural population are subsistence farmers on approximately 4.2 million hectares, cultivating small and fragmented pieces of land held under customary land tenure, from which they produce 75 percent of the agricultural output of the country, predominantly maize. Over 70 percent of all the farmers cultivate less than one hectare and a significant number struggle to produce enough food to meet their basic consumption requirements.

5. Agricultural expansion has reached its limits as more and more fragile upper catchments are cultivated, resulting in high erosion, rapid loss of soil fertility and siltation of water courses. In the plains, agricultural intensification has taken place primarily along river banks and in wetlands. This has devastated natural habitats, exacerbated downstream flooding and exposure to weather shocks. These shocks coupled with limited irrigation, weak land tenure security, limited access to farm inputs and finance; and weak linkages to markets contribute to low productivity and high vulnerability. Degradation of agricultural land and of forests poses a major constraint to productivity and economic development, and is estimated to cost an equivalent of 5.3 percent of GDP each year[3]. Soil degradation is the main factor contributing to reduction in agricultural yields estimated over the years between 4 and 25 percent[4,5]. The government and development partners are joining in an effort to reverse these trends through better natural resources and integrated water resources management. Agricultural intensification through irrigation development is an integral part of this strategy. In 2015, the Government adopted an Irrigation Master Plan and Investment Framework, which provides priorities for different business lines in irrigated agriculture and proposes specific investments based on multi-criteria analysis.

6. Water resources and their variability play a critical role in Malawi's economy. While overall availability of water resources is quite satisfactory, per capita water availability has been declining mainly due to population growth. Malawi has one rainy season, and rainfall in the Valley does not allow for stable agricultural production. Despite the noticeable surface water in the country, embodied in Lake Malawi,

[3] Ministry of Finance and Development Planning (2011). *Economic Valuation of Sustainable Natural Resource Use in Malawi*. Poverty and Environment Initiative. UNDP/UNEP.
[4] World Bank (1992), *Malawi Economic Report on Environmental Policy*, World Bank, Lilongwe
[5] Bishop J. (1995), *The Economics of Soil Degradation: An Illustration of the Change in Productivity Approach to Valuation in Mali and Malawi*, LEEC Paper 95-02, IIED, London.

the second largest lake in Africa, the availability and reliability of surface water in Malawi is highly variable between wet and dry seasons and from year to year, and water storage infrastructure is very low even by regional standards. Water resources have also been increasingly degraded through sedimentation, biological contamination and effluents, and due to inadequate catchment/watershed management. Future irrigation development particularly upstream of the hydropower cascades may result in water use trade-offs and investments need to be made selectively to minimize impacts and favoring high-return investments in irrigation.

7. Only about four percent of crop land is currently irrigated, severely constraining agricultural intensification and commercialization. The total area of irrigated land stood at 104,000 ha in 2014 of which about 54 percent was smallholder and 46 percent was estates (GoM, 2015). Almost all irrigation is from surface water. Because of its high productivity, the contribution of irrigated agriculture to agricultural sector GDP is around 10 percent and importantly supports food security, rural income generation and rural poverty reduction. The irrigated area has been growing steadily since 2006 at the rate of around 5 percent per annum (see Annex 1 for a more detailed description of the evolution of the irrigation sector). Overall there are around 56,600 household beneficiaries of smallholder irrigation schemes, but these represent only around 3.3 percent of all rural households. Most of the potentially irrigable land lies in the plains along the shores of Lake Malawi and the Lower Shire Valley. These areas have fertile soils and adequate water resources for the development of irrigated agriculture.

8. Insecure land tenure is also a major constraint to agriculture development. Fear of loss of land is a major impediment to productivity - perceived risk of loss of land is estimated to reduce productivity by up to 12 percent (Deininger and Fang, 2016) - and inability to enter into productive alliances with current land entitlement further blocks private investments in land productivity improvement. This lack of investment also translates into less sustainable approaches to land management. By the end of 2016, the Malawian Parliament had passed 10 new laws[6] that fundamentally modify the status and registration of land rights in the country. In particular, the new framework introduces a decentralized land administration and registration system and provides for the formalization and registration of customary rights. This new framework presents both opportunities and challenges for transformation in agriculture. The new legal framework significantly improves options for strengthening land tenure security and allows more productive alliances to form, both of which are key to agricultural commercialization proposed under the program. In the short term, arrangements will be needed to address weaknesses in institutional arrangements for land registration, the devolution of decision making, and the lack of regulatory details, all of which entail challenges for the implementation of the new framework.

9. Agricultural commercialization is constrained by poor market systems and limited farmer organization. Agricultural rural markets in Malawi are undeveloped, there is inadequate infrastructure for efficient agricultural marketing, limited access to and poor quality of marketing service provision, and policy incoherencies that negatively affect marketing. Agricultural sector policies have distorted farm incentives and hampered private sector growth in the past; and still require rationalization and modernization. Limited public and private investments in transport, storage, electricity, financial products, and quality standards have inhibited farmers' efficiency and competitiveness in both local and

[6] The Land Bill, 2016; Customary Land Bill, 2016; Physical Planning Bill, 2016; Land Survey Bill, 2016; Registered Land (Amendment) Bill, 2016; Land Acquisitions (Amendment) Bill, 2016; Local Government (Amendment) Bill, 2016; Malawi Housing Corporation (Amendment) Bill, 2016; Forestry (Amendment) Bill, 2016; and Public Roads (Amendment) Bill, 2016.

international markets. Increasing domestic demand of the various products is making horticultural production popular among farmers. However, value addition in the agricultural sector is constrained by a weak business and investment climate. Malawi continues to perform poorly in critical areas of economic recovery and competitiveness such as trading across borders, access to electricity, starting a business, and others. The country is poorly ranked at number 133 in the 2017 Malawi Doing Business Report. Access to finance tops the list of business obstacles. The country's interest rates are very high at around 40 percent per annum in the commercial banks and ranging between 50 and 80 percent per annum in the microfinance and informal banking systems. The financial sector is small and focuses on a narrow range of products. The national electrification rate stands at less than 10 percent with electrification in the rural areas being much lower at two percent. Weak institutional and regulatory framework poses a challenge to agricultural enterprise development. Regulatory barriers, high transaction costs and non-transparent procedures hamper new entrants. Malawi generally faces high costs of trade, coming from high tariffs and non-tariff barriers, regulatory costs, border challenges as well as high transportation costs.

10. Under the Comprehensive Africa Agriculture Development Program (CAADP) process, the Government of Malawi (GoM) has developed and adopted the Agricultural Sector Wide Approach (ASWAp) and the National Export Strategy. Both advocate strategic investments in programs and initiatives for the transformation of smallholder agriculture, the expansion of irrigation infrastructure, expansion and diversification of exports and expansion of commercial agriculture. The National Agricultural Policy (NAP, 2016) identifies agricultural market development, agro-processing and value addition as policy priority areas. The GoM has made significant strides in strengthening the capacity of the irrigation sector institutional framework and its staffing at national and district level, development of appropriate bylaws and management transfer mechanisms, and has developed support structures for Water User Associations (WUA). The Ministry of Agriculture, Irrigation and Water Development (MoAIWD) is the key agency in this space, along with the Ministry of Natural Resources, Energy and Mining (MoNREM), the Ministry of Lands, Housing and Urban Development (MLHUD), the Ministry of Industry, Trade and Tourism (MoITT) and the Malawi Investment and Trade Center (MITC). These and other agencies are collaborating on sector wide approaches and multi-sectoral programs in the agriculture, irrigation, natural resources management and land agendas.

11. The proposed Shire Valley Transformation Program (SVTP) builds on these experiences and addresses the natural resources, agriculture-energy and water nexus through an integrated approach at the landscape level in the most promising yet most at risk area in the south of the country (see maps in Annex 7 and 8). The program supports the development of the irrigation scheme, referred to as "Shire Valley Irrigation Project" (SVIP), which will be developed in two geographic parts, called SVIP I area and SVIP II area. The 14-year multipronged program consists of three consecutive but partially overlapping projects named SVTP I, SVTP II and SVTP III. The Shire Valley contains the highest incidence (above 80 percent) of extreme poverty in Malawi (Integrated Household Survey, 2013). Droughts and floods are increasingly frequent here, and pose a persistent threat of famine. Natural resources, such as forests, biodiversity and fisheries are under severe threat and the loss and degradation of these resources threaten to exacerbate vulnerability, reduce resilience to climate shocks and diminish the provision of environmental services in the watershed. In terms of agricultural production and value chains, there are currently limited economic activities taking place due to lack of water. Yet, the agronomic potential is enormous with generally fertile soils, a demonstrated by the very high sugar yields already obtained in the area under commercial irrigation in the large scale Illovo estate and by its outgrowers. There is also a

young and abundant workforce, and there are positive experiences with smallholder outgrowers, and strong support for agricultural intensification. The least and most productive agriculture systems in Malawi have co-existed in the Shire Valley, and the challenge for government has been to unlock the development potential of this area. The long-term presence of the private sector (primarily commercial sugar estates) and good market linkages – its proximity to Malawi's commercial hub Blantyre and Tete and the Nacala railroad in Mozambique - make this a highly attractive development that addresses the multiple and intertwined constraints to transformation in the agricultural economy. With its multi-pronged approach targeting transformation in customary land tenure, in agricultural systems, and in sustainable optimization of natural resource use (land, water, energy), in a highly demand-driven process, the SVTP has been carefully designed to address the most pertinent risks and unlock the areas potential for in income generation, food production, long-term sustainable resource use and conservation, and economic gains and self-determination for smallholder farmers.

12. The rewards are multiple and transformational at the regional level, and combine benefits for smallholder farm households with benefits for agribusinesses, promising long-term viability: the economic net benefits from intensive agriculture in phase 1 in this area alone is about US$136 million, while the overall program benefit is estimated at US$500 million. Many households will be supported to improve their disposable income and livelihoods. The program also entails considerable foreign exchange earnings from possible increases in exports and import substitutions. The program has a number of specificities catering to the realities of Malawian smallholders, including a transitional and adaptable pathway from current subsistence to commercial agriculture while enhancing household land rights and nutrition status. Through improved land management, diversified cropping for market and consumption, and access to water, multiple income, nutritional and health benefits are expected to extend beyond the immediate water users beneficiaries. The potential to provide gravity irrigation to a large expanse, and provide for livelihoods away from the hazardous floodplain people currently depend on will have strong resilience impacts. It will also have a significant net positive energy impact – since gravity irrigation will displace the need for energy-intensive pumping from the river, which in turn will free-up substantial and much-needed energy to the national grid - and make optimum use of the country's natural resources. This landscape approach combines investments in irrigation and agricultural development with support for sustainable management of forests, wetlands and biodiversity. This integrated approach should bring added value, since more productive and sustainable agricultural land management in the lower Shire Valley should also help alleviate poverty driven pressures on conservation areas and improved environmental services should also provide benefits for sustainable agricultural development and livelihoods. Support to conservation areas should also help to reduce the prevalence of Human Wildlife Conflicts (e.g. with elephants, buffalos and crocodiles) in agricultural areas adjacent to conservation areas. Finally, the program makes a sizeable contribution to net greenhouse gas (GHG) emissions reduction (through reduced pumping, sustainable land management, and improved carbon storage in conservation areas).

13. Participation of the World Bank Group (WBG) is key to the program, and helps catalyze financial commitments from other Development Partners (DP) to downstream/on-farm developments, as well as the private sector. The program aims to maximize finance for development, by using public investment in the main infrastructure and mechanisms to leverage, enable, and trigger larger private sector investments in downstream developments, markets and also in associated infrastructure, and by putting incentives in place to enable maximizing their financial and natural resources for development. In doing so, private finance options have been studied for various project aspects and included in various forms in all

components (in infrastructure development, in agricultural investments and in natural resources management). Moreover, significant multiplier effects are expected through investments in the enabling infrastructure base.

14. The Bank has a long history of engagement with the GoM supporting investments in the resilience, natural resources, water, agriculture, land tenure and irrigation sectors. In turn, Bank supported projects have helped produce preparatory work and ongoing feasibility studies for the proposed Shire Valley Irrigation Project (SVIP). The Agricultural Sector Wide Approach – Support Project (ASWAp-SP, P105256), the recently completed Irrigation, Rural Livelihoods and Agricultural Development Project (IRLADP, P084148) and Community Based Rural Land Development Project (P075247) have increased capacity for planning and implementing agriculture and land tenure and registry interventions, and supported a shift in thinking about diversification and modernization. The Bank is currently supporting GoM to adopt a comprehensive and integrated planning and development approach for the Shire River Basin through the Shire River Basin Management Program, which will help ensure the long-term environmental sustainability of GoM's ambitious investment plans in the basin. The Shire Valley Transformation Program (SVTP) was developed in close alignment with the Agricultural Commercialization Project (AgCom, P158434) and the recently approved Agricultural Support and Fiscal Management Development Policy Operations (DPO) (P153753), which aims to improve incentives for private sector participation in agricultural markets and to strengthen fiscal management through more effective expenditure controls and greater transparency. The integration is especially relevant in areas of policy dialogue on business environment and promotion of investments, as well as in operationalizing land act and modern forms of productive alliances between smallholder and the commercial farming sector.

C. Higher Level Objectives to which the Project Contributes

15. The Program contributes to the WBG's twin goals of ending extreme poverty and promoting shared prosperity in a sustainable manner. The Shire Valley's extreme poverty and vulnerability, and recurrent need for urgent recovery assistance, contrasts with pockets of relative wealth (sugar production areas) where the underlying problems of the region have already been resolved and which demonstrate an upward trajectory. Through productivity increase, risk mitigation, job creation, value addition, and resource optimization, the proposed project addresses many of the challenges identified under the WBG Country Assistance Strategy (CAS) for Malawi for the FY13-FY17 period and is aligned with the following themes: (1) Promoting Sustainable, Diversified and Inclusive Growth; and (2) Enhancing Human Capital and Reducing Vulnerabilities. The Project addresses key development questions in the water and agriculture agenda on optimizing water productivity and water use efficiency to feed a growing population with increasing climate risk.

16. The Program is also consistent with the Government's priorities, as described above. The Program is directly aligned with Malawi's policy commitments to address climate change and build resilience, as set-out in Malawi's Nationally Determined Contribution (NDC) document submitted to the United Nations Framework Convention on Climate Change in 2015. NDC's top adaptation priorities are to address land and watershed degradation and specifically the loss and degradation of forests, improve the resilience of the agriculture sector to climate change through development of irrigation and climate smart agriculture and improved management of fisheries and natural ecosystems.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

17. The program development objective (PDO) for the Shire Valley Transformation Program is to increase agricultural productivity and commercialization for targeted households in the Shire Valley; and to improve the sustainable management and utilization of natural resources.

18. The PDO of SVTP-I is to provide access to reliable gravity fed irrigation and drainage services, secure land tenure for smallholder farmers, and strengthen management of wetlands and protected areas in the Shire Valley.

19. The project's geographic scope is limited to the footprint of the SVIP-1 area in Chikwawa district and the targeted wetlands and protected areas. Irrigation services and project support is targeted to users within the designed project area. The first project under the program (SVTP-I) will initiate the process of transforming the Shire Valley and pave the way for agricultural commercialization and improved natural resource management at the landscape level. The majority of investments will go towards delivering reliable (well-constructed, professionally managed, financially sustainable) irrigation services. The indicative objectives for the second and third phases would be to increase agricultural productivity in targeted smallholder-owned commercial farm enterprises; support value chain and value addition; extend area supported with irrigation and farm development; and continue and expand efforts to address land degradation and sustainable management of forests, wetlands and protected areas. A brief description of the Program and the focus areas for each phase is provided in Annex 1.

B. Project Beneficiaries

20. The primary beneficiaries of the SVTP will be smallholder farmers in the targeted districts of Chikwawa Nsanje. The estimated 2016 population in the project area is 223,000 people in 48,400 households. Of these 95,000 people are residing in 21,000 households in the SVIP 1 area and 128,000 people in 27,400 households in the SVIP Phase 2 area. 70 percent of farmers own less than 2 ha, and the average is around 0.8 ha/farmer. All farmers living in the footprint of the SVIP will have the chance to opt in or out of the program in a participatory approach providing detailed information on program benefits and requirements. Smallholders will benefit through access to irrigated agriculture, secure land and water tenure, farm organization, agriculture (including aquaculture and livestock) production and marketing support, through improved public and private advisory services, and access to financial services and value chain enhancement through support to value-chain enterprises. Formalized farmer groups will become clients to the irrigation services and partner with service providers and off-takers in commercial agricultural production. Water supply to Chikwawa boma will support over 35,000 people. Support for community engagement in the management of forests, wetlands and protected areas will also generate livelihood benefits for local communities and tourism potential will increase. The program will focus on the participation of women and female-headed households (female headed households comprise about 24 percent of total households). Given that the project will seek to promote diversification to crops other than sugar, additional beneficiaries include other commercial agro-processing enterprises, traders, and private advisory services. Special emphasis will be placed on providing irrigation opportunities for people affected

by infrastructure development, and also to more vulnerable groups. Farming communities have been extensively consulted on the program and have expressed strong interest.

C. PDO-Level Results Indicators

21. A number of the higher level objectives will be realized during SVTP-II and SVTP-III. These relate to increases in crop yield and cropping intensity, sustainable irrigation fee recovery rates, rate of profitability of the Smallholder Owned Commercial Farm Enterprises (SOCFEs) per ha and per unit of capital employed, cost of production as percentage of revenue, and wage labor increases. For the first project SVTP-I the PDO level results indicators are:

- Area provided with new/improved irrigation or drainage services (ha)
- Number of SOCFE established with formal land tenure (number)
- Conservation area brought under improved management regime (ha)
- Direct Project beneficiaries (disaggregated by sex)

22. A detailed project results framework, including definitions, is provided in Section VII. A detailed socio-economic baseline survey was conducted in the project area to validate baseline information and complement data from government statistics.

III. PROJECT DESCRIPTION

23. The SVTP is a 14-year program (2017-2031) structured around three coordinated pillars: (i) Providing reliable, professionally managed and sustainably financed irrigation service to a large number of irrigators in a phased construction of the Shire Valley Irrigation Project scheme and providing multiple services including water supply; (ii) Support farmer organization within a comprehensive land use plan; supporting land tenure strengthening and consolidation; as well as natural resources management; and (iii) Establishment of, and investment in, smallholder owned commercial farm enterprises transitioning into commercial agriculture from subsistence farming and integrating them into commercial value chains.

24. This project is the first of three sequential but partially overlapping phases. In general terms, SVTP-I initiates the process on all pillars with a major focus on irrigation service provision to the SVIP-I area, land tenure, farmer organization and natural resource management as these precede any downstream development. While not investing heavily yet in areas of agricultural commercialization and investment promotion, it incorporates the vision and principles of agricultural modernization and commercialization and prepares for downstream investments under SVTP-II, which shifts investment focus to agricultural investment, private sector and value chain support, as well as the investments in bulk infrastructure for the SVIP-II area. Finally, SVTP-III is the massive scale up phase of investments to the SVIP-II area.

A. Project Components

Under SVTP-I there are four components:

Component 1: Irrigation Service Provision (US$135.80 million including US$85.80 million IDA)

25. This component will finance the works, goods and services necessary to develop bulk irrigation and drainage infrastructure in the SVIP-I area. This includes preparation of detailed designs and construction supervision and quality assurance, construction of the physical bulk water conveyance and main distribution system, major drainage and service and access roads. Provisions will be made for SVIP-II area in terms of canal dimensions, right of way, and preparatory studies. Subcomponent 1.2 will support the establishment of a professional management, operation and maintenance system for the scheme. These activities will also enhance absorptive as well as adaptive capacities against future climate change risks and contribute to more sustainable water resource management and stable agriculture production.

Subcomponent 1.1: Infrastructure Development (US$135.10 million, out of which US$85.10 million IDA)

26. The project will finance the development of the irrigation infrastructure, comprising an intake structure, a feeder canal, two main canals, 16 secondary canals, emergency spillways, an invasive fish barrier, regulators (cross and head) and other hydraulic structures, such as inverted siphons, sediment basins/ejectors, night storage reservoirs, wildlife and other crossings and bridges, drainage channels, a road network, and a water supply system for Chikwawa Township. The total net irrigation area that can be commanded under Phase I by this infrastructure is about 26,080 (gross) and 22,280 ha (net). The latter includes up to 10,100 ha new irrigation area, while the remaining 12,180 ha area is converting existing pump irrigation (current commercial sugar growers, including Illovo and outgrowers) to gravity irrigation system. In the new area, the scheme will serve a number of commercial farm blocks, where on-farm development will be part of the farm development cost in Component 3. On-farm irrigation will use a range of irrigation methods. This component will also finance the implementation of safeguards measures as described in the Environmental and Social Impacts Assessment (ESIA) and Environmental and Social Management Plan (ESMP) related to canal construction through a portion of Majete Wildlife Reserve. Details on the scheme are provided in Annex 1.

Subcomponent 1.2: Support to Effective and Sustainable Irrigation Management, Operation and Maintenance (US$0.70 million IDA)

27. The project will support the institutional capacity to oversee management of the scheme in the long term. The project adopts a two-tier water management system, with main system managed by a private bulk water operator and on-farm within the SOCFEs by the companies (and depending on the pathways, through a water user association at block level). Specifically, this subcomponent will finance: (i) capacity building and training of GoM staff and the Water User Federation as appropriate for the engagement in long-term management of the bulk infrastructure assets; (ii) technical assistance to the PPP Commission in structuring the management contracts; (iii) institutional and legal support for WUA formation under SVTP regarding water tenure, rules and regulations, etc.; and (iv) operating costs for the Ministry and PPPC for tendering, contracting and training processes. All training of block level WUAs will be done at SOCFE level and integrated within costs for component 3. The International Finance Corporation (IFC) has been requested to help implement various commercial aspects of the project. This sub-component activity will provide complementary support to IFC's work. Specific details on WPA for Illovo and the performance contract need to be agreed during project implementation prior to works on the Main Canal 3 (MC 3) and prior to commissioning respectively.

Component 2: Land Tenure and natural resources management support (US$27.29 million, including US$9.50 million IDA and US$5.59[7] million GEF)

28. Subcomponent 2.1 supports the piloting of the new land legal framework in a development setting, formation of consolidated farm blocks by smallholders with secure land tenure, for commercial agriculture, based on a flexible approach modeled on successful regional examples. Subcomponent 2.2 supports natural resources management to broaden the multi-sectoral benefits of the program and enhance environmental sustainability within the modernization program. The program will invest in protected areas, the Elephant Marshes and associated activities that will support improved natural resource management and the development of a broader land use plan for the Shire Valley.

Subcomponent 2.1: Supporting land governance and land consolidation (US$16.70 million, including US$9.50 million IDA)

29. The project will finance the works, goods, and services in support of addressing security of land tenure and organizing farmers for commercial production – as a first step in developing commercially oriented agriculture. This subcomponent supports coordinated pilot implementation of the new legal framework for land administration. This includes: (i) support to the setting up of local governance bodies, (ii) development of local regulations for land administration in a participatory process with chiefs and land committees which will consist of a preliminary land use plan and by-laws at group village level, which will be used to analyze and approve customary estates applications, at individual or collective level, (iii) help reach social agreement to minimize the land speculation that could be triggered by the project, and (iv) support the actual staffing, equipment and capacity strengthening at the district level institutions for land delimitation and administration with modern technology and robust rapid procedures. The component would also support (v) the process of land consolidation, and (vi) registration of customary estates. Land dispute resolution mechanisms will be embedded in the project's Grievance Redress Mechanism (GRM) (see Component 4). This component will also finance the implementation of all safeguards measures as described in the Environmental and Social Impacts Assessment (ESIA) and Resettlement Policy Framework (RPF) including compensation for resettlement, except costs related to canal construction per se which are covered under subcomponent 1.1. Finally, project communication to local stakeholders as well as RAP formulation and facilitation and costs of its implementation will be fully embedded within this process. More details are provided in Annex 1 and in the Land Tenure Annex in the Project Files.

Subcomponent 2.2: Natural Resources Management (US$10.59 million, including US$5.59 GEF)

30. Investments at field level will focus investments in and around Lengwe National Park, Mwabvi and Majete Wildlife Reserves, Matandwe Forest Reserve and the Elephant Marshes Proposed Sustainable Use Wetland Reserve. These conservation areas protect watersheds in the vicinity of areas targeted for irrigation development and, in the case of the Elephant Marshes, sustain important fisheries and dry season agriculture and livestock grazing. The marsh was designated on July 1, 2017 as a 'Wetland of International Importance' under the Ramsar Convention on Wetlands and will be proposed for national designation as Malawi's first Community Conservation Area. At landscape and park level, this component would: (i) Invest in community-level natural resource management in areas adjacent to the above conservation and irrigation areas and in wildlife corridors, (ii) Provide targeted support to these conservation areas to strengthen conservation and community management and encourage private sector investments (e.g. by tourism concession investors) that could boost revenues for re-investment in local

[7] The exact GEF grant is US$5,587,156. This figure is in the financing agreement and here rounds off to US$5.59 million

community development and conservation management, (iii) Invest in the establishment of the Elephant Marsh Community Conservation Area, with a strong emphasis on community-based natural resources management strategies, based on the wetland management plan currently being finalized with the support of the Shire River Basin Management Program (SRBMP). Significantly, improved management of forests offers by far the highest potential for reducing emissions in Malawi and support will therefore focus on improving management of forests and woodlands. The above will be complemented by investments at the national level, including technical assistance, measures to enable improved use of geospatial and mapping applications, actions to address illegal logging and combat wildlife crimes; and support for trans-frontier cooperation and operations (Lengwe, Mwabvi, Majete and Elephant marshes are aligned along national borders). Details provided in Annex 4.

Component 3: Agriculture Development and Commercialization (US$56.60 million, including US$49.80 IDA)

31. Component 3 finances on-farm investments in irrigation and drainage, land leveling, and commercial farm development. This will also include farm equipment (fixed and moveable), initial production and management support at SOCFE level, and basic infrastructure. It complements bulk infrastructure investments under Component 1 and finances farm development works, goods and services-through support to irrigation development and a demand-based matching grant mechanism for farm assets, operation and management support, based on SOCFE level designs and independently expert-reviewed business plans. The component also supports targeted technical assistance and quality control mechanisms in the process of forming productive alliances and setting up SOCFE management. Investments for full on-farm development of Phase I area are estimated to cost about US$82.0 million, with at least US$13.7 million in direct matching private finance and more private finance leveraged in value chain development. The level of funding under SVTP-I matching grants (US$41.0 million) finances 50 percent of on-farm development and prepares for the rest to be financed under SVTP-II. This component will thus pave the way for major scale up in SVTP-II. Finally, the component will finance preparatory studies for SVTP-II in terms of market diagnostics, applied research, support to agri-spatial approaches. More details on variety of pathways, crop choice, and irrigation method are provided in Annexes 1 and 2.

Component 4: Project Management and Coordination (US$8.9 million IDA)

32. This component will finance the multiple coordination, monitoring and evaluation, and management needs of a project of this scale and focus on the roll out of the communications strategy and manage the grievance redress mechanism, as well as day-to-day management, and monitoring and evaluation of the project. Specifically, the component will finance goods, works and services and incremental operating costs for project management structures that have been established and will be strengthened for project implementation. The project will finance a comprehensive M&E system and ongoing program assessments (see relevant section below). The project will provide funding for professional and support staff to strengthen the Project Management Team (PMT) and facilitate its operations, coordination and communication, including procurement, financial management, environmental and social safeguards specialists, as well as a diverse range of short term expertise and annual external audits. There are also provisions for trainings (long and short term), internships, workshops, meetings and training courses, to enhance longer-term management capacity in the sector and for SVIP management in particular. The program will establish a GRM which will facilitate timely resolve

of program related grievances. It will support a local arrangement for the resolution of grievances and land tenure disputes.

Component 5: PPA repayment (US$6.0 million IDA)

33. This component will finance the repayment of the Project Preparation Advance that the Government obtained for project preparation activities and studies. More details are provided in Annex 1.

B. Project Cost and Financing

34. The lending instrument is an Investment Project Financing (IPF) on IDA terms, within a Multi-Phase Programmatic Approach (MPA), with an IDA credit of US$160 million as well as a GEF grant of US$5.59 million. The estimated total project cost is US$234.59 million (US$222.89 excluding private finance) including physical and price contingencies, and US$6.0 million of Project Preparation Advance (PPA). This also includes an allocation of US$7.2 million for cash compensation and land acquisition, to be financed by Government. In principle the Government has committed to providing counterpart funding at a higher level through annual budgets. The project cost does not include private contributions to the matching grants (estimated at around US$6.80 million). Private financing will also be mobilized for downstream agriculture development, either under SVTP-I or SVTP-II. An estimated US$5.0 million is private parallel financing through African Parks Foundation towards the Global Environmental Objectives of the program. Project costs also do not include any marginal capital investment costs associated with Illovo's connection, which will be negotiated and to which Illovo will contribute, so that public funds predominantly serve the needs of emerging irrigators. The determination of the contribution depends on ongoing negotiations and is part of the agreement on the longer term WPA. African Development Bank (AfDB) intends to provide US$50 million in financing towards infrastructure investments under Component 1 under a jointly financed contract for the Main Canal. The tentative timeline is to have this financing to be approved before middle of 2018 and effective in the second half of 2018. To optimize efficiency, the funds from AfDB and from World Bank would jointly finance one of the works contracts for main infrastructure, which would be jointly procured at the start of the project. Joint supervision on this contract is planned as well as on safeguards review (as per the arrangements for the project described in safeguards documentation and relevant sections of the PAD).

Project Components	Project Cost (US$ million)	IDA (US$ million)	GEF (US$ million)	AfDB (US$ million)	Private (US$ million)	Counterpart Funding (US$ million)
1. Irrigation Service Provision	135.80	85.80	0	50.00		0.
2. Preparing land-based investments and natural resources management support	27.29	9.50	5.59	0	5.00	7.20
3. Agriculture Development and Commercialization	56.60	49.80	0	0	6.80	0
4. Project Management and Coordination	8.90	8.90	0	0		0
5. PPA Repayment	6.00	6.00	0	0		0
Total Costs	234.59	160.00	5.59	50.00	11.80	7.20

C. Lessons Learned and Reflected in the Project Design

35. The design of the project takes into account lessons learned from programs in Malawi in the fields of irrigation, water resources, forests and conservation areas management; agriculture and land management; and the strategic studies carried out in the sector under those programs. The proposed project also benefits from lessons learned from other national projects and programs, as well as comparable projects in other countries in sub-Saharan Africa and globally. Below are the key lessons.

36. *Development at scale produces spin-offs beyond productivity at farm level.* Successful irrigation development in Malawi over the last decade has shown innovative thinking in terms of financing, managing and developing irrigation at scale. Planning Frameworks and management and monitoring tools have been developed and the legal framework is conducive. However, the scattered nature of small scale investments of previous interventions has fallen short of making a transformational impact on the agricultural economy and creating spin-offs beyond local production systems. This scheme presents the unique opportunity to transform agriculture in Malawi, attract private investment and professionalize services.

37. *Recognizing resource constraints and multiple use opportunities in scheme design.* Irrigation development needs to take place within sustainable resource boundaries and contribute to sustainable NRM. Water stewardship and local level integration involve not only looking at the agricultural benefits, but at the trade-offs in the system and multiple use systems. Of all possible irrigation development in Malawi this has the smallest negative (in fact positive) impact on the electricity balance. Also, environmental and drinking water benefits are explicitly included as project benefits in a holistic natural resources and multiple use systems approach. In promoting water use efficiency, the scheme has been designed to incrementally improve water use efficiency at farm and scheme level as farms obtain required skills and modernize; and infrastructure is designed to eliminate risk of over-abstraction.

38. *Land tenure security, land consolidation and farmer's organization.* From experiences in similar projects in Africa and globally, land tenure security must be tackled upfront in an active participatory process with future irrigators and People affected by the Projects (PAPs). This is also likely to deliver more positive outcomes for overall land management, as farmers with improved tenure security are likely to invest more in sustainable land management practices. Another lesson is to build on existing legal mechanisms (in this case, on the new land laws) to make sure the mechanism supported by the project is consistent with the legal framework and could be relevant for a long term at both the national and local levels. Reorganization of land parcels is inevitable in large scale irrigation and improving land tenure security in a process of land consolidation is critical for productivity increase. At the same time intensification and commercialization can very well be led by smallholders in organized value chains through productive alliances or through farmer-owned enterprises, rather than a wholesale shift away from smallholders towards estate farming. This strategy has highest potential for growth and poverty reduction. Commercial agriculture is not a simple operation, and requires scale, cost control and professional management for success. This has been demonstrated through both failures, where such features are not part of design, and successes where they have been effectively applied. This lesson is apparent from the experience of both Malawian and other African irrigation projects. These experiences have been very positive, and farmers have chosen to follow this model.

39. *Need for Profitable Operations.* There have been many irrigation projects established to provide "food security" production for smallholders. A good number of these fail because they are inherently unprofitable. While the smallholders improve their livelihoods initially, the benefits proves unsustainable

because there is insufficient profit to allow for cost recovery for the operation, maintenance and replacement costs of the infrastructure. For commercial success, the farm enterprises need to build trusted relationships with all relevant parties in commodity value chains. These relationships need to be established before production commences, and maintained continuously. Moreover, farms need to produce marketable produce, not simply commodities which are technically possible for production.

40. *The proper integration, sequencing and timing of investments for scheme construction, farm development and value chain support are important to deliver results.* Both the infrastructure and agricultural development as well as the community engagement processes have trajectories that need to be linked so that expectations are realistic from the onset. This will help ensure that facilities are utilized in good time, and downstream private investments do not come in too early (lesson learned in growth pole projects across the region). Large scale irrigation development is inevitably a large scale top-down civil works operation. Farm development is a bottom-up and demand driven process. Since one cannot be successful without the other there is a creative tension between these two approaches that is acknowledged in project implementation arrangements and that allows flexibility for farmers to opt in or out, organize themselves and choose development paths and timelines within the allowable parameters.

41. *Sustainable Operation of Irrigation Services.* Many irrigation schemes use public sector operators to supply water. These work well in cases, but also often fail, due to constraints affecting public operations. Appropriate Public-Private Partnership (PPP) approaches can be used for enhanced service delivery performance (in terms of decision-making autonomy, accountability, service orientation and efficiency) using the concept of “professional third party” between the Government and the users. While more comprehensive PPPs including concessions have been considered during project preparation, it was eventually decided to focus on the most critical aspect: service provision and not complicate project design.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

42. Implementation will be led by the Ministry of Agriculture, Irrigation and Water Development (MoAIWD). A Project Management Team in MoAIWD will be responsible for all day to day management and coordination needs under the project, including fiduciary, safeguards, M&E, and safeguards. As is the case for the preparation period, the PMT will be comprised of competitively recruited experts and will be complemented with technical assistance on quality assurance, planning and M&E. The PMT will have strong technical assistance on project planning, monitoring and evaluation, as well as quality assurance, and comprises of recruited professionals for project management, coordination and monitoring and safeguards support. This team will be based in the Shire Valley (Chikwawa) and nearby Blantyre. Besides the recruited component leads, it may include professional staff from the main government agencies involved in the SVTP-I who are assigned to work on this project. All project operational modalities are detailed in the Project Implementation Manual (PIM), with Gantt charts, flow charts, responsibilities. A component Lead will be responsible for comprehensive management, liaison and coordination of the respective pillar, under the guidance of the project coordinator. The Program has three major complementary implementation modalities, all of which are coordinated by the PMT. The choice among three distinct approaches recognizes the unique nature of each pillar of the program, on irrigation development, on land tenure and NRM as well as on agricultural development. The program is designed to bring these together in one logical

pathway and under one umbrella implementation and coordination mechanism at the program level. As much as possible, services within each component have been packaged to avoid coordination risks or interdependencies.

43. Whereas project implementation arrangements are streamlined through the PMT, the program has many inroads to various sectors and their respective government agencies. Collaboration between the agencies is governed by a joint MoU. This MoU spells out objectives, specific role of each stakeholder, the requirement to mainstream and provide staff time for implementation, knowledge management and overall support. Overall coordination responsibilities are shared between MoAIWD and MoFEPD. A Project Steering Committee (PSC) (at principal secretary level) and a Project Technical Committee (at director level) have been established for this purpose during project preparation and this will continue into program implementation. Their specific roles are explained in more detail in Annex 2.

B. Results Monitoring and Evaluation

44. The PMT will have the main responsibility for monitoring, evaluating and reporting data on the key performance indicators. The PMT will have a full-time Monitoring and Evaluation (M&E) officer and the M&E functions will be a core element of the technical assistance to the PMT, engaged for the project period. The M&E technical assistance will support the PMT to build on the existing M&E framework and a plan for data collection. It will also assist in further roll-out of the project management information system, facilitate regular joint monitoring exercises, oversee the data collection for impact evaluation, reporting and feedback on lessons learned to ensure learning and continuous improvements in project implementation. It will also provide planning support and build quality assurance mechanisms in project management.

45. The project will use a result-based monitoring approach to assess progress and support project implementation in accordance with international best practice. The project already conducted socio-economic household surveys and established a baseline; carried out focus group discussions, and has created a Geographic Information System (GIS) based Management Information System (MIS). The project will employ a multilevel approach to monitoring. This will ensure that partners take timely corrective measures when required and will enable joint accountability for achieving the project objectives. The project will use a web-enabled, management information system to manage information and report progress. The database will be available on an open-access basis, to support greater transparency, collaboration and improved project governance. And the outcomes will be presented in the different management and consultative bodies of the project. Importantly, the project will, through its field facilitators, carry out participatory process monitoring.

C. Sustainability

46. *Institutional sustainability:* Sustainability of public large scale irrigation is a major concern, which has been an important focus from project identification. This has been reflected in (i) a phased modular approach; (ii) professional (private sector) management of the main infrastructure under a performance management contract; (iii) organization and engagement of farmers critical to long term financial and institutional sustainability; (iv) full Management, Operation and Maintenance (MOM) cost recovery and accountability mechanisms; (v) an inclusive commercial agriculture approach; (vi) upfront securing of land

tenure to ensure equity in benefit sharing for farming households; and (vii) recognizing and facilitating transitional processes from subsistence farming to commercial production in a longer-term program.

47. *Technical sustainability* of the scheme is addressed by ensuring that the physical infrastructure that is supported is of good technical design, construction and operational standards, with a focus on low operating and maintenance cost requirements. Design studies have been carried out in this regard.

48. *Environmental Sustainability* is addressed through careful consideration of the water resources availability and mitigation of potentially harmful impacts, a focus on land use planning beyond the immediate irrigation area and multiple uses of the water including addressing environmental sustainability needs in the conservation areas of the Shire Valley[8]. In sensitive ecosystems and protected areas, additional measures are incorporated to make the necessary infrastructure wildlife-friendly and where possible to restore ecosystem functions; as well as by using environmentally low-impact construction methods and diligent supervision arrangements.

49. *Social Sustainability:* The project addresses a major social focus on poverty reduction, jobs, particularly in rural disaster prone areas. It is expected that the investments provide livelihood opportunities for youth and the poor in the short term, during construction where focus is on local employment where possible, and obviously longer term livelihoods improvements. The project has a gender and youth strategy, and supports land tenure security which is key for social sustainability. Special care will be taken to avoid elite and male capture of the land and productive assets.

50. *Financial and Economic Sustainability:* The economic sustainability of the project investments is demonstrated by the economic analysis carried out. The analysis demonstrates financial viability at farm and household level, as well as economic viability of the scheme through its agriculture, energy and flood risk management benefits. The analysis also provides the evidence base to support the choice for commercially irrigated production and, investments in tenure security. While irrigation projects have high upfront capital costs, and this one is no exception, the energy benefits are immediate and the agriculture benefits are expected to transform agriculture and the regional economy over decades to come. Beyond the expected growth there is major benefit in averting shocks that trap people in poverty.

51. Demonstrations of borrower commitment include: (i) The preparation of all critical feasibility level studies (technical, social, environmental, institutional, and agricultural); (ii) Government's adoption of key principles for project preparation at identification stage. Subsequent administrations have placed equal priority on development of the scheme and allocated staff time and resources to its development; (iii) MoU between all implementing agencies spelling out mutual responsibilities and mandates; (iv) The roll out of structured consultations with key stakeholders in the Valley; (v) The movement toward a water purchase agreement and co-financing by private sector; and (vi) The indication of willingness by the Government of Malawi to provide significant counterpart financing to the project.

D. Role of Partners

52. The GoM intends to pull together resources from different DP to achieve the objectives of the

[8] These approaches are detailed in the ESIA, ESMP, and PMP.

program. Individual partners will finance different projects/activities in parallel under the umbrella of the Program. The World Bank and AfDB have jointly supported and financed the preparatory phases and will provide catalytic funding to the first phase. Project phases can be overlapping and there is both donor and private sector interest in investing in agricultural development within the scheme as well as associated services. The WB, IFC, and Multilateral Investment Guarantee Agency (MIGA), have collaborated on identification and preparation of this project, and this will continue into implementation. Collaboration between World Bank and IFC advisory has occurred at different levels in the assessment of a viable role for the private sector in the program and it is expected to continue during implementation. The GEF will co-finance investments in support of improved natural resources management, including support for conservation areas and actions to tackle illegal logging and wildlife crimes (more details are provided in Annex 1 and 4). The program has been prepared in close coordination with other DP and civil society in the agriculture and water sectors, and this will continue during implementation. Coordination with European Union (EU) and Food and Agriculture Organization (FAO) supported programs in land governance will be important in the piloting stage; and other financiers have expressed interest in financing future phases of the program (downstream investments); and will be closely engaged.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

53. The overall risk rating for this project is high. This rating is due to the scale and size of the operation, the multiple challenges and that the projects aims to address and limited institutional capacities at all levels. All risks are rated before mitigation. Risk mitigation measures have been included in all key aspects:

a. **Political and Governance - Substantial:** The political economy has been assessed and as subsequent administrations have maintained the drive to deliver, the key issue will remain to manage expectations as the scheme has been proposed in different forms and political economy connotations over the last few decades and the communication strategy addresses this through an open process, allowing people to opt in and out, and a strong focus on market driven yet inclusive development.

b. **Macroeconomic - Substantial:** Private sector investment is closely tied to macroeconomic performance. While recent years have been more stable, Malawi is known to have gone through macroeconomic shocks.

c. **Sector Strategies and Policies - Substantial:** Malawi already has important agriculture and irrigation strategies and policies in place, albeit not always conducive to commercialization in agriculture. Their implementation is uneven, and there may be risks given the innovative and unique nature of the Program. The Project builds on the relevant strategies and policies and project specific analytics towards a comprehensive implementation approach that will remain flexible and responsive to market realities in the course of implementation.

d. **Technical Design of Program - High:** The proposed project design addresses the risk of monolithic state-driven development without room for private initiative that has been the hallmark of previous large scale irrigation developments on the continent. The project explicitly includes sequencing and adaptability within a comprehensive approach towards both infrastructure and agriculture development. It also ties an inevitable top-down approach on infrastructure development for main system development with a bottom-up flexible approach on farmer organization and commercialization at the irrigation block level. Delays and discrepancies may arise during the course of implementation. Packaging has been agreed to minimize knock-on delays. If financing for future phases is not forthcoming, results may be delayed and

sustainability compromised. However, SVTP-I could be sustainable with lower follow up investments.

e. **Institutional Capacity for Implementation and Sustainability - High:** Institutional Capacity to deliver and manage a scheme or a land tenure consolidation program of this size is limited. The Project includes a strong focus on contractual approaches for scheme delivery and management with private participation, specialized technical assistance as well as support to project management.

f. **Fiduciary - High:** The overall fiduciary environment has substantial weaknesses in the integrity of the procurement and financial management systems. These risks are mitigated with legal covenants on the recruitment of additional procurement and FM staff, as well as with overall project management support and oversight as detailed in the relevant sections.

g. **Environment and Social - High:** This is a large category A project with potential impacts on conservation areas and the Elephant Marsh. A detailed ESIA was developed and the project will closely monitor ESMP implementation. Park managers have been engaged and will be closely involved in works supervision. Social risk is related to the process of land tenure consolidation and administration under the new Land Act, the possibility of male/elite capture and other undesirable side effects related to the surrender of current land holdings; and resettlement. A structured and consistent process of strengthening local land governance, capacity building, stakeholder consultation and engagement in setting of the frameworks and the implementation of the project with full engagement of the beneficiaries and affected communities is envisaged. The project is embedded in a basin level watershed and basin management program (SRBMP), supporting sustainable water and natural resources management

h. **Stakeholders - Substantial:** In a multi-sector and multipronged program there will be coordination and consultation challenges. The project invests in a consultative approach and has a communication strategy in place. In general, there is strong commitment to the scheme by all stakeholders, and it will be important that grievances are adequately addressed in a timely manner. A particular set of risks relate to the multiple sources of financing and the financial packaging. Another sensitivity could be the role of Illovo in the project. The program is structured such that public finance predominantly serves the smallholder farming community, while acknowledging that these also leverage private finance to construction and a commitment of an already economically successful commercial entity to the project and therefore long-term MOM. It will be important to demonstrate on-farm benefits to new irrigators soon, hence the commencement of social mobilization and farm formation at the onset of the program. There is a commercial risk to the private operator of the scheme, as well as a sustainability risk in management of large scale schemes. This is mitigated to a large extent by having Illovo as the anchor off-taker, as well as by having contractual arrangements discussed upfront and agreed with future irrigators. Monoculture cropping would also present a risk, especially when it is linked to a single buyer. Therefore, the project promotes diversification and supports the trend by Illovo and outgrowers to shift to a partnership approach from a purely contractual approach.

54. The project has also been screened for climate and disaster risks. The key risks are river flooding and droughts, and also flash floods and extreme temperatures are expected to increase. This analysis is included in the technical studies, notably in the analysis of the hydrology taking into account the long term trends and projections for run-off and water demand; as well as the modelling of flood risk for the cropped areas. The scheme has been designed to take current and future climate risk into account and it has been designed for a long-term 80 percent assurance of supply in the critical dry season; and flood prone areas with an estimated flood return period of more than 1 in 10 years have been largely excluded from infrastructure development for the scheme. The scheme has been conceived within the overall basin plan for the Shire Basin in terms of possible trade-offs and climate trends. Sustainable NRM investments are

included to mitigate climate risks (such as actions to address land degradation and protect upslope watersheds in conservation areas) and to assist local communities to adapt to risks associated with weather shocks and longer-term climate risks (such as the investments proposed for the Elephant Marshes). Water productivity is a key consideration in the design of a climate-smart system; and improvements in water use efficiency are foreseen in the development pathways as the cooperative farms evolve and engage in higher value cropping, particularly fruticulture. The maximum abstraction from the river is fixed by the capacity of the feeder canal. The project will introduce volumetric metering and charges at block level; and will facilitate optimum in-field irrigation design. With incremental improvements in irrigation efficiency the assurance of supply can be increased and possibly costs for phase II can be reduced.

55. The Program was assessed for climate adaptation and mitigation co-benefits. This analysis used the FAO's EX-ACT tool to measure the emissions due to Land Use Changes (LUCs). The net emissions of the IDA financed project activities are -668,874 tCO2-eq over the 60-year economic life of the project. The project results in an improved ability of croplands to absorb carbon compared to a business-as-usual scenario. These emissions savings represent a potential financial benefit of an average of around US$736,000 a year. Malawi currently lacks a carbon pricing or trading mechanism. However, Malawi has received carbon financing in the past through voluntary markets and through Reduce Emission from Deforestation and forest Degradation (REDD+) programs. As a result, accessing such carbon financing may be a potential source of additional financing for future phases of the Program. More details are provided in Project Files.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

56. The main thrust of the project is to enhance the productivity and production of crops and livestock farming systems through phased development of irrigation systems in the lower Shire Valley. The project has additional components including flood protection, domestic water supply, livestock, and aquaculture production. It also entails complementary or indirect benefits including energy conservation, GHG emission reduction, and economic multiplier benefits. The summary results of the economic and financial analysis are presented in the table below, while the details are shown in the detailed analysis in the Project Files. The main conclusions of the analysis are presented as follows:

- Considering only the costs and benefits associated with irrigated crop production, livestock production and aquaculture production, the Net Percent Value (NPV) is US$135.7 million with Internal Rate of Return (IRR) of 11.27 percent (**Scenario 1**);
- When the benefits and cost of crop production, livestock production, aquaculture production, flood protection, domestic water supply, and Natural Resources Management are considered, the NPV of the project substantially increases to US$192.55million with IRR of 13.23 percent (**Scenario 2**);
- Addition of energy saving and GHGs emission reduction benefits to the overall direct project costs and benefits significantly enhances the returns to the project. In this case, the NPV jumps to US$435.02 million with IRR of 20.34 percent (**Scenario 3**);
- When Phase I and Phase II overall project costs and benefits are considered, the NPV is US$500.02 million with IRR of 16.14 percent (**Scenario 4**), and
- When only the costs and benefits of irrigation development and natural resources management are

considered, the NPV is US$150.12 million with IRR of 11.94 percent (**Scenario 5**).

Items	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Present value of benefits (US$ million)	294.0	358.34	600.81	847.64	311.67
Present value of costs (US$ million)	158.28	165.79	165.79	347.63	161.54
NPV (US$ million)	135.70	192.55	435.02	500.02	150.12
Benefit-Cost ratio	1.86	2.16	3.62	2.44	1.93
IRR (%)	11.27	13.23	20.34	16.14	11.94

57. **Financial Analysis:** Over 22 crops were assessed for their profitability and suitability to grow in the lower Shire Valley under irrigation conditions (see economic and financial analysis in Project Files). Six crops, namely citrus, banana, mangoes, tomatoes, sweet corn, and green mealies registered a gross margin of US$5,000 per hectare or more. Fifteen crops recorded a gross margin of over US$1,000 per hectare. The results of the profitability analysis show that the typical SOCFE (modelled as a 500 ha farm) registers a profit of US$459,887 in its first year of operation. The profit grows to over a million dollar beginning in the sixth year of the farm's operation due to gradual improvements in crop yield and incorporation of high value perennial crops into the farm.

58. **Sensitivity analysis** was performed with a focus on Phase I and the irrigated crop production component of the project. Three main factors were considered in the sensitivity analysis. These are: (i) cropping pattern or choice of crop mix, (ii) degree of realization of the planned new net irrigated area, and (iii) cropping intensity. Results are presented in the analysis. It shows that the return to the project is sensitive to the degree of realization of the planned new irrigation area and the choice of crop mix.

59. **Impacts of the project on household income and poverty.** The project beneficiary households are expected to earn income from the 0.1 ha individual plots allotted to them and dividends from cooperatively managed farm. A household is expected to generate income in the range of US$204 to US$216 from the 0.1 ha individually operated plots and receive dividends in the range of US$1,840 to US$4,263 per annum. This means that, conservatively, a beneficiary household earns on average about US$2,044 per year, which is equivalent to MK1.5 million. Consequently, the project would increase the level of income of beneficiary households by about 20 times from its current level. The per capita income of beneficiaries is about 9 times the Malawian poverty line and is about 68.5 percent of the international poverty line of US$1.9 per day. Thus, it can be safely concluded that the majority of the project beneficiary households could be supported with a pathway out of poverty due to the project.

B. Technical

60. The technical parameters of the scheme are convincing in addressing the critical water-agriculture-nexus in Malawi and the scheme features highly in investment prioritization matrices. This is due to:

(i) Its unique location for agriculture. Agro-ecological potential is very high if water is brought to this area as demonstrated by existing pumped irrigation in the valley. Any intensification for commercial agriculture in Malawi requires investment in irrigation; this area suffers most from lack of precipitation making even subsistence rain fed agriculture very precarious. Finally, the area is close to Blantyre, the country's largest market and transportation hub and the Nacala railway for exports;

(ii) Its impact on the water balance. When fully developed the scheme will abstract in the critical month of September about 12 percent of the long term Q80 Shire River flow for that month at Kapichira. This corresponds to an 8 percent net abstraction (taking into account substitution for existing pumping by gravity-fed irrigation) and is determined to have limited appreciable harm on downstream marshes or other uses, as has been confirmed by a hydromorphological study on the marshes and modelling under the SRBMP. The potential trade-off with power production at Kapichira hydro-electric plant is obvious given the scheme's intake location, yet is determined to be limited and restricted to dry months in dry years (full supply is guaranteed in 4 out of 5 years for both hydropower and irrigation in the critical month of September – this is common practice). Virtually all other irrigation in the country would be upstream and affect the entire hydropower cascade and other uses and possibly future upstream hydropower development as well, so this is a least harm alternative, and economically justified. The scheme is designed and technically limited within sustainable resource use parameters; and

(iii) Its impact on the energy balance. With Malawi's severely constrained energy situation, pump-based irrigation is unfeasible and undesirable. This scheme enables the expansion of the irrigated area in the country by 40 percent, only relying on gravity, while enabling the release of power to the currently underserved national grid through converting current large scale pump based irrigation to gravity.

61. The technical design studies have been optimized from earlier versions that have been developed over the years, and alternatives have been considered, including options that would bypass Majete Wildlife Reserve altogether, and smaller pump-based versions. The current design is robust, has reduced environmental impacts and is better at addressing current technology and farming models. It has prioritized commercial agriculture instead of low value crops and better integrated multiple uses including livestock, drinking water and the environment. The design parameters are conservative and robust to reduce operation and maintenance costs, while allowing for gradual water efficiency improvements. The phasing has been optimized within available funding. It is technically, financially and socially undesirable to "pilot" with a smaller command area as costs per hectare would dramatically increase, future expansions would be significantly compromised, and short term benefits would be skewed towards existing commercial enterprises.

C. Financial Management

62. The FM arrangements of the Ministry of Agriculture, Irrigation and Water Development (MoAIWD) meet the Bank's minimum requirements after taking into account proposed mitigation measures and risk is substantial. The FM assessment identified some weaknesses in the FM arrangements as presented in Annex 2. The following mitigation measures have been recommended as an interim measure while government is strengthening its Public Finance Management (PFM) systems, many of which are already in place for the management of the PPA: (i) The proposed project should have an independent implementing unit which will include dedicated FM staff that will be responsible for accounting and reporting for the project; (ii) The project to acquire and install an accounting software to be used for transaction processing and reporting; (iii) The project should have exclusive Dollar and Kwacha accounts at a commercial bank acceptable to the World Bank ; (iv) The project will be required to submit unaudited interim financial reports which will be reviewed and validated by the World Bank FM team; (v) The project will be visited at least twice a year for implementation support that will include dealing with FM issues; (vi) The transactions

will be internally audited at least twice a year and ensure the Ministry's audit committee is strengthened and functioning; (vii) The project's financial statements will be externally audited by National Audit Office or private auditors under terms of reference (TOR) to be agreed with the World Bank; (viii) The project will incorporate corruption prevention and reporting mechanisms through collaboration with the Anti-Corruption Bureau; and (ix) The PIM will include the above measures and other accounting requirements for the project.

D. Procurement

63. Procurement under the SVTP will be carried out in accordance with the Guidelines: Procurement of Goods, Works and Non Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers; January 2011, Revised July 2014 and "Guidelines: Selection and Employment of Consultants IBRD Loans and IDA Credits& Grants by World Bank Borrowers, January 2011, Revised July 2014 as it has a Project Concept Note of before July 1, 2016. National Competitive Bidding (NCB) will be undertaken in accordance with the Malawi Public Procurement Act of August 2003 and its Public Regulations 2004 which has been reviewed and found satisfactory to the Bank with a few exceptions. The Project Management Team will be responsible for fiduciary oversight and will be responsible for procurement of all the goods, works and services under the project (see the table in annex 2).

E. Social (including Safeguards)

64. **Poverty and social inclusion:** The project is designed for smallholder farming communities in the targeted area, an area of extreme poverty and the most disaster prone in the country. Beyond agricultural productivity and commercialization, the project has other social functions, such as water supply to Chikwawa boma, and support for livelihoods through community engagement in the management of conservation areas. A number of studies have been completed, including a socio-economic baseline study, a Land Tenure Diagnostic, a Gender and Youth study, a Communication study/strategy, and a political economy analysis to identify and plan for the full range of social impacts that a project of this size and scope could have in a poor, rural area with well-identified vulnerabilities. With its strong focus on gender and youth and on multiple use systems, as well as the embedding in the overall land use plan, it is considered that benefits will be spread in the community. Financial structuring of the project is cognizant of the level of poverty of beneficiaries, such that poverty should not be a reason to opt out of farm development. If carefully implemented the SVTP can be an engine for broad-based growth. There are limits to the areas that can be economically irrigated and clear communication will be important with villages whose farms cannot be served by the canal. As intensification in agriculture has many multipliers in job creation, it will have a further stabilizing effect on the local economy and society.

65. **Citizen Engagement:** The communication strategy and grievance redress mechanism build on local social arrangements and are targeted at primary beneficiary communities. The strategy details the easiest and acceptable ways to have open communications with the affected people and communities throughout the life of the project; inform them about all aspects of the project stages of construction and establishment of irrigation blocks, and receive their feedback; and the ways in which individuals can have a voice and express their concerns, ways in which these concerns will be addressed and monitored. As noted earlier in this document, SVTP's Component 4 will include the establishment of a project-level GRM which will facilitate timely resolve of program related grievances. It will support a local arrangement for

the resolution of grievances and land tenure disputes.

66. **Gender and youth:** The program will focus on the participation of women and female-headed households and youth in the program. The program developed a Gender and Youth Strategy, which amongst others highlights that (i) literacy and education rates of women are considerably lower than those of men, especially of the population above 35 years of age; (ii) access to and control over land and revenues from production is dominated by adult males over 35, also in matrilineal societies; (iii) women are less empowered to attain their rights in society; (iv) while access to finance is problematic for all poor, this is worse for female-headed households; and (v) participation of women and youths in institutions which govern the water sector is often limited. Because few women formally own land and their literacy levels are low, their participation and representation in WUAs are normally low. The strategy includes a number of activities, including: (i) ensuring gender aspects are included in all ToRs; ii) staff are sensitized; iii) communication activities and consultation processes genuinely focus on issues relevant to women and youth; iv) ensure that all M&E and other data collection instruments collect gender and youth disaggregated data; v) ensure that women, youth and vulnerable groups are represented and actively participate in consultations and in management entities; vi) ensure that all PAPs are gender, age and poverty defined; vii) ensure that land tenure administration is safeguarded against male capture and encourage where possible joint registration in name of husband and wife and ensure that women also enjoy equality in access to land and shares in farm enterprises – also encourage partial transfer to youths; viii) ensure that grievance redress mechanism provides gender safe space; ix) actively promote safe multiple uses of irrigation water including for household uses; x) encourage young adult employment during construction and afterwards; xi) through social mobilization empower women and youths to actively partake in various organizations, committees and institutions to be set up under the program; and xii) independently monitor gender impacts as well as vulnerability trends and adjust programs as necessary.

67. **Social Safeguards:** Social inclusion, citizen engagement and gender and youth are thus included through the proposed project activities in addition to the Environmental and Social Management Plan (ESMP), RPF and RAPs that will be prepared in accordance with the RPF. In addition, a Process Framework (PF) has been prepared to help restore livelihoods that might be affected by new restrictions on access to natural resources within project-supported protected areas and the Elephant Marsh under Subcomponent 2.2.

68. **Resettlement Policy Framework:** OP 4.12 is triggered. An RPF was prepared and consulted upon and has been disclosed in-country (date – prior to appraisal) and at the World Bank website (date – prior to appraisal). Site-specific RAPs will be prepared as and when necessary during the project. These will be reviewed, approved and disclosed in-country and at the World Bank website prior to the commencement of civil works. A number of factors have necessitated the preparation of an RPF rather than the preparation of RAPs by appraisal, primarily as i) detailed designs for the main scheme are not yet completed and line of canals not yet fixed; and ii) land consolidation processes will be Group Village (GV) and block specific and develop over time. Extensive consultation with a wide range of stakeholders at the nationals, district and village level was an integral part of the RPF preparation, which is therefore rather detailed. Stakeholders were consulted on mitigation measures for different type of impacts, mechanisms for creation of the irrigation blocks and establishment of farmers' organization, implementation arrangements for resettlement, grievance redress mechanism, among others. Separate Focus Group Discussions were held with women, men and leaders in each of the Group Villages.

69. Specifically, the RPF identifies different categories of PAPs, here simplified and with details in the RPF: (i) People losing agricultural land to the canals, who will be given replacement land or cash where insufficient land is available; (ii) People who are losing residential land or commercial establishments to the infrastructure, who will be given alternative land in adjoining villages in addition to cash for improvements and resettlement assistance; (iii) People in the future irrigation blocks who are giving up land for shares in a company that are estimated to be of considerable greater value than the land they are contributing (see economic analysis) and for whom land tenure bundle of rights in a fallback position must be strong in legal terms in case the company dissolves; (iv) Livestock owners who will lose access to grazing and migration routes, where provisions have been made in design to accommodate; and (v) Communities who may be split by the canal or otherwise affected, who will be supported with investments linked to community based mitigation plans to reduce adverse impacts of the canal.

70. **Land Consolidation:** Farmers who will participate in the irrigation schemes (category iii in the above paragraph) will undergo a process of land consolidation in which they relinquish land for inclusion in a cooperative company. They will have the option to opt out, either individually or as a group and block development will be based on expressed demand. The farmer groups forming the company will be given land tenure security and will be assisted with the preparation of their farms and be provided with capacity building. If in the process of land preparation for the farms it is unavoidable that they lose a cropping cycle due to ongoing land leveling or other reasons, they will be compensated. Those who decide to opt out while the block is formed on their land will be provided with alternative land of equal value in their vicinity but outside the block (with a preference for land that is not irrigable because of its elevation or otherwise).

71. **Labor Influx:** While specific details will not be known until ESMPs and RAPs are developed covering construction activities, it is assumed that contractors will bring in engineers and experienced equipment operators from outside the region, and these are likely to be housed in work camps during construction. Rules for contractors to be included in the ESMP and works contracts include measures for managing the potential impacts of such an outside workforce on the local community. The Project will recruit community development specialists who will work with the communities throughout the project lifetime.

F. Environment (including Safeguards)

72. SVTP-I is a large-scale, Category A project with multiple, complex environmental impacts related to new canal infrastructure, the expansion of irrigated croplands, and water abstraction from the Shire River. It is expected that, with sufficient effort and due diligence, all of the adverse impacts can and will be adequately mitigated. The program proposes a natural resources management based approach to complement agricultural intensification. Intensification in itself optimizes resource use and concentrates agricultural production and economic activity within a smaller footprint. This should reduce pressures on remaining natural resources in the Shire Valley. The program also embeds irrigation development in a broader land use plan, recognizing set-aside areas and natural habitats. With the (i) energy conservation benefits of shifting from pump-based to gravity-fed irrigation, (ii) substantial environmental enhancements planned under the Natural Resources Management Subcomponent 2.2, and (iii) SVIP-II improvements to water availability in Lengwe National Park, the project is expected to achieve a net positive impact from an environmental standpoint. A Project Environmental and Social Impact Assessment (ESIA), an ESMP, and a Pest Management Plan (PMP) were prepared, consulted upon and disclosed in-country (May 26, 2017) and

on the World Bank's InfoShop web site (May 26, 2017).

73. Below are the key environmental issues and their mitigation measures which are described in Annex 2, with further details in the ESIA and ESMP:

(i) *Protecting Lake Malawi from Invasive Fish Species.* A fish barrier (with a vertical drop of at least 3 meters) is included within the Main Canal design within the Majete Wildlife Reserve.

(ii) *Majete Wildlife Reserve impacted by the feeder canal.* Canal alignment, design, and construction methods as well as special mitigation measures are included within the project.

(iii) *Lengwe National Park impacted in SVIP Phase II.* Mitigation measures for design and construction, along with improved water availability, are included in the conceptual design.

(iv) *Elephant Marsh impacted by flow reduction.* The Project will mitigate these impacts and enhance the conservation of the Elephant Marsh through support for (i) hydrological and biological monitoring (building on the baseline data obtained through the ongoing Shire River Basin Management Project, SRBMP); (ii) support management plan in follow up of the designation of Elephant Marsh as a Ramsar Wetland of International Importance; and (iii) establishment of Malawi's first Community Wetland Conservation Area.

(v) *Irrigation Area Set-aside Lands.* The final layout of irrigation works and blocks will avoid any overlap with existing natural habitats and other environmentally sensitive areas, including riverine forests, natural thicket vegetation, dambos, native woodlands, 10-year floodplains, and soils unsuited for irrigation.

(vi) *Canal Design and Construction.* The canal will be designed for improved safety of humans and animals, physical cultural resources will be salvaged prior to construction, and project-initiated borrow pits will have innovative rules on decommissioning.

G. Other Safeguard Policies

74. **Transboundary Water:** Riparian Notification Letters were sent to the governments of all the other Zambezi River Basin countries (Mozambique, Tanzania, Angola, Botswana, Namibia, Zambia, and Zimbabwe) and the Zambezi River Commission Technical Secretariat on January 30, 2017, since the Shire Basin forms part of the larger Zambezi Basin. This notification and request for comments is done to support good information sharing among the riparian countries and is in compliance with OP 7.50 on Projects in International Waterways. The Team assessed that the Project's impacts will not cause appreciable harm to any riparian. No responses were obtained by the end of the notification period on May 31, 2017. The Government of Malawi informed the Bank of a new notification pursued via ZAMCOM. This notification period also concluded on May 31, 2017. Through ZAMCOM the Government obtained three responses during this period, from Angola, Mozambique and Namibia. On June 20, 2017, ZAMCOM received a further letter from Botswana. None of these letters are objections. Angola simply stated its no-objection. Namibia and Botswana stated their no-objections and that they would like to be kept informed on progress. Mozambique's letter is also supportive, while seeking future exchanges on evolving project design, to which the Government of Malawi subsequently agreed.

75. **Dam Safety:** The investments will not include any dam, but the intake will be located near Kapichira Dam (intake and dam are fully located within Majete Wildlife Reserve) and is dependent for its functioning on this dam. Therefore, the World Bank's Safety of Dams Policy (OP4.37) applies and dam safety assessment was carried out by an independent panel of dam experts, which noted only minor issues that

have been taken on board by Electricity Generation Company (EGENCO) (formerly ESCOM), the dam operator.

H. World Bank Grievance Redress

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

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY : Malawi
Shire Valley Transformation Program - I

Project Development Objectives

The program development objective (PDO) for the Shire Valley Transformation Program is to increase agricultural productivity and commercialization for targeted households in the Shire Valley; and to improve the sustainable management and utilization of natural resources.

The SVTP-I Project Development Objective is to provide access to reliable gravity fed irrigation and drainage services, secure land tenure for smallholder farmers, and strengthen management of wetlands and protected areas in the Shire Valley.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Area provided with new/improved irrigation or drainage services	✓	Hectare(Ha)	0.00	15500.00	Bi-annually	Project Progress Reports	PMT (MoAIWD) and M&E consultant
Area provided with improved irrigation or drainage services	✓	Hectare(Ha)	0.00	10500.00	Bi-annually	Project Progress Reports	PMT (MoAIWD) and M&E consultant

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Area provided with new irrigation or drainage services	✓	Hectare(Ha)	0.00	5000.00	Bi-annually	Project Progress Reports	PMT (MoAIWD) and M&E consultant
Description: This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).							
Name: Number of SOCFE established with formal land tenure		Number	0.00	10.00	Bi-annually	Project Progress Reports Land Registry Data	PMT (MoAIWD) and M&E consultant
Description: This indicator measures the number of Smallholder Owned Commercial Farm Enterprises that have formally registered their Customary Estate.							
Name: Conservation area brought under improved management regime		Hectare(Ha)	0.00	273637.00	Bi-annually	Project Progress Reports METT scorecards, DNPW	DNPW and M&E consultant
Description: Conservation area brought under improved management regime refers to the following conservation areas for which there is an improvement in aggregate METT scores (only areas with METT score improvements will be included in results). Area ha Elephant Marsh 60,000 New Lengwe 77700 Majete 70000							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Matandwe 28464 Mwabvi 37473 TOTAL 273,637 ha							
Name: Direct project beneficiaries		Number	0.00	95000.00	Bi-annually	Project M&E data, beneficiary registries and surveys.	PMT (MoAIWD) and M&E consultant
Female beneficiaries		Percentage	0.00	50.00	Bi-annually	PMT (MoAIWD) and M&E consultant	DNPW and M&E consultant
Description: Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage). Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: SVIP Management, Operation and Maintenance (MOM) financial and institutional framework		Text	No	Yes	Bi-annually	Project Progress Reports Project documents,	PMT (reporting should include intermediate steps to these end-goals)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
developed and in operation						contracts	and M&E consultant PPP Commission
Description: This includes: 1. Setting of irrigation service fees, 2. Performance/contract based management structure established, 3. At least 10 Water Purchased Agreements signed, and 4. Water Users Federation established.							
Name: Land use and land tenure plans which include irrigation, developed and approved by village committees and Traditional Authorities		Number	0.00	5.00	Bi-annually	Project Progress Reports	PMT and M&E consultant
Description:							
Name: Number of SOCFEs with financing plans developed and approved		Number	0.00	12.00	Bi-annually	Project Progress Reports	PMT and M&E consultant
Description: These include new and existing SOCFEs to be connected							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Management Effectiveness Tracker Tool Scores for conservation areas		Number	185.00	377.00	Bi-annually	Project Progress Reports METT scorecards	PMT and M&E consultant DNPW

Description: The METT measures progress in management effectiveness at particular protected area sites over time. It is a simple, cheap and flexible tool that can give a quick overview of the effectiveness of protected area management without requiring expensive consultants or taking up too much time for managers, rangers or others responsible for governance. The METT is a qualitative assessment and relies on the judgement and honesty of the assessors. It addresses changes over time at a single site. It provides information about how well management is being carried out (the processes and outputs of management). It is successfully in use in Malawi under ongoing GEF programs.

The aggregate score:

Project	Baseline (2017)	Midterm Projection (2020)	Completion Projection (2023)
Elephant Marsh	14	46	68
New Lengwe	13	40	65
Majete WR	87	89	93
Matandwe FR	35	53	63
Mwabvi WR	26	52	67
TOTAL	175	280	356

Name: Grievances responded to and satisfactorily resolved in relation to the delivery of project benefits according to standards		Percentage	0.00	80.00	Bi-annually	Project Progress Reports, GRM reports	PMT and M&E consultant

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description:							
Name: Percentage of women, youth and vulnerable groups in consultation and management entities under project		Percentage	0.00	35.00	Bi-annually	Project reports, meetings of minutes, membership lists.	PMT (MoAIWD)
Description: This indicator measures meaningful gender representation in all project committees (consultative and management) under the project, ranging from overall project consultative and management structures to water user federation, supervision committees, RAP committees, SOCFE management, land tenure institutions, etc.							

Target Values

Project Development Objective Indicators

Indicator Name	End Target
Area provided with new/improved irrigation or drainage services	15500.00
Area provided with improved irrigation or drainage services	10500.00
Area provided with new irrigation or drainage services	5000.00
Number of SOCFE established with formal land tenure	10.00
Conservation area brought under improved management regime	273637.00
Direct project beneficiaries	95000.00
Female beneficiaries	50.00

Intermediate Results Indicators

Indicator Name	Baseline	End Target
SVIP Management, Operation and Maintenance (MOM) financial and institutional framework developed and in operation	No	Yes
Land use and land tenure plans which include irrigation, developed and approved by village committees and Traditional Authorities	0.00	5.00

Indicator Name	Baseline	End Target
Number of SOCFEs with financing plans developed and approved	0.00	12.00
Management Effectiveness Tracker Tool Scores for conservation areas	185.00	377.00
Grievances responded to and satisfactorily resolved in relation to the delivery of project benefits according to standards	0.00	80.00
Percentage of women, youth and vulnerable groups in consultation and management entities under project	0.00	35.00

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY: Malawi
Shire Valley Transformation Program - I

Shire Valley Transformation Program – Longer term vision

1. The Shire Valley Transformation Program tackles the goals of ending extreme poverty and promoting shared prosperity in a sustainable manner in a comprehensive approach, capitalizing the unique circumstances in the Shire Valley where the predominant situation is of extreme poverty and risk, and recurrent need for urgent recovery assistance; but which also harbors examples of pockets of relative wealth where the underlying problems of the region have already been resolved. Through productivity increase, risk mitigation, job creation, value addition, and resource optimization, the proposed project addresses many of the challenges Malawi faces, and aims to do so in the agriculture-water-energy nexus. The Program addresses key development questions in the water and agriculture sectors on optimizing water productivity and water use efficiency to grow the economy and feed a growing population faced with increasing climate risk. Massive improvements in agricultural sector productivity and profitability are crucial for reducing the number of people living in absolute poverty, of which 96 percent are dependent on agriculture for their livelihood. Energy availability is constraining Malawi's economy and the program contributes to shifts in energy use.

2. Global evidence suggests that water security is not only an investment in reducing vulnerabilities or protecting communities but also an investment in enabling growth. The proposed project addresses agricultural development using a growth pole approach by scaling up irrigation investment and development to enable productivity growth and high-return agriculture. This will be complemented by investments at the landscape level that strengthen sustainable management of natural resources – specifically to address critical land degradation, build climate resilience and support sustainable management of forests, wetlands and protected areas in the lower Shire Valley. This transformation needs to take place in the context of ongoing economic and civil administrative reform and an over-arching need to shift from a centralized (top-down, supply-driven) system to a de-centralized (bottom-up, demand-driven) planning, development and management system in the country at large and the irrigation sector, in particular.

3. The Shire Valley Irrigation Project irrigation scheme would be developed in Chikwawa and Nsanje on the right (i.e. west) bank of the Shire River. This area contains the highest incidence (above 80 percent) of extreme poverty in Malawi (Integrated Household Survey, 2013). Droughts and floods are increasingly frequent in particularly this part of the country and pose a persistent threat of famine. The Shire Valley is largely occupied by smallholder farmers who engage in the production of both crops and livestock. Most farmers depend heavily on natural resources – in particular, woodlands and forests, for supplying fuelwood (which supplies nearly 90 percent of national domestic energy needs), enhancing soil fertility, generating cash income (e.g. from charcoal) and for supplying protein (e.g. from fisheries). These same resources also help protect watersheds, sustain biodiversity and reduce greenhouse gas emissions through carbon storage. Degradation of these resources leaves farmers and local communities more vulnerable to weather and climate shocks. In most cases, these adaptation measures will also bring substantial livelihood benefits and mitigation co-benefits that reduce overall GHG emissions. For example,

measures to reduce land degradation and improve management of forests, protected areas and wetlands will protect carbon sinks and could substantially increase carbon sequestration. Gravity-fed irrigation will displace the need for the highly-energy intensive pumping operations that are currently used to support commercial irrigation systems in the Valley.

4. There are limited economic activities taking place, apart from the activities of commercial sugar cane production and processing. Sugarcane is grown on a commercial basis under irrigation, including successfully by outgrowers. Illovo produces cane on a total of 13,805 ha and operates the only sugar factory in the area. Private sector is dominated by Illovo Sugar Ltd., along with cotton ginners and an ethanol distillery (Presscane). Several agro-processors buy from the Shire Valley Area and the area is well connected to Blantyre, a major market and transport hub. Otherwise, most agriculture is characterized by opportunistic sowing of drought resilient crops and these fail to produce on a regular basis; and by recession agriculture in the immediate floodplain of Shire River. Maize dominates cropping patterns, but cotton, sorghum and millet are also grown by smallholder farmers. Other crops are grown in the area, but in smaller amounts. These include rice, pigeon peas, cow peas, sesame, beans sweet potatoes, bananas, vegetables and fruit. Some of these are marketed locally, mostly on a small-scale. Livestock sector plays a major role in the farming systems practiced in the Lower Shire Valley, providing food, income, and social security, accounting for the bulk of income for richer households.

5. Given the complex hydrology of the Shire River and the economic importance for hydropower production, irrigated agriculture, industrial and drinking water for the major city of Blantyre, and the important environmental functions of the basin, much has been invested in improving the management of Basin's resources under the Shire River Basin Management Program, in the context of which the sustainable development of irrigation has been studied. Even during periods of normal rainfall, the farming families in this area harvest food sufficient to last only part of the year. The Shire Valley is characterized by a generally low elevation where the relief profile ranges from 60 to 150 meters above sea level. Temperatures in summer months range from 28°C to 35°C and in winter from 20°C to 35°C. The hottest period is in October - November when temperatures can reach 40°C. The average rainfall is 652mm, with the rainy season falling from November to March. The Shire Valley and is one of the most fertile areas in Malawi with a relatively reliable source of water from the Shire River. The agronomic potential is enormous with generally fertile soils (confirmed by feasibility study soil survey, even with presence of specific areas with salinity and sodicity problems), good temperatures, phytosanitary conditions, etc., as is demonstrated by the very high sugar yields obtained in the area under irrigation. The least as well as most productive agriculture systems in Malawi have been co-existing in the Shire Valley, and the challenge for government has been to unlock the development potential of this area.

6. Realizing that lack of water is the main constraint, the GoM has for many years intended to develop irrigated agriculture in the Lower Shire Valley. A number of studies and partial reports have been prepared in the past, but proposed irrigated agriculture developments never advanced beyond preliminary studies due to its high initial cost and complexity of the bulk infrastructure, and generally disengagement of financiers from large-scale irrigation in the region from the 1980s to the beginning of the 21st century. Gradual pump-based expansion was and is not a viable option either, due to the high energy demands and associated operating costs. Over the past few years, following renewed interest in irrigation in the Shire Valley and realization of the need to comprehensively address the critical constraints to agriculture as well as concentrated value chain development, a number of the complex challenges have

been addressed upfront at feasibility level, such as water availability; the optimum site for the intake structure; management of the bulk water and infield irrigation infrastructure; the choice of irrigated crops and marketing; land tenure issues; cost recovery; sustainability; and the role of the private sector. The presence of highly successful commercial agriculture, both large scale and by smallholders provides not only a good model, but also provides a ready anchor and reliable client for water.

7. The program development objective for the Shire Valley Transformation Program is to increase agricultural productivity and commercialization for targeted households in the Shire Valley; and to improve the sustainable management and utilization of natural resources. The SVTP-I Project Development Objective is to provide access to reliable gravity fed irrigation and drainage services, secure land tenure for smallholder farmers, and strengthen management of wetlands and protected areas in the Shire Valley. The project's geographic scope is limited to the footprint of the SVIP-1 area in Chikwawa district and the targeted wetlands and protected areas. Irrigation services and project support is targeted to users within the designed project area. The first project under the program (SVTP-I) will initiate the process of transformation of the Shire Valley and pave the way for agricultural commercialization. The indicative objectives for the second and third phases would be to increase agricultural productivity in targeted smallholder-owned commercial farm enterprises; support value chain and value addition; extend area supported with irrigation and farm development; and continue and expand efforts to address land degradation and sustainable management of forests, wetlands and protected areas.

8. The SVTP is a 14-year program (2018-2031) structured around three coordinated pillars: (i) Providing reliable, professionally managed and sustainably financed irrigation service to a large number of irrigators in a phased construction of the Shire Valley Irrigation Project scheme and providing multiple services including water supply; (ii) Support farmer organization within a comprehensive land use plan; supporting land tenure strengthening and consolidation; as well as natural resources management; and (iii) establishment of smallholder owned commercial farm enterprises transitioning into commercial agriculture from subsistence farming and integrating them into commercial value chains. These pillars all contribute to the overarching goals of the program, and build on each other in a phased approach. This is illustrated in Annex 5 in the Theory of Change for SVTP. This programmatic approach, supported by the Bank and other DP through a Multi-Phase Programmatic Approach reflects: a) the size and complexity of the scheme and the time needed to develop irrigated and supporting infrastructure that would in turn allow for agricultural transformation; b) high overall development costs that require the development of the program in phases; and c) the recognition that investment requirements evolve during program lifetime with an initial focus on infrastructure and a gradual shift to agricultural production, value addition and investment support. The programmatic approach allows flexibility not only for catalytic investments in infrastructure early on in the program, but also for modifications in downstream agricultural development and the second phase of scheme development as agricultural and water challenges are progressively managed.

9. This project is the first of three sequential but partially overlapping phases (with different financiers entering at different times and in parallel financing arrangements). In general terms, SVTP-I initiates the process on all pillars with a major focus on irrigation service provision to the SVIP-I area, land tenure, farmer organization and natural resource management as these precede any downstream development. While not investing heavily yet in areas of agricultural commercialization and investment promotion, it incorporates the vision and principles of agricultural modernization and commercialization

and prepares for downstream investments under SVTP-II, which shifts investment focus to agricultural investment, private sector and value chain support. Finally, SVTP-III is the massive scale up phase of investments to the SVIP-II area. Phases can be overlapping and there is both donor and private sector interest in investing in agricultural development within the scheme as well as associated services. Subsequent phases would be dependent on the satisfactory progress of the previous phase, incl. achievement of interim results, commitment and disbursement levels, and shall incorporate lessons learnt from earlier phases. As they will be overlapping phases, subsequent phases will begin before all targets are realized.

10. The table below shows the indicative investments in each phase (see Annex 6 for a graphical presentation):

	SVTP I	**SVTP II**	**SVTP III**
Tentative budget (US$ million)	234.59	250	90
Timeframe	2018-2023	2022-2027	2026-2031
Program Focus Areas	Initiate process, bulk infrastructure, farmer organization, land tenure, ag investment preparation, landscape and conservation	Scale up of investments in phase 2 area. Agricultural investment, private sector and value chain support	Overall institutional support, incremental modernization, Phase II Agriculture support. Value chains
Irrigation Service Provision	Detailed design SVIP I, Construction SVIP I, RAP and ESMP implementation, selection of private operator for bulk infrastructure. Prepare SVIP-II Investments	Construction SVIP-II, RAP and ESMP implementation. Monitor MOM, support block level irrigation mgmt. Review performance standards, water use efficiency support	Private investment in expansion, further modernization, water use efficiency support, performance monitoring
Ag Commercialization	Initiate Farmer Organization, Farm investment and operation support (initial), productive alliances; scoping of agro-spatial zones and growth options	Mechanization, operation and value chain support, ag services provision, agronomy support. Investment promotion, support agro-spatial activity, SMEs, access to finance.	Expanded Value chain support, ag services provision, agronomy support. Continued private sector investment and trade facilitation
Land Tenure	Land registration, land consolidation. Technical Assistance in land act operationalization (pilot)	Continued support to transactions, consolidations, Phase II roll out.	Land administration support, monitoring.
Sustainable Natural Resources Management	Protected area management to address land degradation, sustainable mgmt. of forests, wetlands and rangelands, support to Majete, Lengwe and Elephant Marshes, community engagement in management of protected areas	Design and implement Lengwe supply canal, implementation of the elephant marshes management plan and wetland/fisheries monitoring, land plan phase II. Scale-up of measures to combat land degradation.	Continued monitoring, eco-tourism support, wildlife conservation, etc.
Water supply	Bulk water supply drinking water, drinking water services along canal	Design and implement Lengwe supply canal, monitor fish/elephant marshes	Phase II water supply services
Financing	IDA, GEF, ADB, GoM, early	Leverage private finance for	Continued, commercial

	private. Prepare financing package for private finance existing water users	agriculture and Phase II expansion / operator. Fund for agri development. Additional financiers, public and private	finance increased.
Social inclusion and citizen engagement	Communication, community outreach, implementation of gender and youth strategy, Grievance Redress Mechanism. Specific agricultural support to vulnerable groups. Monitoring of non-agricultural livelihoods support. Integration of resettlement with overall land strategy.		
Institutional support and coordination	Project coordination, communication, grievance redress, inter-sector coordination		

11. Key conditions were established for the proposed Project to be able to succeed in its expected transformational role. At the basic level this includes continued government and farmer commitment to financial sustainability of the investment; professional irrigation management that is accountable to farmers and committed to providing reliable and satisfactory services; an inclusive approach with the participation of water users/smallholder farmers in decision making; and a commitment and ability by farmers to pay irrigation service fees for operation and management of the scheme. To achieve this, important principles for project design were agreed: the project would focus on commercial production, including smallholders in highly productive value chains; professional management with private parties would be pursued; land and water management need careful and transparent attention; communities should be fully engaged in a participatory process during design, construction and operation. Combined, these approaches tackle the intertwined food-energy-water nexus, by increasing agricultural productivity and returns in one of the poorest areas with highest potential, lowest possible impact on hydropower generation and with the added benefit of releasing energy to the national grid by switching existing pump irrigation to gravity within the same scheme.

12. Agricultural intensification and modernization will be pursued in a market-led irrigated agriculture development project that will, at the same time be inclusive of smallholders in private sector-led value chains to help them move from subsistence farming to commercial agriculture. The overall area for the project is about 800 km^2 (including villages, non-irrigable and non-agricultural land, but excluding the conservation areas which add another 2800 km^2). Irrigation will be provided on about 50,000 ha gross and up to 43,370 ha net area in two phases over time through the phased construction of the new gravity-fed Shire Valley Irrigation Scheme which will supply over 27,600 ha (net area) of agricultural land presently under rainfed cultivation, creating agricultural development opportunities in this fertile valley, away from the risk-prone floodplain, and the existing Illovo and outgrower estates (approximately 15,700 ha), making part of their electricity requirements available for other uses in the country. The overall project area is mostly under traditional (customary) tenure. The proposed irrigation area is based on technical feasibility and is roughly equally divided between customary land and private. The customary land will be consolidated into irrigated blocks that will be exploited by the smallholder farmers with the support from selected private agribusiness enterprises in various value chains and organizational structures, with SOCFE as the basic building block. A performance contract arrangement will be used for the management of the bulk water infrastructure. This concentrated growth pole investment will enable significant improvement in rural livelihoods, agricultural outputs and value addition, and will both benefit farmers as well as have regional economic impact.

13. The program will include land development and development of the tertiary irrigation system within the SOCFEs, based on their readiness, balancing a top-down approach on main infrastructure with

a more flexible and demand-driven approach on distribution network to allow early adopters to test models of engagement and provide learning spaces. The phased introduction of over 43,370 ha of net irrigated land will have profound impacts on land use, accessibility, service demands, environment and social organization. The Government has started a detailed process of consultation, planning and community participation in key principles of SVTP design. In terms of cost allocation, SVTP-I will focus heavily on upstream investments in main infrastructure, land allocation and safeguards implementation. This will be done within a comprehensive land use planning and irrigation development strategy, where large scale service provision is dovetailed with processes of group formation, organization and expression of irrigation demand, rather than a top-down design process from intake to field channel, so as to safeguard the market-oriented program approach. Also, protected areas, frequently flooded areas, biodiversity set-aside areas and transportation/migration corridors are secured in project design. The design will make provisions for safety, avoid wildlife mortality, prevent upstream invasive fish migration, and enhance ecological functions in protected areas. The comprehensive feasibility design has proposed several ways of reducing adverse environmental and social impacts and actively enhancing multiple use of the canal for environmental, domestic and livestock uses.

14. This will be approached under four broad and interlinked components, as follows:

Component 1: Irrigation Service Provision (US$135.80 million including US$85.80 million IDA)

15. This component will finance the civil and electro-mechanical works, goods and services necessary to develop irrigation and drainage infrastructure in the 22,280 ha net SVIP-I area. This includes preparation of detailed designs, construction supervision and quality assurance, construction of the physical bulk water conveyance and main distribution system, i.e. intake, feeder canal, Main Canals, secondary and tertiary canals as well as collector, secondary and main drains as well as main, secondary and collector drains providing service to farm blocks and service and access roads. The component will also finance incremental operating costs associated with implementation of component activities as well as compensation costs for land acquisition and resettlement. During Phase I provisions will be made to ensure irrigation of 21,090 ha of SVIP-II net area in terms of canal alignment, dimensions, right of way, and preparatory studies. Subcomponent 1.2 will support the establishment of a professional management, operation and maintenance system for the scheme. These activities will also enhance absorptive as well as adaptive capacities against future climate change risks and contribute to more sustainable water resource management and stable agriculture production.

Subcomponent 1.1: Infrastructure Development (US$135.10 million, out of which US$85.10 million IDA)

16. The intake structure is located on the right side of the Kapichira Reservoir. The design abstraction capacity is 50 m^3/sec, which will satisfy the peak water requirements with 80 percent probability (four out of five years on average) for the fully developed scheme in the critical dry month of September. Hydrological studies using updated water allocation models developed for the Kamuzu Barrage (Kamuzu Barrage Operation Model) and the Shire Basin Planning Tool have confirmed that the required water will be available at Kapichira at this probability. Minor adjustments to Kamuzu Barrage operating model can bring further assurance in low flow provided lake levels are within safe range. Long term (pre-historic) lake level scenarios as well as climate models have been considered in the analysis where possible. While risks associated with catastrophic low levels in the Lake need to be seriously considered in all water

resources planning in any sector, the scheme is designed within stochastic range of known water availability trends and does not in any way affect or aggravate such a scenario.

17. The design water requirements are based to satisfy the current crops, mostly sugarcane, in the already developed areas and the standard cropping pattern of dry beans, pigeon peas, cotton, soya bean, and maize for the new areas. It has also been assumed that the irrigation methods in the already developed areas remain the same and that new areas will be developed for surface irrigation. As such, the irrigation scheme has been designed with the most conservative scenario in mind. In practice, it is expected that a number of farm organizations will select sprinkler (central pivot) irrigation, which is more efficient. Illovo is already increasing its area under drip irrigation and this may be adopted more widely over time in other areas as well. This will provide a buffer for possible climate change when higher crop water requirements can be expected and maybe reduced water availability. The total irrigation command area can also be adjusted during phase 2 when there is more clarity on the preferred on-farm irrigation methods.

18. The intake structure will be located on the right side of the Kapichira Reservoir. The structure as designed will have an automatic control system for the gates which release the required water. The design abstraction and maximum feeder canal conveyance capacity is 50 m^3/sec to irrigate the net command area of up to 43,370 ha, which includes 22,280 ha and 21,090 ha to be developed under SVIP I and SVIP II respectively. The conveyance canal is designed for the full command area during SVTP-I. The detailed design of the feeder and the main canals will be prepared to allow the flexibility to command SVIP I area even during low flow periods resulting from: (i) the need to utilize only about 50 percent of these canals' capacity (until Phase II is developed); and (ii) the potential to reduce water demand in case the abovementioned water saving technologies which require lesser duty (discharge) are introduced compared to the surface irrigation scenario considered to design these canals.

19. The first kilometers of the feeder canal will be constructed within the Majete Wildlife Reserve. This section will comprise a covered siphon structure in order to minimize adverse environmental impacts and allow free movement of wild animals. A distinct feature to be integrated in the conveyance canal is a three-meter vertical drop structure in Majete Wildlife reserve to avoid the movement of invasive fish species, such as tiger fish, upstream of Kapichira Dam towards Lake Malawi. In addition, several mitigation measures requested by Majete Wildlife Reserve, such as installation of masonry walls around the open canal section, crossing roads and watering point, were also considered in the canal design. Design and construction of the intake and initial section of the feeder canal will commence immediately with enhanced contractor oversight.

20. The conveyance canal (Main Canal) is almost 34 km long from the intake at Kapichira Dam to the bifurcation point where the canal splits in two. Five secondary canals supply water to the Zone I-1 (6,098 ha) and are directly connected to the Main Canal 1 of Phase I. Main Canal 3 (MC 3) is 10.6 km long and shall supply water to 12,124 ha area, including 9,995 ha belonging to Illovo Estate all under Phase I. Main Canal 2-1 (Bangula Canal 1) will initially have a length of 18.4 km to irrigate zone A (4,058 ha) of Phase I, and will be extended by about 70 km (Bangula Canal 2 or MC2-2) to irrigate 21,090 ha area to be developed during Phase II (See Schematic Figure below). Secondary canals will be constructed to take water from the Main Canals and deliver it to the farm zones. All feeder, main and secondary canals will be lined with reinforced concrete with a thickness of 10 cm.

21. A number of hydraulic structures are required for the higher-order canal system. Siphons will be constructed for crossing locations where valleys, rivers, and main roads are passing. Control and offtake structures (mostly weirs) will be constructed to distribute the water and deliver it to the head of the farm zones. There will be measurement devices to measure the volume of water delivered to each farm zone. There will be road and foot bridges, animal crossing points, offtakes to water points, as required. Sediment basins/ejectors and night storage reservoirs will be constructed, as required. Drainage channels and access and field roads will be incorporated into the irrigation system. The conveyance canal will be used as source of drinking water for a projected 41,000 people in Chikwawa Township.

22. The secondary canals will each serve a number of farm blocks where farm organizations comprising groups of farmers will practice commercial agriculture. The design of the farm blocks and the irrigation method (surface, sprinkler, drip) will be prepared in full consultation with the members of the farm organizations, supported by professional organizations that are also expected to manage the irrigation infrastructure and farm operations on behalf of the members of the farm organizations. It is expected that during Phase I about 22,280 ha of on-farm area can be equipped for irrigation, including connecting about 10,745 ha of the currently irrigated estate areas to the gravity system. The actual area will depend on the readiness of the farmers (see Component 2 and 3), progress with the construction of the higher-order canal system, and the available financing. A mix of irrigation methods, including surface and pressurized irrigation, is expected to be developed, based mostly on farmers' preferences, crop choice, land development cost considerations (with respect to soil and topography), and water productivity considerations.

23. A water supply system with a design capacity of 14.4 l/s will be designed in collaboration with Southern Region Water Board (SRWB) and installed to benefit residents within and around the Chikwawa boma area. Applying the 2008 population growth rate, the beneficiary population is projected to be 30,619 by 2016 and 41,335 by 2026. The source of water shall be from the feeder canal which will be designed to include this demand over and above the irrigation water requirements.

24. Throughout the scheme provisions are designed for safe canal crossing for people, vehicles and animals; a variety of safety measures especially near populated areas; safe washing and playing access; livestock watering, to allow for safe multiple use of the infrastructure. These aspects will be designed in detail with the neighboring communities and more details are provided in the Environmental and Social Management Plan (ESMP) and RPF.

25. Summary of gravity-fed irrigation areas to be developed

Phase	**Irrigation area (in ha) to be developed by typology**		
	New	**Direct supply to equipped area**	**Total**
Phase I	10,100	12,180 (Illovo and outgrowers)	22,280
Phase II	17,510	3,580 (Illovo and outgrowers)	21,090
Total	**27,610**	**15,760**	**43,370**

26. The new area of lands to be included are those in the vicinity of Kasinthula, Mthumba Valley and between the Mwanza River and Lengwe National Park. During Phase I about 10,100 ha area of new land

is expected to be equipped with irrigation infrastructures. Similarly, 17,510 ha irrigable area will be equipped in Phase II. A total of 27,610 ha new area will be developed with Phase I&II combined. The already equipped 12,180 ha and 3,580 ha (total 15,760) area of lands under Phase I and II respectively, will only require connecting them with the gravity water supply of SVIP. Some internal adjustments will have to be made to receive the water for surface irrigation. In the case of center pivot, sprinkler and/or drip irrigation system, the beneficiaries may wish extracting water from the supply canals using their booster pumps. These conversion costs are private costs and considered profitable at farm level.

27. This sub-component will also finance the implementation of safeguards measures as described in the ESIA and ESMP as they relate to canal construction, such as fish barrier, canal covering and routing, Majete Wildlife Reserve measures and others covered in the ESMP. The costs for these civil works is included in engineering estimates for civil works under the component. In addition, roughly US$0.5 million is set aside for offsetting activities in the Reserve, which includes fence upgrading, borehole drilling for watering points, tree nursery establishment for degraded areas of the Reserve. These activities will be implemented by African Parks Foundation and are in addition to the direct mitigation measures.

Subcomponent 1.2: Support to Effective and Sustainable Irrigation Management, Operation and Maintenance (US$0.7 million IDA)

28. There is limited experience of the implementation of large scale irrigation projects in Malawi and, as such, the GoM does not currently have the capacity or institutional structures to implement such a projects or provide long-term irrigation services. Therefore, during the project preparation process, options were explored to incorporate private sector participation through PPP in various aspects of the project, including partial-investment, design, construction and operation. Options considered ranged from including design, partial financing, construction and operation of all the major infrastructure aspects of the project in a single PPP through to the public procurement of the infrastructure but with the subsequent operation and maintenance of the main and secondary levels of the scheme being managed under an incentive-based PPP

29. In considering the merits of the various options a major consideration was the relative significance to a private investor/operator of the high commercial returns from the construction of the infrastructure as opposed to the much smaller absolute returns from the subsequent operations of the scheme. In addition, the lack of a well-established cadre of private investors in the commercial irrigation market was taken into account. Given the size and relative complexity of the project, the disparate returns from the construction and operation phases, as well as the relatively small number of irrigation PPPs undertaken globally and the risks associated with the project, it was eventually decided to focus efforts on a PPP for scheme operation rather than construction. Therefore, GoM will undertake the design and construction of the project through tradition public procurement and a form of management contract will be developed to engage the private sector in the management, operation and maintenance of the project in the long run. This subcomponent will support the government develop the necessary institutional structures and strengthen government capacity to manage the project long term. The tertiary level will not consist of individual fields but of large blocks managed by SOCFEs. Depending on the pathway chosen (see components 2 and 3) their internal management may be fully integrated in farm management, or in less ideal and looser forms of cooperation that will require internal distribution with a WUA. The principle of a contractual approach between off-taker at block level and operator at main level is upheld in all cases. At scheme level, all SOCFEs will be organized into a water users' federation as an apex organization to

discuss issues with the bulk water operator.

30. Specifically, this subcomponent will finance capacity building and training of GoM staff and communities as appropriate for the long-term management of the infrastructure assets. All training of WUAs will be done at SOCFE level and integrated within costs for component 3.

31. The International Finance Corporation (IFC) has been requested to provide support with implementing various commercial aspects of the project. This component will provide complementary support to IFC's technical assistance in establishing the optimal commercial structure for the project. IFC support will encompass:

a) Advice on the financing and ownership of the Illovo specific assets, most likely in a separate SPV;
b) Facilitating private financing of the infrastructure assets;
c) Assisting the Government in negotiating the Water Purchase Agreements (WPA), in particular with Illovo and other existing users;
d) Refining the financial modelling undertaken under the PPP feasibility study to assist with the negotiations of the WPA with Illovo and subsequent procurement of the Management, Operations and Maintenance Agreement;
e) Establishment of an asset holding company or similar vehicle to own and manage the main infrastructure asset on behalf of government and act as government counterpart in any future financing and PPP arrangement;
f) Transaction advice for the procurement of an incentive-based MOM Agreement.

IFC has been engaged the development of SVTP and is supporting the government to assess possible PPP options for the project. The GoM has requested that IFC PPP Advisory Services be engaged as transaction adviser to (i) provide strategic advice on structuring of the commercial aspects of the program, including the water purchase agreements; and ii) transaction advice for the PPP to operate and manage the irrigation infrastructure. The water purchase agreement will leverage commercial financing to support the operation and maintenance of the entire scheme and possibly capital investment to ensure the sustainability of the scheme. This support will be coordinated with subcomponent 1.2 of the project.

IFC has ample experience financing agriculture and agribusiness activities in Malawi. IFC is providing support through the WBG T&C Malawi Agricultural Commercialization Project (P158434) which is also of strategic relevance to SVTP as it supports the overall investment framework for commercial agriculture which is a key objective of this program. IFC is providing advisory services on operations of agribusiness work, and required tools for ensuring an effective linkage between off takers and producer organizations through AGCOM.

During project implementation IFC will explore the potential for and develop a pipeline of private sector agriculture and agribusiness projects that could leverage the planned IDA activities in the SVTP. These could likely involve private sector companies acting as anchor investors in farms or agro-processors that could engage with SOCFEs emergent commercial small farmers and outgrowers in the Shire Valley area using a value chain approach and productive alliances. Proposed activities could include: (i) Support select sizeable anchor projects and platform investments through IFC financing and potentially PSW funds if

necessary, and IFC Advisory Services; (ii) Build sustainable value chains to stimulate private sector investment and inclusion; (iii) improve access to finance and business literacy and develop value chain finance tools by working with local financial institutions and industry leaders.

32. Supplementary Project assistance would include: (i) Technical Assistance to be embedded in the PPP Commission to support to above set of activities; (ii) training to WUA Federation and support to its establishment; (iii) legal support for WUA formation, so that relations are clear between WUA, operator, ministry regarding scheme governance, tariff setting and further regulation under the irrigation act; (iv) costs associated with the operator start up; (v) Operating costs for the Ministry and PPPC to engage in these activities and train staff. Training to communities under this component will focus on the bulk water infrastructure. Given the specific set-up of the agricultural strategy, scheme management will be relatively straightforward at the bulk water provision level; and the on-field distribution will be arranged within the farm enterprises or WUAs depending on the pathways. Depending on the development pathway chosen for farmer organization there may be more or less need to introduce user level organization within the block and this will be included in the consultations on farmer organizations establishment (more details on the specific pathways and the need to establish Water User Associations as independent bodies for each pathway are presented under component 3). These trainings are integrated within and costed under component 3.

33. The performance contract will be structured to incentivize efficient operation and maintenance of the infrastructure assets as well as the efficient management of the commercial operations of the bulk water aspects of the scheme. With existing and potential new commercial farmers likely to benefit from the scheme, some who have expressed commitment to purchase water from the scheme, the project has a good opportunity for ensuring a long term revenue stream, and therefore financial sustainability. It is also expected that because of this immediate demand from significant users, traditional risks of a slow ramp up of utilization and therefore payment are avoided. From ongoing financial analysis, it is apparent that, with existing commercial farmers integrated in the project, the irrigation service fee will be sufficient to cover MOM costs from the onset. Regardless of the form of procurement and management of the project, a Water Purchase Agreement (WPA) will need to be agreed with all potential off-takers to detail their level of service, and ensure their commitment to the project. This is particularly important for existing water users, primarily Illovo, as their service (and associated MOM revenue) can start from the day of connection. In addition, there are a number of financial structuring issues to be resolved, such as the financing and payment for the Illovo specific aspects of the scheme; the structure of the various water purchase agreements; the extent, if any, of the financial cross-subsidy between Illovo and new cooperatives; the management of any refurbishment fund.

34. In any case, irrigation service fee setting and drafting the various WPAs will be part of the detailed scheme consultations, as these are both important for long term financial sustainability as well as for livelihood considerations. A positive feature of the scheme for financial viability is that, with existing commercial farmers incorporated, about half the area in SVIP I will be ready to connect as soon as service is established. This should provide a steady base revenue while others may lag in farm development. Financial implications of phased entry will be part of fee structuring on fixed and variable costs recovery. Financial modeling and willingness to pay surveys show that full MOM recovery is well within the reach of all future clients. The irrigation service fee for commercial growers should also finance, beyond cost of

provision of water to the user, repayment for incremental infrastructure cost. It has been preliminarily assessed that the fee to be negotiated will likely represent the value existing users place on switching to a gravity system. The credit will not finance the private sector's infrastructure cost. Ongoing discussions, primarily with Illovo, have confirmed interest in negotiating a long-term WPA. The government has requested IFC transaction advisory services to assist the Public Private Partnership Commission (PPPC) in financial structuring and the setting up of performance management contracts and Water Purchase Agreements. Advisory services are foreseen to support the Ministry and the PPPC in negotiating the various WPAs as well as deciding on the other commercial aspects of the scheme as outlined above. Advisory services would also subsequently be required to assist the Ministry and PPPC in structuring and procuring the incentive-based management contract. Although that work may only commence a year into the project, there would be benefits, although not a necessity, for the operator to be selected prior to commencement of works so that the operator can review and positively influence design and construction with the long-term vision of operability.

Component 2: Land Tenure and natural resources management support (US$27.29 million, including US$9.50 million IDA and US$5.59 million GEF)

35. The first phase in developing commercially oriented agriculture is to address security of land tenure and organize farmers for commercial production. The new legal framework for land administration, which was adopted in 2016 entails important challenges and opportunities for project design and implementation. In an effort to broaden the multisector benefits of the program and enhance environmental sustainability within the modernization program, the program will invest in natural resources management investments in Lengwe/Mwabvi protected areas, the Elephant Marshes and associated activities that will support improved natural resource management and the development of a broader land use plan for the Shire Valley. These investments will be in addition to mitigation measures identified in the project ESIA; and they will build on earlier work under the GoM's Shire River Basin Management Program, with which this component shall be closely coordinated.

Subcomponent 2.1: Supporting land governance and land consolidation (US$16.70 million, including US$9.50 million IDA)

36. The investment processes entailed in enabling farmers to progress from their current rain fed subsistence orientation to commercial irrigation farmers (supported under component 3) will involve several steps, applied over the life of the program. It is proposed that commercial farming organizations (cooperative or company), with an expected size of at least 500 ha per unit, will be modelled on the successful Phata cooperative that is operating with the project area, although other development pathways can be considered as well by the farmers. Strengthening land tenure security and governance will enable farmers to benefit from the opportunities offered by the project. This will be an iterative process that continues (from preparation stage) with provision of information on the proposed SVTP providing initial orientation for potential participants. The implications, costs and potential benefits as well as the risks of irrigation farming will be presented and discussed in detail with potential participants, who will be have the option to opt in or out or be on a faster or slower pace towards self-organization. Communities will be facilitated in land use planning and group identification, and the project will facilitate viable group formation. Formation of commercial faming organizations (cooperative or company) will be the next process, involving the development of their internal regulations, including on land and water. It is expected that about 15 of these units will be formed, with formation still ongoing in some areas at the

end of SVTP-I. When this process is completed, the Farm Cooperative/Company/Association or Trust would be formed, with proper internal regulation, registration and ownership of the land tenure for the farm area. This process will proceed in parallel to the bulk water infrastructure development and these process will need to inform each other to ensure technically viable irrigation complements commercially viable SOCFEs.

37. The Project will support the process of securing land tenure with specialized technical assistance. This includes: (i) support to the setting up of local governance bodies, (ii) development of local regulations for land administration in a participatory process with chiefs and land committees - this will consist of a preliminary land use plan and by-laws at group village level, which will be used to analyze and approve customary estates applications, at individual or collective level, (iii) help reach social agreement to minimize the land speculation that could be triggered by the project, and (iv) support the actual staffing, equipment and capacity strengthening at the district level institutions for land delimitation and administration with modern technology and robust rapid procedures, (v) the process of land consolidation, (vi) registration of customary estates, and (vii) the formation of cooperatives. Finally, project communication to local stakeholders as well as RAP formulation and facilitation of its implementation will be fully embedded within this process.

38. By the end of 2016, the Malawian Parliament had passed 10 new laws[9] that fundamentally modify the status and registration of land rights in the country. In particular, the new framework introduces a decentralised land administration and registration system and provides for the formalisation and registration of customary rights. The new Customary Land Act (CLA) envisages the creation and registration of customary estates based on current, legitimate, customary land occupation within Traditional Land Management Areas (TLMAs). The Act would transform these holdings into private land, capable of being transacted (with certain limitations) and encumbered. It requires identification and formalisation processes that incorporate international best-practise principles and lays the legal foundation for transparent and decentralised administration of these estates.

39. This new framework defines the legal and institutional context in which the project's innovative land arrangements will need to be implemented, and this context in turn offers both opportunities and challenges for the project. Whilst the project can benefit from legal tools and approaches provided by the new laws, it will also be operating within an untested legal framework which currently lacks regulatory details and which will depend for its implementation on institutional actors that at all levels have low capacity and experience. Implementation of this component will be one of the pilots of the operationalization of the new legal framework on land tenure and is set out in the Letter of Sector Policy from the Minister for Lands, Housing and Urban Development. More details are provided in the Land Tenure Annex in the Project Files. The letter is also included in the Project Files.

40. Current plans for land consolidation into irrigation blocks envisage the formation of cooperatives between the current owners of affected land, the giving-up of current family/individual landholding (unregistered but locally recognized) and their consolidation into a single customary estate, registered in the name of the group, licensed to a cooperative. Shares in this entity would be distributed on a pro rata

[9] The Land Bill, 2016; Customary Land Bill, 2016; Physical Planning Bill, 2016; Land Survey Bill, 2016; Registered Land (Amendment) Bill, 2016; Land Acquisitions (Amendment) Bill, 2016; Local Government (Amendment) Bill, 2016; Malawi Housing Corporation (Amendment) Bill, 2016; Forestry (Amendment) Bill, 2016; and Public Roads (Amendment) Bill, 2016.

basis per the amount of land that each owner 'contributes' to a consolidated block. Alternative pathways are also being considered that may entail somewhat different approaches to land consolidation and the securing of existing rights (see paragraphs below). Under each alternative, however, there is a clear need to survey and record the current (pre-consolidation) individual land holdings and identify the legitimate holders of those customary rights, either as the basis on which to calculate the pro rata entitlement to shareholdings within the cooperative or to calculate the total area of irrigated land to which a member may be entitled.

41. These steps and other elements of the project's innovative approach to land tenure and planning must take place in accordance with the new Customary Land Act and under the auspices of the institutions it empowers. The Act requires: a) the delimitation and/or demarcation of the TLMA and the issuance of a certificate by the Ministry of Lands (there are five TLMAs located in the project area for Phase 1); b) setting up new Land Committees at Group Village Level (31 in SVIP I area), which will be involved in land use planning and first stage review of customary estate applications; c) establishment of institutions at the district level responsible for the registry of customary estates; and d) establishment and operation of Land tribunals at TLMA level to solve land disputes. In all cases, institutional capacity is weak or the institutions themselves have not yet been created.

42. The project will address these challenges through the provision of specialized technical assistance. The project will recruit a specialized firm of experts in local land governance, land administration and land use planning. These experts will support the government in the development of a land registry at district level, the deployment of modern and efficient technology for the delimitation of 5 TLMAs, the identification and recording of existing household land rights, and the establishment of around 30 Group Village land committees. The project will also support a participatory process aimed at developing a regulatory framework for customary estates applications (see detail in the Land Tenure Annex in Project Files). Issuance of the TLMA certificates and the constitution of the Land Committees should be achieved at an early stage of the project implementation as well. Through this localized support, the project will also generate lessons and test methodologies for the operationalization of the new legislation in the context of large-scale land-based investments, feeding into and benefiting from parallel initiatives in the operationalization of the land laws elsewhere in the country. The specialized firm working on land local governance will work closely with the Ministry of Lands Housing and Urban Development (MLHUD) at both national and local level to implement the legal provisions in Chikwawa district. The actual process of land consolidation itself is intertwined with community mobilization and SOCFE development

43. Although it will take 3-4 years for the physical infrastructure to be in place, the process of capacitating farmers to take full commercial advantage of the investment will begin immediately after the project is commenced and in parallel with the land consolidation process. The envisaged building block for commercial agriculture is a land-based agri-business partnership among smallholders. This will take the form of the participatory formation of commercial farming organizations (cooperative or company), with an expected minimum size of about 500 ha per unit. In SVIP I new area it is anticipated that there will be about 15-20 of these units, partially based on expansion of existing farmer models, but primarily through introduction of new farm entities. The basis would be current owners of affected lands and people affected by the irrigation infrastructure and interested in irrigated agriculture, holding shares in this entity distributed on a pro rata basis per the amount of land that each owner 'contributes' to a consolidated block.

44. Detailed Communication and Provision of Information on the proposed SVTP investments and alternative farm models will be the first intervention providing initial orientation for potential participants. The implications, costs and potential benefits as well as the risks of irrigation farming will be presented and discussed in detail with potential participants. Issues pertaining to commercial agriculture to be discussed will include farm investment decisions, farm organization, crops, livestock, fisheries/aquaculture, potential markets, land tenure implications and cost of water. This will be undertaken by a service provider over a period of 6 months as soon as possible after project start-up. There is a strong linkage between the initial communication and organization processes and future agriculture development support under component 3, as farm decisions will influence identification of early adopters, organization of blocks and those who opt out or require additional time for decision-making.

45. The farmers' group will be supported in formation of its Farm Cooperative/Company/Association or Trust, with proper registration and ownership of the land tenure for the farm area. They will receive intensive support from a specialized service provider, assisted by officers from the Ministry of Lands and the Department of Co-operatives, over a two-year period to achieve this outcome. Once this building block for land consolidation and commercial farm formation is achieved, the project will provide for alternative development pathways, recognizing the need for flexibility and a demand-driven approach. All are based on the principle of commercial agriculture on consolidated land. Four possible pathways[10] with varied challenges and likelihoods of success were identified based on local and regional experience. These are (see also the graphical presentation on the next page):

Pathway 1 – Agri-business managers: The cooperative is owned by the farmers who contribute their shares individually in proportion to their land holdings in the group customary estate. The cooperative employs a commercial agribusiness management company (or individuals) and farms the estate as a single enterprise under cane or commodity crops (e.g. Phata Cooperative). The owners would be able to provide paid labour services on the farm if they have the relevant skills, and would be able to farm 0.1 ha of irrigated land individually. They would be paid a dividend or profit share according to their respective shareholding.

Pathway 2 – Smallholder agri-business[11]: The cooperative devolves individual land ownership/use rights to specific plots with individual ownership on the new scheme, based on percentage shareholding. The cooperative oversees a WUA comprising land-holding members within the block. Here, individuals do not rent but farm on their own plots, with the specific expectation that a natural process of farm consolidation into larger business units will follow, as less-interested or less-successful farmers exit voluntarily (through rental or transfer). The co-op administers land-exchange.

Pathway 3 - Leased farms (mixed model): The cooperative acts as a facilitator/enabler and leases portions of the customary estate to members, to outside individuals and/or agri-business companies to generate revenue. The cooperative function is one of land administration and irrigation water service provision in

[10] See report entitled "Analysis of Land Tenure Options and Potential Land Consolidation Arrangements within the Development of the Shire Valley Irrigation Project-Malawi", S Norfolk and J Denison 2017.

[11] This has strong similarities to the irrigation management approach that evolved in the IRLADP programme in Malawi where transfer of small and medium schemes was given effect by establishing rental rights to plots on schemes (with irrigation water services and plot administration facilitated by the WUA). The model is in principle the same as the Office du Niger in Senegal, a widely referenced transformative smallholder project (100,000 ha).

the block. The cooperative owners would receive payment of net revenue pro-rata to their shareholding. The cooperative would facilitate the formation of a WUA within the farm area.

Pathway 4 – Joint-Venture (JV) Enterprises: The cooperative establishes a contract-partnership arrangement (typically a JV) with an agribusiness entity that covers all farm production for the supply of commodity or industrial crops (e.g. Kama-PressCane JV for ethanol). The cooperative owners would receive payment of net revenue from the JV pro-rata to their shareholding.

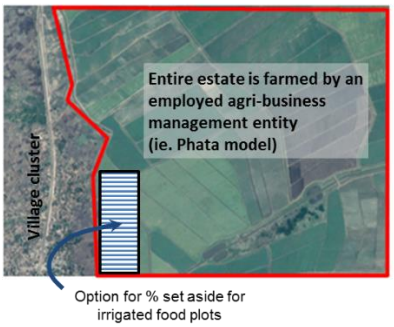
46. Extensive consultations with the existing smallholders in the Shire Valley have demonstrated a strong preference for Pathway 1, based on the successful Phata Co-operative model operating in the area. However, the other models would be offered as alternative pathways, with the advantages, disadvantages and implications of each model being fully discussed and analyzed in consultation with prospective co-operative members prior to a decision being made. It is possible that more than one model may be used, based on the needs and demands of the smallholder owners. In some cases, especially for Pathway 2, this may have some implications for physical scheme design and investment. During implementation, the models being used may be modified and improved based on the application for the first farming organizations. From a land consolidation perspective, the starting point in any of these four pathways remains the same: the documented consolidation of individual/family holdings into a single land holding unit, with internal administration and by-laws.

47. This component will also finance the implementation of safeguards measures as described in the ESIA and RPF including compensation for resettlement, with the exception of specific costs related to canal construction (fish barrier, Majete Wildlife Reserve measures and others covered in the ESMP). The service provider to be recruited under this component will be supporting the resettlement and compensation mechanisms at the early stage of the canal construction by supporting GoM in identifying the PAPs, formulating several RAPs as needed, and support RAP implementation. Different participatory mechanisms will also be developed in order to facilitate the voluntary inclusion of PAPs in the farming blocks. During the construction of the irrigated blocks, new mechanisms of compensation will be established to contribute to household food security for those who will not be able to grow their usual rain fed crops.

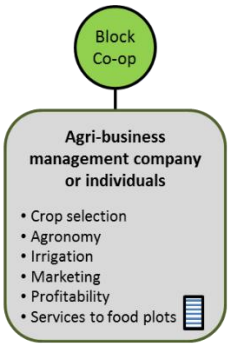
48. The total cost for compensation and land acquisition is estimated at US$7.2 million. This estimate is based on the detailed survey on best available information at feasibility level (described in Annex 2) and includes a safe 20 percent margin for planning as well as price contingencies. This includes an estimated US$3.5 million for compensation for permanent loss, including land acquisition for infrastructure development, trees, and buildings. It also includes safety and social livelihood support measures for villages in the vicinity or bisected by the canal. In addition, there is an estimated US$0.5 million in temporary losses (crops, grazing, and temporary relocation). Finally, there is about US$2 million set aside for anticipated yield reductions during farm development and reorganization of plots (financed under this sub-component). The work schedules will be such as to reduce these types of losses, but land leveling on new farm blocks will have short term soil fertility impacts. Such measures will be included in SOCFE development plans. Costs for RAP formulation and implementation are fully integrated in the component costs. Similarly, costs for ESMP implementation and monitoring are integrated in subcomponent 1.1 and project management cost. Environmental measures are largely integrated into the civil works contracts, supervision contracts, MoUs, and the service providers (PMP implementation). This includes such measures as the fish barrier, wildlife protection during construction and operation, walling off canal

sections in Majete Wildlife Reserve, land use planning.

Pathway 1: Agri-business Managers

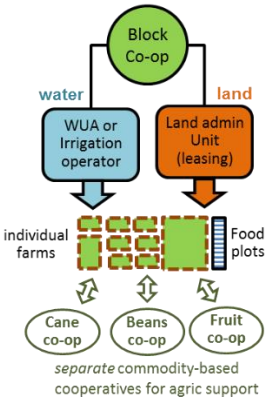


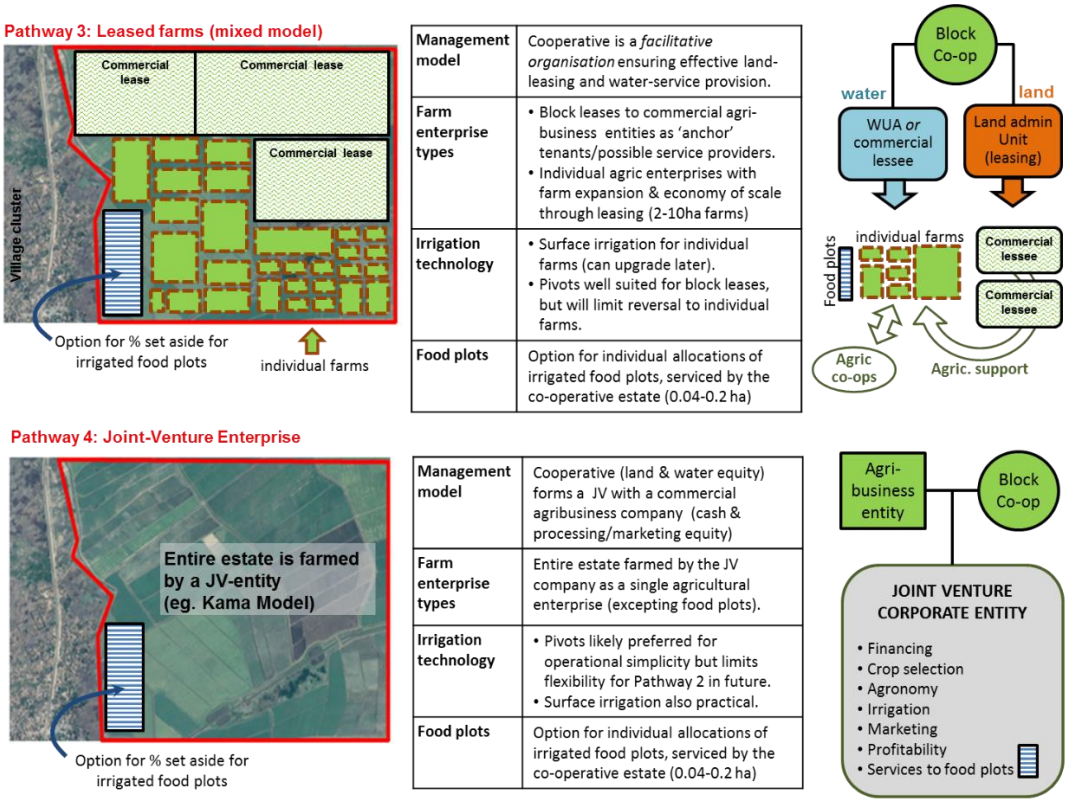
Management model	Cooperative *employs* a commercial agribusiness company (eg. Phata), or individual agricultural managers.
Farm enterprise types	Entire estate farmed as a single agricultural enterprise (excepting food plots).
Irrigation technology	• Pivots likely preferred for operational simplicity but limits flexibility for Pathway 2 in future. • Surface irrigation also practical.
Food plots	Option for individual allocations of irrigated food plots, serviced by the co-operative estate (0.04-0.2 ha)



Pathway 2: Smallholder agri-business

Management model	Cooperative is a *facilitative organisation* ensuring effective land-leasing and water-service provision.
Farm enterprise types	Many individual agric enterprises with farm size expansion & economy of scale through internal leasing as needed (2-10ha business farms)
Irrigation technology	• Surface irrigation with individual upgrade (sprinkler/drip) in future. • Pivots *unsuited* as will force group collaboration, and not allow individual enterprises.
Food plots	Option for individual allocations of irrigated food plots, serviced by the co-operative estate (0.04-0.2 ha)





Subcomponent 2.2: Natural Resources Management (US$10.59 million including US$5.59 million GEF)

49. At landscape and park level, this sub-component would invest in (i) Community-level natural resource management in areas adjacent to the conservation areas in the lower Shire landscape (Lengwe National Park, Mwabvi and Majete Wildlife Reserves, Matandwe Forest Reserve and the Elephant Marshes Proposed Sustainable Use Wetland Reserve) and in wildlife corridors. This will include investments that support co-management of natural resources and development of income generating activities with established community-based organizations around (and in the case of Elephant marshes – within) these conservation areas. This will also include the preparation of a feasibility study and subsequent investment to support the establishment of a community-managed conservancy and/or wildlife corridor that might link Majete Wildlife Reserve and New Lengwe; (ii) Provide targeted support to these conservation areas to strengthen conservation management and encourage private sector investments (e.g. by tourism concession investors) that could boost revenues for re-investment in local community development and conservation management. This will include investments prioritized in management plans for the conservation areas (for example, upgrading trail networks, fencing to reduce human-wildlife conflicts, investments in community tourism) and investments identified in a recent nature-based tourism strategy for the Shire basin. This would also promote partnership support with other conservation stakeholders, including the Africa Parks Network; and (iii) Invest in establishment of the Elephant Marshes Sustainable Use Wetland Conservation Area, with a strong emphasis on community-based natural resources management strategies. This support will be based on the wetland management plan currently being finalized with the support of the SRBMP. This will include a strong focus of support on community-based management – including the establishment of community fisheries management and regimes, support for climate smart and sustainable agriculture practices to boost

climate resilience and reduce riverbank erosion, and establishment of institutional and management structures. Details provided in Annex 4.

50. Investments at the local level will be complemented by investments at national level where they add value to site level interventions, including technical assistance, measures to enable improved use of geospatial and mapping applications, and actions to address illegal logging and combat wildlife crimes. With respect to the illegal logging, Malawi is facing increasing challenges posed by commercial-scale illegal logging for valuable tree species. This has driven the endemic Mulanje cedar to the brink of extinction and poses a threat to Mopane forests – particularly in areas close to the border with Mozambique. The largest ever case of illegal logging in the country was detected recently at Lengwe National Park - involving illegal cutting forests in critical watershed protection forests of the lower Shire valley. Remaining elephant and rhino populations, including those in Majete Wildlife Reserve, are under severe pressure from illegal killing and trade for ivory and horn respectively. Increasing market demand for illegal timber, ivory, rhino horn and other wildlife products in growing, will also undermine tourism revenues and therefore requires a stronger national-level response. GEF grant support will be used to strengthen this response as part of the Global Wildlife Program that covers 19 countries facing similar challenges and which will provide Malawi with access to a global support network.

51. GEF investments at national and landscape level will be in addition to mitigation measures identified in the project ESIA; and they will build on earlier work under the SRBMP, with which this component shall be closely coordinated.

Component 3: Agriculture Development and Commercialization (US$56.60 million, including US$49.80 million IDA)

52. Component 3 finances on-farm investments in irrigation and drainage, land leveling, and commercial farm development. This will also include farm equipment (fixed and moveable), initial production and management support at SOCFE level, basic infrastructure. It complements bulk infrastructure investments under component 1 and finances farm development works, goods and services- through investments in on-farm irrigation and a demand-based matching grant mechanism for farm assets and operation support – based on SOCFE level designs and independently expert-reviewed business plans. The component also supports targeted technical assistance and quality control mechanisms in processes of forming productive alliances and setting up SOCFE management. Investments for full on-farm development of Phase I area are estimated to cost about US$82.0 million, with at least US$13.7 million in direct matching private finance and more private finance leveraged in value chain development. The level of funding under SVTP-I matching grants (US$25.0 million) and tertiary irrigation (under participatory agreements US$16.0 million) is sufficient to develop 50 percent of the area and prepares for the rest to be financed under SVTP-II. This component will thus pave the way for major scale up in SVTP-II. Finally, the component will finance preparatory studies for SVTP-II in terms of market diagnostics, applied research, support to agri-spatial approaches.

53. **Technical Assistance.** This component will support technical advice on possible development pathways and forms of organization and subsequently on actual farm investment, and initial farm operation. Upon formation (supported in close coordination with the activities under subcomponent 2.1), farm investment planning by SOCFEs will take place immediately. This will include decisions on: i) crop

choice, rotations, livestock, fisheries, technology to be used for tillage, crop establishment, crop husbandry, harvesting and water application; ii) irrigation method. Various viable options will be discussed with the enterprises based on crop choice, micro-topography, soils, etcetera; iii) farm equipment, basic infrastructure (potable water, electricity connection, access road); iv) farm management and staffing; v) financing for equipment and production costs; and vi) identification and contact with possible markets. This would culminate with the choice of irrigation method and preparation of the farm investment and business plan. Actual agricultural investments will be limited under SVTP-I to early adopters only, to be scaled up in SVTP-II. If desired by the members of the enterprise, within each farm unit, each participating household participating will be allocated 0.1 ha of irrigated land for production of household food crops.

54. **Capital Investment Support** will be provided through the project to enable capital investments in the SOCFEs based on their on-farm irrigation and development designs and business plans. This will be majority of funding under this component and will leverage further private investments. Much of this will be made available as a grant, or as a partial grant. There are clear justifications for the usage of grant: (1) market failure in the Malawian financial sector where long term finance is currently unavailable for farmers and farmer organizations; (2) capital investments cannot be self-financed by the target beneficiaries due to their existing lack of bankable resources and commercial history; (3) externalities which generate development impact to rural livelihoods; and (4) incentive for financial institutions to create new financial services to farmers and farmer organizations. The project support for the various project beneficiaries and clients is summarized in the table below.

INVESTMENT CATEGORY	DEVELOPMENT PATHWAY				EXISTING PRODUCERS
	1	2	3	4	
	Project Investment Support/Grant				
Main Water delivery	100%	100%	100%	100%	Negotiable
On Farm Irrigation & Roads	90%	90%	90%	90%	0%
Farm Fixed Assets	70%	70%	70%	0%	0%
Farm Moveable Assets	50%	50%	50%	0%	0%
Farm Overhead Costs/Yr 1	50%	50%	0%	0%	0%
Farm Production Costs/Yr 1	50%	50%	0%	0%	0%

55. Under these financing scenarios, all farms would receive investment as a grant to provide access to irrigation water. They would receive a 90 percent grant for land development to the point where land is irrigable, with the balance to be provided by the farm owners through loans from “patient capital” providers and possibly though provision of “in-kind contribution (labor and/or materials)” by the owners. Whereas investments in farm assets, overhead and production costs follow a formal matching grant procedure, the on-farm irrigation development can start sooner with design and investment as it is intricately linked to overall scheme development. On-farm irrigation therefore does not require a full business plan or a formal registration, but rather a statement of interest from the group and a quantified BoQ including the group’s contribution. Existing producers such as Illovo and Phata would gain access to bulk water on a negotiated basis. Subsequently, all farm models would pay water charges based on a single, standardized volumetric fee. For Pathways 1, 2 and 3, the project would provide a 70 percent grant for investment in farm fixed assets and a 50 percent grant for farm moveable assets. In both cases, the balance would be obtained as loans from quasi-public investment organizations (e.g. CDC, AgDevCo) and from local commercial financiers. No project support would be necessary for Pathway 4 investments, as

this would be provided through the JV partner. The project would also provide a 50 percent grant for the costs of Farm Overheads and Farm Production Costs in Year 1 of production only. The balance of these costs would be provided through partners in productive alliances (see Para 58 below), including through local commercial banks and produce off-takers. There would not be any need for support of this nature under Pathways 3 and 4, and the businesses undertaking production in these farms would be expected to make adequate provision for this in their investment financing.

56. **Investment Assessment Panel.** The project will recruit an expert team of independent evaluators to assess investment proposals by SOCFEs, on the basis of their business plans. The panel would consist of a commercial financier, at least two private agribusiness representatives, an irrigation agronomist and a project representative, most likely the Component 3 lead. The panel would be recruited and paid by the project. The panel will be responsible for evaluating the business proposals which will be the basis on which the project financing will be awarded. Specifically, the panel would not approve project support for investments where the level of project support would make the investment inherently financially non-viable. The process of evaluating the business proposals will be cyclical with a batch of proposals received for evaluation in the periodic calls of proposals from the SOCFEs. It is recommended that this be done every three months. The SOCFEs will be encouraged to develop these proposals in collaboration with the buyers and other value chain entities with whom they will participate in Productive Alliances. These independent evaluators will ensure transparency and meritocracy in award of financing, based on an objective assessment of the business plans guided by clear selection criteria. The selection criteria would include verification of technical and financial viability, acceptable management skills, access to markets for inputs, services and produce, and likely access to matching non project finance.

57. **Farm Investment and Operational Support.** The actual farm investment will take place immediately after the farm organization process is completed. The activities to enable the investment to be made would include: i) a decision of which pathway to adopt and the type of irrigation system consistent with the pathway; ii) decisions on crop choice, rotations, livestock, fisheries, technology to be used for tillage, crop establishment, crop husbandry, harvesting and irrigation water application technology; iii) decisions on farm equipment, basic infrastructure (potable water, electricity connection, access road), engaging the service provider, and farm management and staffing the cooperative/company with relevant professionals; iv) securing of financing for equipment and production costs; v) identification and contact with possible markets; and, vi) preparation of the farm investment and business plan. This process would be supported by specialist service providers as well as by the farm management once it is appointed. The farm investment stage would last for about one year. At the conclusion of the process, farms would be ready to commence production.

58. **Farm Operation Support.** Farms will need strong technical support to achieve sustainable profitability. The project would provide technical advice, training and mentoring on agronomy (specifically including integrated pest management and safe management and application of agricultural chemicals), irrigation management, marketing, business management, land use planning, environmental management and other topics during the initial three years of operation. This would be provided through the project by service providers, with a clear set of responsibilities under a contractual mechanism and dependent on a transition to hired services for longer term management. Additionally, support would be provided to develop effective communication within the value chains for each commodity produced. This would take the form of value chain platforms involving all interested entities, farmers, inputs suppliers,

off-takers, transporters, financiers, public and private extension, commodity associations.

59. **Irrigation management support within the blocks.** In pathways 1 and 4 irrigation management is fully integrated in the block farm operations. In more individual farming models under pathways 2 and 3 there will be need for internal arrangements on water management in terms of allocation, scheduling, distribution, and maintenance. This will require the set-up of a purpose-oriented water user's association operating within the hydraulic unit of the block. Malawi has successful experience with water user associations which could be applied within these specific blocks and training will be provided by the specialized agribusiness service provider. There are further regulations required for the formal legal status of WUAs under the Irrigation Act and the project would support this process.

60. **Productive Alliances.** Financial sustainability of the SVIP irrigation investment can only be achieved through profitable agricultural production. Farms will need to be linked to Commercial Value Chains for production and sale of their produce. Such value chains are currently poorly developed due to the low level of commercial production in the area, with the exception of sugar cane. Development of commercial value chains will be needed to enable farmers to gain access to markets and commercial services; this is essential to enable viable commercial agriculture. The SVTP is developed in close alignment with the Agricultural Commercialization Project. Specifically, initiatives concerning the development of appropriate financial services and products, produce standards, industry and business regulation, inter-action and support from the Malawi Investment and Trade Center (MITC), and possible development of spatial zones for commodity processing that may be supported by the AgCom will be relevant for SVIP clients. Some of these initiatives, where relevant to the success of SVTP, may be directly supported in SVTP-II.

61. Improving the enabling environment will be a necessary condition for agriculture sector growth and competitiveness. Specific for the SVIP project area, this will focus primarily on access to finance. The project will look at a range of options available including innovative instruments such as value chain finance, challenge funds, and warehouse receipts systems. Conditional grant financing will be used to influence the type of investments being made and enhance transformative effects. The focus will be on encouraging technology development, business planning, pilot investments, business alliances, and capacity building for individual entrepreneurs or organized groups such as cooperatives.

62. While anticipating formation of commercial farmer enterprises (SOCFEs) as described earlier (under subcomponent 2.1), the project shall continue to explore and adapt with complementary models and potential growth pathways. The project shall undertake substantive-sub-sector analysis, including more in-depth interviews with domestic, regional and international investors and markets to get better ideas of agribusiness competitiveness and growth options, including those that would focus on increasing private investment in production, and to a larger extent on trading and value addition.

63. The project shall utilize the Diagnostic Toolkit for promotion of SME growth in the project area. Analysis will look at value chain actors, particularly SMEs within the area, and determine how their linkages can be strengthened in upstream and downstream value chain activities in order to prepare for larger private investments to be realized under SVTP. AgCom is supporting the development of Productive Alliances between farm Producer Associations and off-takers, as well as with other commercial entities in the value chains for the main commodities chosen for production by SOCFEs. The SVTP would review the

experience and lessons from the implementation of the AgCom project.

64. The SOCFEs will be organized into a group involved in production of particular commodity. This group will be the key hub towards production of the commodities, which will be linked and sold to respective buyers (off takers). Their prime role is therefore to generate the products for commercialization, based on market demand. The off takers can be linked with them either formally or informally. The off takers will determine the requirements of the products in terms of volume, quality and negotiate price derivation processes. Other value chain participants will offer technical assistance, access to finance and farm services to ensure an effective productive alliance and highly productive agriculture.

65. The service provider contracted to support Agricultural Development and Commercialization will facilitate and broker the building of productive alliances with key non-farm commodity value chain entities. SOCFEs will be provided with business support to prepare their business plans and liaise with off-takers and other value chain entities to agree on contractual terms and conditions. The service provider would provide ongoing mentoring and brokerage support to both SOCFEs and other value chain entities to the point where the relationships are enduring through development of positive experience and trust.

66. **Supportive Institutional Development and Multi-Stakeholder Support.** Support for the development and strengthening of appropriate institutions would take place throughout project implementation. The following would be provided – over time and upon demand:

67. Formation of a Representative Farmers Union. This would be a forum where the different blocks can discuss common issues related to agriculture in the Valley and the SVIP in particular. It is anticipated that this would evolve into a broader representative organization involving farmers' association and participating value chain entities. This would then be an effective advocacy body for all participants;

68. Applied research support. This program would be responsive to farmer organizations' needs, and ultimately, farmers would be encouraged to pay a levy on their crop revenues to ensure sustainability of the research. Modalities for provision of this support would be determined in consultation with farmers during project implementation.

69. **Assessment of Development of Agro-Spatial Zones.** The development of Agro-Spatial Zones has been proposed as a means of removing constraints to competitiveness of agriculture/agribusiness, and facilitating the investments that promote sector competitiveness. To determine if spatial solutions are justified in the case of commodities and activities sponsored through the SVTP, the project will support Government to analyze this and determine suitability of Agro-Spatial zones in the project area. Specifically, it will provide support to the Malawi Investment and Trade Centre (MITC) and Ministry of Industry, Trade and Tourism to review the legal framework in the country and establish the feasibility of spatial zones. These can be in form of: Special Agricultural Economic Zone (SAEZ); Agri-Industrial Park; or Agri-clusters in the project area. This will require, variously, new transport infrastructure, along with warehouses, cold-chain infrastructure and measures for climate mitigation. The analysis will determine government's commitment to this and the ability to rally different government and private institutions behind this commitment. Agri-spatial solutions are a relatively new concept, and there are very few examples of agri-zones or agri-industrial parks worldwide that will provide lessons. Prior to a feasibility study, the project will support Government to answer a number of questions including: a) what kind of

"processing" of basic agricultural products is projected to be done in the agri-zones or agri-industrial parks; b) why is this transformation / processing not taking place now on a greater scale; c) what are the market, government, and private sector failures that are presenting a challenge to this kind of processing (e.g., infrastructure constraints, investment climate challenges, lack of organization or information among the private sector; d) Are there early indications of any demand from the private sector that they will be interested in locating in one of these parks/zones, and for which products / processes; e) what are some of the outcomes expected; f) whether there are any identified specific sites for these parks/zones, and why; if not, diagnostics include site assessment exercise; and g) what would be the primary objectives of the agri-spatial solutions.

70. **Note on Basis for Production Choices**. An analysis was conducted during project preparation to determine:

a. The crops and other productive activities that are best suited to the agronomic conditions of the Shire Valley, particularly when grown under irrigated conditions;
b. The likely gross margins for the crops best suited to the productive environment;
c. Produce which will have a ready market either in Malawi or in the region; and
d. Crops which are easily handled, transported and stored without elaborate transformation or investment in processing and storage facilities (beyond those that already exist in the SVIP locality).

71. This analysis showed that the following six crops would have highest priority for inclusion in the cropping program for the proposed SVIP during the first five years of scheme implementation: sugarcane, dry beans, pigeon peas, cotton, soya beans, and maize for grain production. Sugarcane is already the major commercial crop in the project area with a well-developed value chain and it is envisaged that the crop will retain this status for the foreseeable future. However, expansion of sugarcane under the project will be limited due to capacity constraints at both the Illovo mill and the existing manufacturers of ethanol. Dry beans, cotton, maize, pigeon peas and soya beans are well established crops in Malawi in general, and are considered easy to grow, store and market locally and in the region.

72. Sugarcane will continue to be grown and processed by the Illovo estate, and the outgrowers currently producing for it. The new smallholder farms will not be able to grow sugarcane because of capacity constraints at the Illovo processing facility. It is therefore proposed that the farmers will be advised to initially grow cotton, soya beans and pigeon peas in summer, and maize and dry beans in winter, until such time that value chains and market opportunities for other crops can be determined. Provision will also be made for enhanced production of livestock, using irrigated crop residues as fodder, and for aquaculture. Subsequently, after farms have gained experience in irrigated agriculture, it is proposed that a small part of the irrigated area be used for high value crops such as banana, mango and citrus, for which there are ready off-takers and markets.

73. Finally, it is proposed that each household participating in the schemes, using other than pathway 2, will be allocated 0.1 ha of irrigated land for production of household food crops. Farmers will be free to grow crops of their choice on this land, provided that they pay for water consumed and other farm services that they use (e.g. plowing, plant protection). This entry strategy will enable the scheme to make a commercially viable start, while allowing for a transition from subsistence farming. The emphasis will be placed on developing the capacity to grow these crops at a commercial scale commensurate with

international best practice.

74. This cropping system is reflected in the financial model prepared for the project. However, it must be emphasized that decisions on the actual crop mix will be made by the farmers as part of the decision-making processes for initial farm investment and subsequent farm management. Moreover, the design of the farms will be such as to allow for a substantial degree of flexibility in the crop mix and production systems employed, allowing farms to respond to actual technical and market conditions.

75. **Livestock and Aquaculture.** Livestock, especially cattle, make up an important component of smallholders existing assets and incomes. It is expected that smallholders will demand to continue livestock production after the irrigation scheme is constructed. However, livestock grazing is incompatible with intensive irrigated crop production. It is therefore proposed that the project supports more intensive livestock production, leading to enhanced income from livestock, through the following interventions:

a. Identifying and setting aside non-irrigable areas attached to each SOCFE for livestock raising through the land-use planning process, that would include maintenance of livestock movement corridors and provision of livestock watering points;
b. Encouraging SOCFEs to harvest suitable crop residues (from soya bean, pigeon pea, maize and dry beans) and retain crop bi-products (cotton seed) for feeding to livestock owned by SOCFE owners;
c. Provision of technical support for enhanced livestock production, especially using more intensive techniques; and
d. Provision of support for development of commercially viable livestock value chains linking the farmers' production to markets.

76. The project presents opportunities for the resuscitation and expansion of fish farming in the project area. There are good markets within Malawi for freshwater fish as an alternative source of protein. The project will support efforts to enable viable aquaculture enterprises to be developed in conjunction with each SOCFE. These would potentially occupy the area located in-between the irrigated lands and, or any water storage facilities developed as part of the water conveyance system for the project as a whole. The project support would include:

a. Identifying areas attached to each SOCFE for aquaculture through the land-use planning process;
b. Encouraging SOCFEs to invest in aquaculture facilities, and to enable use of any crop or livestock bi-products in fish production;
c. Provision of technical support for aquaculture production operations; and
d. Provision of support for development of commercially viable aquaculture value chains linking the farmers' production to markets.

Component 4: Project Management and Coordination (US$8.9 million IDA)

77. This component will finance the multiple coordination and management needs of a project of this scale and focus on the roll out of the communications strategy and manage grievance redress mechanisms, as well as day-to-day management of the project. The sub-component will finance project management structures that have been established and in place throughout project preparation. Fiduciary management will be with the PMT, and procurement and FM staff have been recruited and the positions need to be maintained. The project will provide funding for professional and support staff to strengthen the Technical Team and facilitate its operations, including procurement, financial

management, environmental and social safeguards specialists, as well as a diverse range of short term expertise and annual external audits. There are also provisions for trainings (long and short term), internships, workshops, meetings and training courses, to enhance longer-term management capacity in the sector and for SVIP management in particular.

78. Attention needs to be given to communication, partnership and support to parallel investments. This includes costs for project management and the transition from project based support to a sustainable institutional set-up; as well as sector and cross-sector coordination with the agriculture, water, land, industry, trade, environment sector plans and frameworks, and facilitate interministerial collaboration on tackling implementation challenges. A taskforce has been established and MoU between implementing agencies is in place, and early during implementation this needs to be reaffirmed with the specific project implementation mandates. This program will finance the implementation of the communication strategy and grievance redress system, which will be critical in view of context and history of project development.

79. The grievance redress mechanism will also support local arrangement for the resolution of land tenure disputes, based in the proposal formulated during the project preparation. According to the characteristic of the possible conflicts, village chiefs, GV committees, TA and District Authorities will be involved. As evidenced during the preparation phase, local mechanisms have been successful in solving land tenure disputes when they involve inhabitants from the same area. The RPF provides a detail Grievance redress mechanisms.

Component 5: PPA repayment (US$6.0 million IDA)

80. This component will finance the repayment of the Project Preparation Advance that the Government obtained for project preparation activities and studies. These studies filled critical design gaps from past studies, and supported a thorough process of community engagement and consultation, ultimately enabling feasibility and appraisal. This included, among others: (i) Communication, Community Participation, Land Tenure and Resettlement Policy Framework development; (ii) Independent ESIA – including a PMP and an ESMP for the project, (iii) Agricultural Development Strategy (iv) PPP Feasibility study; (v) Hydraulic and Sediment Modeling at Kapichira, and (vi) Dam Safety assessment of Kapichira Dam. It further supported setting up of program management structures, activities to support implementation readiness and detailed design for fast-track works.

Project beneficiaries

81. The estimated 2016 population in the project area is 223,000 people in 48,400 households. Of these 95,000 people are residing in 21,000 households in the SVIP I area and 128,000 people in 27,400 households in the SVIP II area.

Year	2016	2021
Chikwawa	549,796	638,633
Increase		16.2%
Population		
SVIP Total	223,000	259,126
SVIP Phase I	95,000	110,390
SVIP Phase II	128,000	148,736

Households		
SVIP Total	48,400	56,241
SVIP Phase I	21,000	24,402
SVIP Phase II	27,400	31,839

82. Two third of the villages were established about 100 years ago and a small percentage of the villages were established around 2000. The first people to settle in the area were the Sena (47%) and Mang'anja (40%), but there are also other groups such as the Nungwi (11%) and the Nhota (3%). Most are small and very small sized family farmers. Almost 72 percent of the households own less than 2 has of land, and many much less. The total land holding size is shared among 3 or 4 parcels. Another 22 percent owns from 2-3.5 has (small farmers) and 6 percent more than that. Typically, each of these plots has different agricultural characteristics such soils, drainage and fertility. The fragmentation of holdings and separation of plots is a result of original traditional authority allocations but also marriages and inheritance schemes. As a result, the SVTP beneficiaries would have some of their parcels located in the future irrigate blocks but also outside and irrigated agriculture will remain one of the livelihood strategies in their farming system, alongside cattle grazing, aquaculture, etc. Production for household consumption is foreseen within the irrigated area on 0.1ha blocks.

83. Within the total SVIP area, the legal status of the parcels is 80 percent customary land and the remainder private land and public lands. Private lands that represent the majority of the remaining 20 percent are mainly the leases granted to the Illovo companies and at smaller scale, to the out grower farmer organizations such as Kasinthula Cooperative. Within the customary land, there are also some lease applications pending.

Preparatory activities and readiness for implementation

84. Since the initial scoping for the project in 2011, Government, World Bank, FAO, IFC and AfDB have methodically supported a careful preparation process. This started in the 2011 with a joint identification mission, a prefeasibility level analysis of options for scheme management and PPPs (PPIAF funded) and a political economy analysis on the drivers for success and the challenges for this ambitious program. This resulted in 2012 in the endorsement of principles of engagement by Government and the Banks. These set out the key principles that have guided project preparation since. These include: (i) Meaningful engagement of future irrigators, both smallholder and commercial; (ii) Careful approach to land tenure, and an inclusive approach to land consolidation that supports smallholders; (iii) Establish inclusive market-linked smallholder farming ventures; (iv) Focus on commercial production, support private investment; (v) Professional scheme management (through PPP) and cost recovery for MOM; and (vi) Support to irrigation within a natural resources agenda, including sustainable water allocation at Kapichira Falls. This enabled a revisit of previous technical studies along these lines. In 2013, the prefeasibility study was updated and it recommended a series of interlinked feasibility studies to comprehensively assess the feasibility of the scheme. In addition, a series of water availability studies were carried out to confirm sustainable resource allocation at Kapichira.

85. This was the prelude for high level water sector dialogue in Malawi, supported by the Shire River Basin Management Program's analysis and the MoFEPD. Financing was secured in late 2014 from African Water Facility and a PPA from IDA to commence the feasibility stage studies. These studies included the

following:

a. Technical Feasibility Study – reassessing technical, economic, environmental, agricultural feasibility, complementing and updating earlier work and development of a feasibility stage design of the scheme; as well as a project GIS based management information system.
b. Communication, Community Participation, Land Tenure and Resettlement Policy Framework development. A comprehensive study on socio-economic baseline and engagement of communities in scheme design as well as the main interlocutor with project stakeholders. This included (i) gender and youth strategy; (ii) communications strategy and GRM; (iii) implementation support to the stakeholder consultation process; (iv) development of the project baseline; (v) land consolidation strategy; (vi) land tenure diagnostic; (vii) resettlement policy framework development; (viii) institutional recommendations for project organization; and (ix) capacity development plan.
c. Independent ESIA – including a PMP and an ESMP for the program.
d. Agricultural Development Strategy for the project, focusing on possible pathways for farmer organization, cropping patterns, extension, service provision, value chain integration and business climate under the program.
e. PPP Feasibility study, including financial modeling, options analysis, preparation of draft Water Purchase Agreement and Market Sounding. Closely supervised by PPP Commission.
f. Hydraulic and Sediment Modeling at Kapichira – assessing the impact and ideal location of intake in terms of hydraulics and particularly sediment management.
g. Dam Safety assessment of Kapichira Dam, carried out by independent Panel of Experts.

86. These studies were coordinated by a Project Coordinating Team in MoAIWD, supported by a taskforce comprised of different ministries and overseen by a technical and steering committee from implementing agencies. World Bank, IFC, FAO and AfDB supported with frequent technical support mission, and embedded support to this process from other portfolio engagements in water, agriculture, lands, environment and disaster management. Trade and & Competitiveness (T&C) carried out an Economic Sector Work (ESW) on value chain support and initial scoping of agro-spatial approaches to complement the agricultural development strategy. Several study tours were organized, i.e. to Morocco (Guerdane scheme) on PPP, and to Swaziland for Lower Usuthu Smallholder Irrigation Project (LUSIP) scheme with which the scheme shares a number of features. Donor conferences were convened and DP dialogue was maintained over the project period. Pre-appraisal was held in 2016 and it confirmed continued Government as well as DP support for the programmatic approach.

87. The studies have been completed and form the basis for appraisal. Communication forums have been established and the project maintains an information office in Chikwawa boma. The program has detailed cost tables, an 18-month procurement plan, a hands-on PIM including FM Manual and Procurement Manual will be in place prior to negotiations. All implementing agencies have signed a MoU on their respective roles and contributions to successful project implementation and the coordinating structures that have started during the preparation stage will be strengthened and continue into implementation. Parallel co-financing partners will come in at different stages, and a number of decisions will be firmed up during the program, and their timely resolve is governed by covenants (agreements on WPA and private finance; as well as the hiring of the private operator).

88. It is planned that detailed design for intake and preliminary section of the canal (in and near Majete Wildlife Reserve) will be completed by effectiveness so that work on that section can start immediately, while detailed design for the remainder of the scheme is done in the first year of the project, alongside farmer organization and consultation processes. ToRs for the different technical assistance assignments are being finalized and advance procurement can commence after appraisal. There would be no additional effectiveness or disbursement conditions, but there are a number of dated covenants related to decision making on the bulk water operator contract and the financing of Main Canal (MC 3), which require negotiations with Illovo to be concluded.

89. A detailed Gantt chart has been developed for the SVTP-I showing the logical trajectory in each of the pillars as well as the linkages between infrastructure development, land tenure support, and agricultural development (see Project Files). It has been optimized so that ideally the first flow of water in the system coincides with the first offtakers being ready to effectively use it for agricultural production. Both the technical processes and the social development process require several years to mature and are supported in close coordination. The critical path will be on the civil works contracts while the farm organization pillar will have a range of delivery dates with early adopters and blocks where internal organization takes more time.

90. Core staff for the PMT are already in place. Additional staff will need to be recruited and current staff reconfirmed in the coming months. All other committees are in place and have been meeting effectively during the project preparation period. Traditional Leadership and beneficiaries have repeatedly expressed their readiness to move to implementation.

Evolution of the key sectors and their relation to SVTP:

Key Sectors	2000-2010	2010-2017	2017-2023	2023-2030
Legal, Governance and Policy Frameworks	-NIP (2001) -Irrigation Act (2001) -Elaboration of WUA and IMT regulations, setup of working arrangements on water permits, incorporation of WUAs and land leases for irrigation schemes to be handed over to water users.	-Water Resources Act (2013) for River Basin Management -New National Irrigation Policy (2016) -Land acts (2016) -PPP Act (2011)	-Updates to regulatory framework and instruments for water supply regulation -Strengthening sector agencies -Aspects of economic regulation of water services in place -Establishment of WPAs, PPP arrangements in irrigation and water	-Development of Spatial Zones in commercial agriculture development -Sub-leasing and productive alliance enabled with enabling legislation
Sector institutions	-No capacity at district level, limited capacity at irrigation department. No experience in farmer managed irrigation. Very first trial with outgrowers schemes -Fragmented approach to institutional development (project based) -Lack of sector coordination	-Decentralization, capacity at district strengthened for small scale irrigation, experiences in programmatic and sector wide approaches -Agriculture and Water Ministries are merged -Positive trends in cross-sector collaboration on natural resources and water management	-Strengthening Sector Agencies -Building capacity on National Water Resources Authority and Shire River Basin Agency -Cost recovery Principles increasingly in place -WUA performance monitoring maintained -Malawi Irrigation Board formed and Irrigation Board established	-Irrigation Fund for programmatic and blended financing for the irrigation sector -Structured regulation of the irrigation agency -Ministries evolve into primarily policy agencies and contracting authority in irrigation -Strong capacity for development & management in private sector
Sector Strategy	-Very first generation of	-Water Resources	-Shire River Basin	-Cost recovery policies in

	new principles since re-engagement on irrigation in Sub-Saharan Africa -Irrigation one of priorities under Malawi Growth & Development Strategy (MGDS) and Green Belt Initiative -Government interference in agricultural markets and government driven approaches to irrigation development	Investment Strategy developed -Shire River Basin Plan first version developed -Irrigation Masterplan and Investment Framework (2015) -ASWAP – National Export Strategy -All leading to a more farmer/private sector oriented approach	Management Plan and Operating Plan to come in force -Sector Financing Strategy Developed in roll-out	place (including pro-poor service fee guidelines) -Independent regulatory framework in place and operational, incentivizing performance improvements -Economic Instruments for water Resource management – Raw water charges– adopted country-wide
Sector Financing	-Bilateral and Multilateral agencies finance irrigation projects -First attempts at cost recovery	-Capital financing from development banks and donors -MOM costs of irrigation increasingly born by users with formal IMT arrangements in place	-Capital financing continues from development banks and donors, but establishment of irrigation fund and programmatic approach -No MOM subsidy for new irrigation	-Capital financing for irrigation increasingly with private and blended financing -MOM coverage fully through irrigation service fees
Service Provision	Focus on rehabilitation of government schemes	Clear dual strategy on rehabilitation, training and transfer of service responsibilities, linkages between water and agriculture. Also community mini scale irrigation support	Continued two-pronged strategy. Focus on professional management improvements, benchmarking and private sector in SVTP	Increased focus on WUA support and monitoring, exchange and further professionalization with service provision models
World Bank Involvement	-CBRLDP (highly successful land reform project) -IRLADP (first project in irrigation sector in decades, co-financed by IFAD) -ASWAP (sector wide approach on policy, food security and land tenure) -NWDP (sector wide approach in water sector, focus on strategy and legal framework	-IRLADP scale up, crisis response. Increased focus on irrigated agronomy, institutional aspects, formalization of land tenure, handovers -NWDP II delivers WRIS, sector strategies, supports legal reform -Ag projects supported with MDTF, sector integration -SRBMP – Shire basin management approach – improved natural resources management (IDA & GEF) - National Irrigation Master Plan and Investment Framework (2015-2035)	-SVTP focusing on bringing together large scale irrigation, land reform, agricultural commercialization, PPP and investment climate support in one transformational investment -Designed in parallel with AgCom and DPO, focusing on commercialization, investment climate, policy dialogue and productive alliances at National Level	-Continued support to river basin management, natural resources management, small scale agriculture, DRM, climate change -Future phases of SVTP to expand scheme, consolidate gains and nurture further growth

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

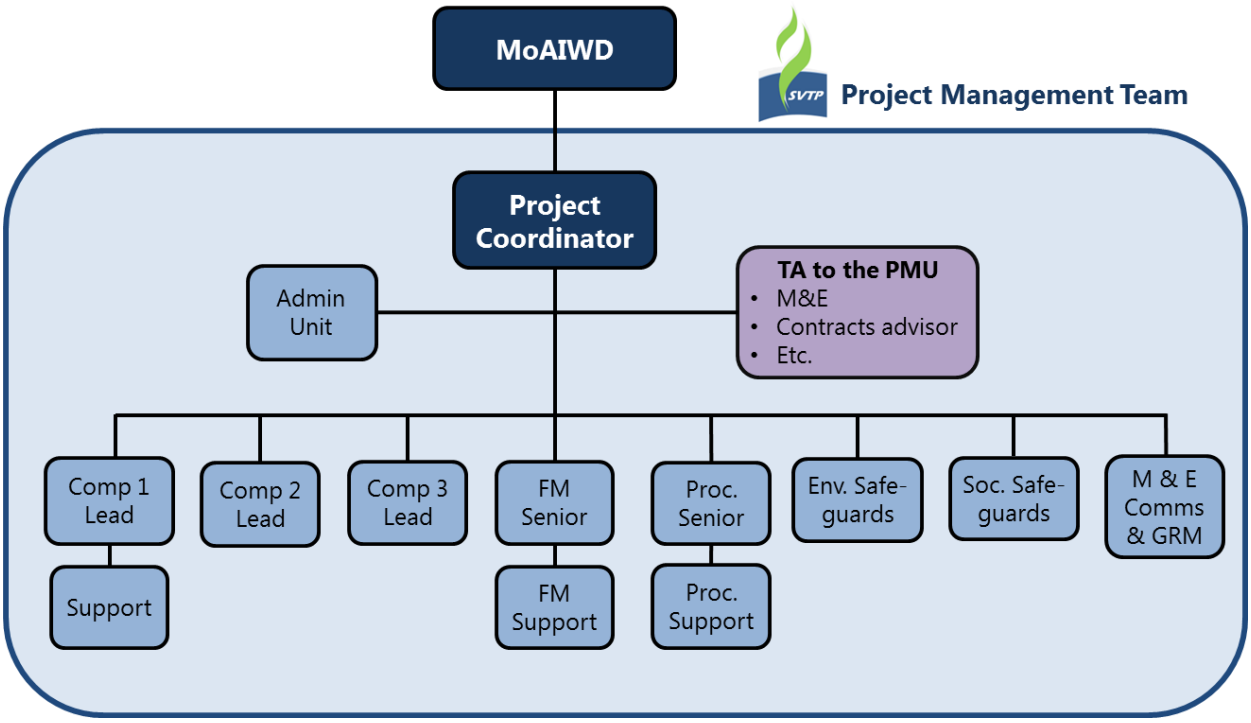
COUNTRY: Malawi
Shire Valley Transformation Program - I

Project Institutional and Implementation Arrangements

Project Implementation

1. Implementation will be led by the MoAIWD. Under this Ministry the Director of Irrigation is responsible for irrigation development and support to water use efficiency, research, and irrigation management. The Ministry has extensive experience with World Bank financed programs, has some emerging exposure to PPPs, and is/has been implementing agency of a number of large and complex operations financed by the Bank, including the multi-sectoral/multi-agency Shire River Basin Management Program. The Ministry has limited numbers of qualified personnel, although capacity at district and central level has significantly improved over the past five years. The Ministry has good experience in developing medium scale irrigation schemes but has no experience in developing and managing an irrigation scheme of this size. However, implementation will build upon the Ministry's experience with large water infrastructure works, including several dams and most recently the Kamuzu Barrage. The Ministry is a strong champion of the program, and is generally aware of its limitations and the need for outsourcing to service providers and the role of the private sector. Through its agriculture departments, the Ministry is also responsible for the overall agricultural policy whose implementation is defined in the ASWAp investment framework. The Ministry also has experience in implementing safeguards instruments and documenting compliance. It has regularly trained staff in ministry and districts on safeguards compliance, with support of MoNREM, even so, implementation capacity at this scale remains limited.

2. To overcome capacity challenges, the Government has agreed to maintain a PMT in the MoAIWD. The PMT assumes responsibility for all day to day management and coordination needs under the project, including fiduciary, safeguards, M&E, safeguards, citizen engagement and GRM. As is the case for the preparation period, the PMT will be comprised of competitively recruited experts and will be complemented with technical assistance on quality assurance, planning and M&E. The PMT will have strong technical assistance on project planning, M&E, as well as quality assurance, and comprises of recruited professionals for project management, coordination and monitoring. Based in the Shire Valley (Chikwawa) and nearby Blantyre, the Project Coordinator would report directly to the Principal Secretary upon need and liaise on most issues directly with the Director of Irrigation, as the co-chairperson of the Program Technical Committee (see below) and co-secretary of the Project Steering Committee. The PMT is a fully integrated project team. Besides the recruited component leads, fiduciary staff and safeguards, M&E/GRM staff, it may include professional staff from the main government agencies involved in the SVTP-I who are assigned to work on this project. All project operational modalities are detailed in the PIM, with Gantt charts, flow charts, responsibilities. A component Lead will be responsible for comprehensive management, liaison and coordination of the respective pillar, under the guidance of the project coordinator. The safeguards coordinators will lead all implementation, monitoring and compliance documentation of the safeguards instruments and will liaise frequently with the service providers on issues related to safeguards, health and safety, etc. The same applies to the M&E, Communications and GRM officer, who will be responsible for maintaining the project Management Information System, lead communications and manage the Grievance Redress Mechanism with relevant committees.



3. The Program has three major complementary implementation modalities, all of which are coordinated by the PMT. The choice for three distinct approaches recognizes the unique nature of each pillar of the program. The program is designed to bring these together in one logical pathway and under one umbrella implementation and coordination mechanism at the program level. The three approaches refer to:

a. Irrigation Service Provision - At the outset, the major disbursements under this project are for financing bulk irrigation infrastructure as a critical first step. This requires a robust implementation mechanism for infrastructure development, for which the Ministry is well positioned. It provides the oversight and recruits design and construction supervision services and private contractors for implementation. For irrigation management the contract with the private operator will be based on careful commercial modeling and financial and legal structuring of the overall project. The contracting authority will be (an agency of) the Ministry, and the WPA will be drawn up with all prospective water users (per block). Support to on-farm irrigation depends on farm choices and is included under c).

b. Land tenure support and NRM - The second modus operandi is a process of structured stakeholder consultation and community development to strengthen land tenure, organize land use planning and ensure meaningful community engagement. This day to day implementation and citizen engagement is led by a specialized service provider with community mobilizers and technical assistants in one holistic approach that ensures good coordination and coherent messaging to and from local stakeholders. This will include support to structured dialogue, grievance redress, and process monitoring including communities. Discussions with communities on land consolidation will employ field based modern automated techniques (successfully applied in the region) to avoid processing errors and delays.

c. Agricultural Commercialization - Thirdly, the project lays the ground for massive downstream

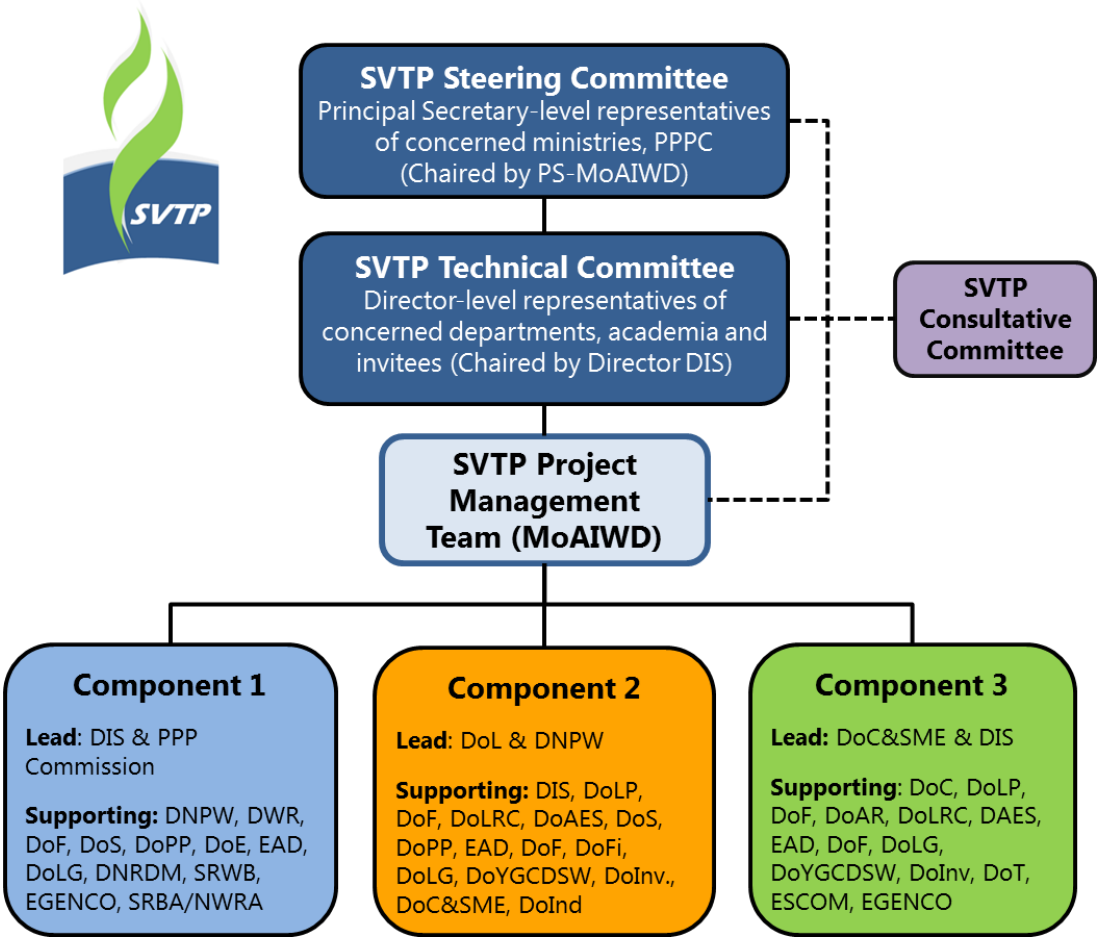
investments in terms of on-farm irrigation and farm development and agricultural commercialization through providing investment capital to new SOCFEs. The majority of funding here goes towards physical investments in farm development, which will be supervised by technical experts. The success of this component will depend on its market and agri-business orientation. The approach will be based on successes in Malawi and in other countries in developing value chains based on promoting coordination among private stakeholders and on delivering well targeted services to help farmers comply with markets' requirements. Quality assurance is done through an independent panel of experts.

4. To streamline day to day implementation attention has been given to clear development pathways for each component and to overall planning showing the linkages and critical paths where the pathways connect (see the pre-project Gantt chart in the Project Files). As much as possible, services within each component have been packaged to avoid coordination risks or interdependencies. ToRs all require consultants to reflect upon the PIM and project Gantt charts and integrate within work plans. Frequent 'consultant days' will be organized for cross-component exchange, upon good example of the SRBMP.

Project Coordination and Oversight

5. Whereas project implementation arrangements are streamlined through the PMT, the program has many inroads to various sectors and their respective government agencies. While not required on day to day basis for implementation, many of these departments need to be consulted, have regulatory functions in their actions, or have specific contributions to make to the program. Given its regional significance, good coordination will be essential. Good coordination mechanisms have already been established between the main agencies at technical, principal secretary and cabinet level. Collaboration between the agencies is governed by a joint MoU. This MoU spells out objectives, specific role of each stakeholder, the requirement to mainstream and provide staff time for implementation, knowledge management and overall support. The MoU will be re-affirmed ahead of Project Effectiveness between the different concerned ministries and departments to formalize existing working arrangements and clearly define roles and reporting modalities during program implementation.

6. Overall coordination responsibilities are shared between MoAIWD and MoFEPD. A PSC (at principal secretary level) and a Project Technical Committee (at director level) have been established for this purpose during project preparation and this will continue into program implementation. These coordination mechanisms include all agencies, grouped by component (see picture below). Their specific roles are further detailed in Project Files, PIM and MoU.



7. The PSC provides programmatic and strategic guidance, direction and oversight to the program. The PSC is chaired by the PS of Agriculture, Irrigation and Water Development and co-chaired by the PS for Planning of the MoFEPD. It comprises the MoNREM; the MoLHUD; the MoLGRD; the MITC; the MoITT; and the PPP Commission. Composition and ToR for the PSC are further detailed in the PIM. The Director of Irrigation Services serves as Secretary of the PSC. The PSC meets at least twice a year, or more frequently upon need, and is responsible for inter-sectoral coordination and facilitation, annual programming of activities and approval of work plan and budget, monitoring implementation and results (including audits), policy guidance and recommending corrective actions that may be necessary.

8. The Program Technical Committee (PTC) provides a multi-sector advisory and consultative platform to review technical reports, synthesize information and insight on program preparation and implementation issues. The PTC is co-chaired by the Director of Irrigation Services in MoAIWD and the director of planning in MoFEPD. Members include Director-level representatives of the Departments of: Water Resources (DWR); Department of Irrigation (DoI); National Parks and Wildlife (DNPW); Department of Energy (DoE); Environmental Affairs Department (EAD); Department of Surveys (DoS); Department of Fisheries (DoFi), Department of Forestry (DoF), Department of Agricultural Extension Services (DAES); Department of Youth and Gender; Department of Lands; and DNRDM; as well as representatives of ESCOM; MITC; The Shire River Basin Agency/National Water Resources Authority; Private

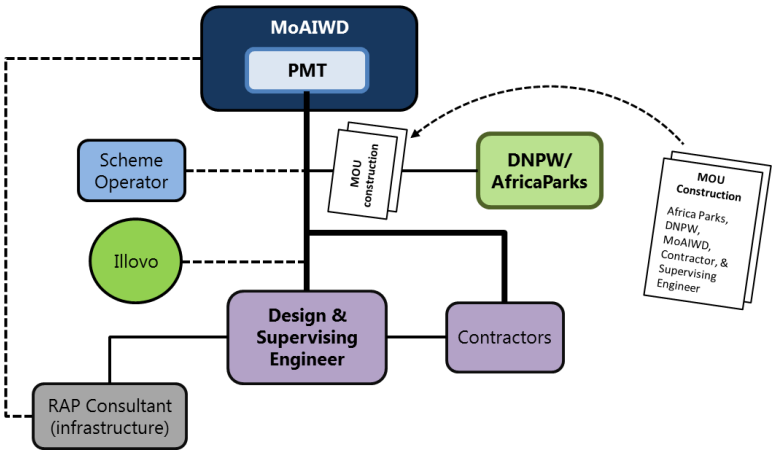
Sector/Agribusiness Representatives, Civil Society Organizations (CSOs); academia and invitees as appropriate. The Project Coordinator will serve as Secretary of the PTC. The PTC would meet at least three times per year and be responsible for: technical guidance and oversight of program activities (including reports and studies), review and synthesize suggestions and recommendations from studies, reports and by the consultative committee and submitting these to the PSC for review and decision. The PTC may decide to form sub-committees by Component to streamline its activities beyond the joint meetings.

9. To enable participation of the different departments in the program, the program finances incremental operating costs by component. The PMT implements the program with and on behalf of the Ministries and works closely with the relevant departments. Since implementation is the responsibility of the PMT, the PMT also has the responsibility over work programs that involve department staff within components (e.g. missions, trainings, supervision by department technical personnel). As per example of the Shire River Basin Management Program, fiduciary responsibility will remain with the PMT and MoAIWD, while cost allocations for operating costs are made to sub-components (rather than departments) based on needs directly associated with project activities and aligned with the annual work plans and budgets and specific activity budgets, to be reviewed by PMT and MoAIWD management for eligibility. The PIM provides a detailed list of Government stakeholders and their coordination role in the project. This list is also provided in the project files.

Component specific implementation and coordination details

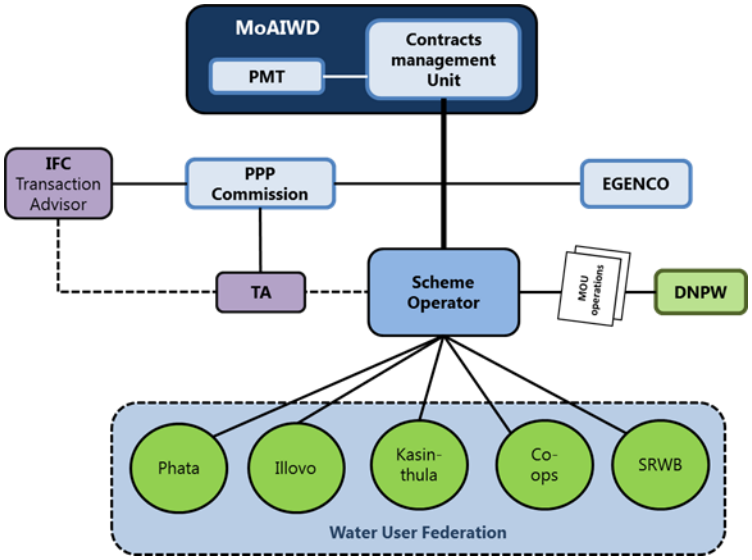
10. Details are provided in the PIM and in specific ToRs, MoUs, safeguards documents and working arrangements. For all components, the PMT is the responsible entity, supported by a comprehensive service provider; and in liaison with other actors on specific topics and based on need.

Subcomponent 1.1: Infrastructure Development. Infrastructure development will be carried out by qualified contractors and design and construction supervision will be outsourced to a Design and Supervising Engineer (consultancy). This design and supervision engineer will represent the Government on all works supervision. The Ministry will provide general oversight through the PMT, which will have functions in contract management. Also, the consultative committee or a sub-committee, comprising of affected traditional authorities as well as future irrigators (including Illovo) will be regularly briefed and involved in quality assurance. If the bulk water operator is appointed ahead of completion of construction, which is preferred, all information regarding ongoing and remaining construction works and equipment will be shared for feedback and advice. Formal supervision remains the responsibility of the design and supervising engineer with the Design and Supervising Engineer at all times. Additional requirements apply for canal construction within the Majete Wildlife Reserve, as explained in the environmental safeguards



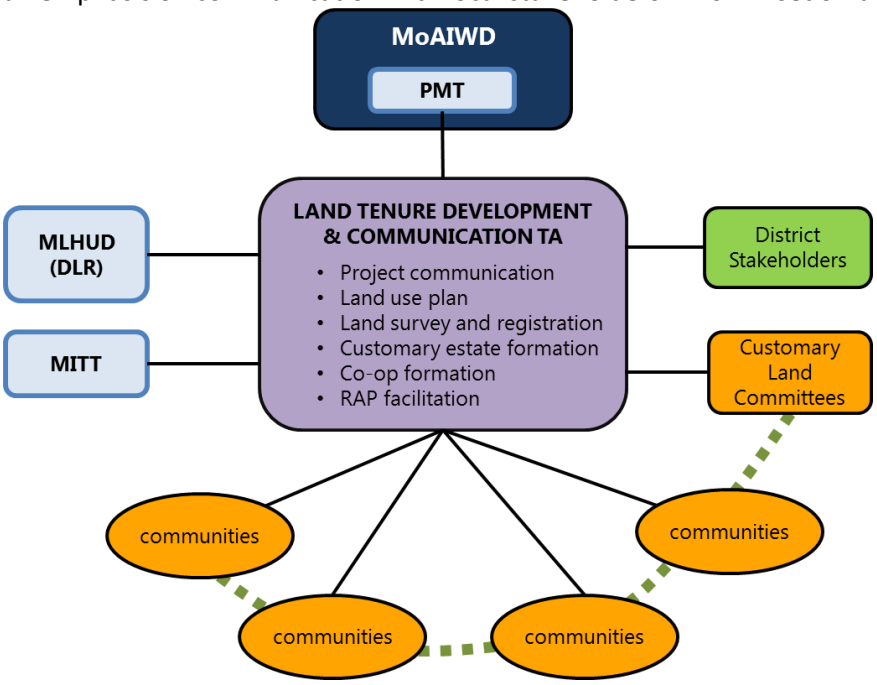
section. These will be governed by an MoU between DNPW, MoAIWD, and Africa Parks Foundation and will be included in rules for the contractor. As per policy, no works shall commence on land for which compensation has not yet been fully paid. A RAP consultant will be recruited as soon as detailed design is ready and will work in liaison with the Engineer in facilitating RAP development and implementation. Ideally, but not necessarily, this service provider will be integrated within the broader service provider to be recruited under subcomponent 2.1. The precise financial structure of private finance (separate SPV, ownership) will be determined during the SVTP-I and will be completed prior to construction of the appurtenant scheme infrastructure.

Subcomponent 1.2: Support to Effective and Sustainable Irrigation Management, Operation and Maintenance. Given the limited experience and lack of institutional arrangements in the GoM for the public management of large scale irrigation projects, a long-term, performance-based management contract will be established with the private sector to incentivize high-quality the management, operation and maintenance of the SVIP. It is foreseen that a government entity, such as an asset holding company/contracting authority or similar vehicle, will be established within MoAIWD with responsibility for ensuring sound management and oversight of government infrastructure assets and to act as counterpart for the PPP arrangement. During the implementation of SVTP this institutional arrangement will be established and the necessary skills and capacity will be developed within government. These aspects will be supported by PPP specialists in the PPPC and PMT. The Government has requested IFC transaction advisory services to assist the PPPC in financial structuring and the setting up of performance management contracts and Water Purchase Agreements. In addition, over time the support to establishment and formal recognition of the Water User Federation will also be supported under this component, within the same process. As for the contractor, also for the Bulk Water Operator a MoU with DNPW will govern the specific rules related to the canal operation for the section in Majete Wildlife Reserve. Another MoU and operational arrangement will govern specifics of Kapichira pond management (information sharing, releases, maintenance, operation, operational decision support on water allocation and scheduling, etc.).



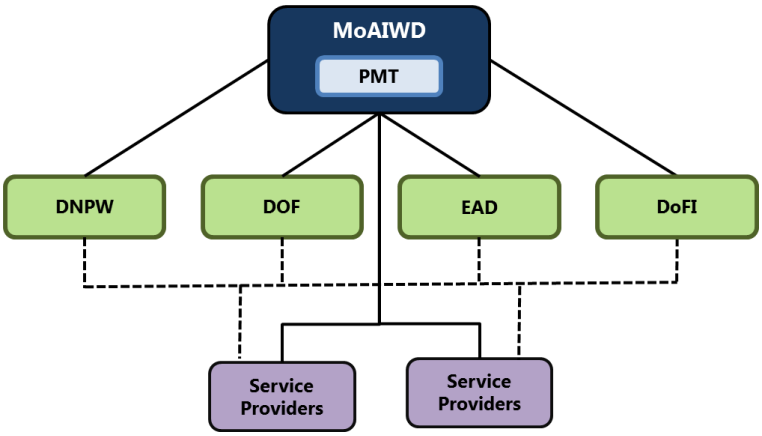
Subcomponent 2.1: Supporting land governance and land consolidation. The PMT will be supported by

a specialized technical assistance firm that will support outreach and communication on the project, with an emphasis on communication with local stakeholders. This will set off a process of support to local land governance and farmer identification and group formation, in an iterative process that results in land consolidation, registration of customary estates and the formation of cooperatives. The service provider will work with and strengthen the local offices of MLHUD in land administration, facilitate processes of land use planning, land surveying, land adjudication and land consolidation. RAP development will be fully integrated in this process. The rationale is to have a fully informed and integrated process in which farmers make informed decisions on their changes in land tenure and are protected from possible negative impacts. This process is fully intertwined with the activities under component 3 where agricultural commercialization and livelihood support are provided in one approach, and which addresses many of the potentially negative social impacts of the land consolidation process. Thus, safeguards are fully integrated into the core economic and social development activities of the program. The service provider will form an extensive team for community engagement and advocacy to support communities and groups in decision making with group-village level facilitators that support the process from identification to co-op formation and beyond. A major advantage of this integrated approach is that there is much less coordination risk, that holistic development plans can be drawn up and that the process equally engages those who opt in and those who opt out in one planning process. Grievances related to land tenure under the project can be addressed at this level, and there will be an independent GRM under the PMT to ensure adequate checks and balances in the system. This is described under component 4. More details of the legal steps and development stages in the land consolidation process are provided in the Land Tenure Annex in Project Files and the program's land consolidation strategy.



Subcomponent 2.2: Natural Resources Management. Following from good practice under the Shire River Basin Management Program, a Sub-Committee, including those members directly involved with biodiversity and management of natural habitats (e.g., DNPW, DoF, EAD and DoFi), and augmented as necessary with academic institutions with ecological expertise and private or no-governmental organizations involved in field conservation in the Shire Valley, would convene as needed to review activities related to ecological management. They would coordinate and provide technical review to cross-agency tasks such as basin-wide ecological surveys, biodiversity knowledge products, regional eco-tourism development strategy, and strengthening management coordination between protected areas within the basin. Management of natural habitat blocks will be implemented by DNPW within national

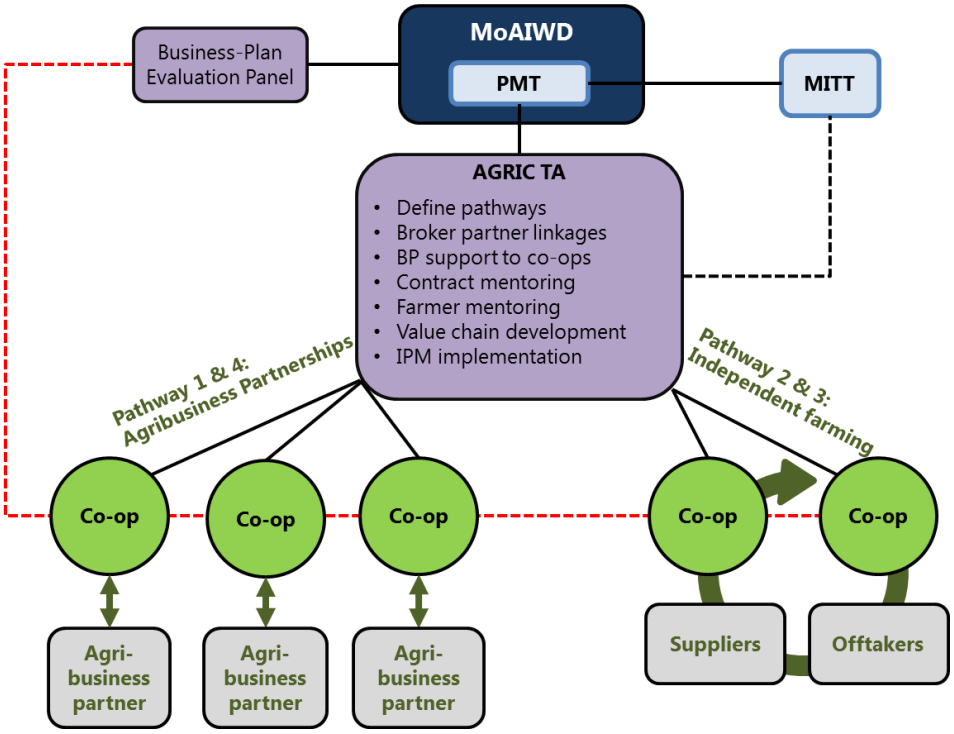
parks and the Elephant Marshes – with close collaboration with Department of Fisheries (who will lead on Community Fisheries Management aspects) and by DoF on forest-related support, working with villages through the VNRMC wherever appropriate. The program will strengthen VNRMCs.



11. Implementing agencies will be supported by a long-term advisor focused on protected area management and community participation, as well as a range of specific Technical Assistance inputs. While this will be embedded in the overall SVTP PMT, the implementation modalities will be relatively autonomous as they involve different agencies. DNPW's regional presence and mandate will allow them to facilitate coordination and cross-support across different conservation sites in the Shire, including with the African Parks Foundation. Where possible, synergies will be explored with the community based activities under SRBMP and the other activities under SVTP, so that natural habitat area management is merged into land use planning where appropriate and that flood risk management activities in and around the Elephant Marshes and ecosystem management continue to be planned in unison. This shall be arranged at district and PMT level, through regular project monitoring.

Component 3: Agricultural Development and Commercialization. The Project has adopted a farmer driven approach around a model of smallholder owned commercial farm enterprises and productive alliances. This means a variety of stakeholders will be involved, such as producers, off takers, brokers, technical assistance and business services providers, independent evaluators and financial institutions. From early stages of the project the PMT will recruit a service provider to work with communities in explaining the project proposition, identifying farmer groups, help define pathways (all in close collaboration with the land tenure service provider in one process) and once established support business planning, broker linkages, support agribusiness partnerships at cooperative or individual level (depending on the pathway).

12. Based on the model of the AgCom project, this service provider will be contracted to support building productive alliances and business planning. The service provider will facilitate linkages between producer associations and off-takers. Producer associations will be provided with business support to prepare their business plans and liaise with off-takers to agree on contractual terms and conditions. Specialized service providers (as required) will undergo a competitively tender managed by the PMT.



13. Independently, the PMT will form a Business-Plan Evaluation Panel that assesses funding requests for business plans. The PMT will form partnership with competent stakeholders and contract (on a competitive basis) evaluators and service brokers with clear roles and responsibilities, to be detailed in the PIM. SOCFEs will be supported by their strategic partners as well as the overall service provider to develop sensible business plans which will have to be evaluated by this independent evaluator group. The Panel will review business plans submitted from the producer organizations and recommend their suitability for inclusion in the program. Selection will be based upon a range of criteria, including:

- Technical feasibility
- Financial viability
- Market linkage strength
- Alliance partners' capacity
- Social aspects such as potential for job creation, belonging to a disadvantaged group and
- Environmental sustainability and management of production risks

14. Development on SOCFEs (i.e. land clearing and levelling, provision of irrigation water delivery and farm roads) is financed through matching grants under the program, with the exception that irrigation engineering and investments that are intricately linked with the bulk infrastructure and for which development starts alongside SOCFE formation. Farm equipment (non-moveable) will follow the formal matching grant approach. Moveable equipment (tractors, farm machinery, vehicles, and moveable irrigation equipment such as center pivots) will be also financed through the matching grants, based on business plans, and as appropriate complemented by commercial loans/lease finance, supported by a regional challenge fund that is being considered and to which the program will be aligned. Several

financiers (debt and equity providers) have expressed interest in this fund, which will be operationalized in the first few years of the program and which will get to scale under SVTP-II. The project support to working capital for overheads and production costs will be a combination of start-up grant financing (for overhead costs) and commercial finance, linked explicitly to off-taker agreements. For all financing support, the business plans will be tested for financial viability, regardless of origin of financing.

Component 4: Project Management and Coordination. The project will provide funding to maintain the PMT in Blantyre and Chikwawa; and contract professional and support staff to strengthen the PMT and facilitate its operations, including: (i) Professional staff: Project coordinator, component leads for the three technical components, fiduciary staff, environmental and social safeguards specialists, M&E, communications and GRM management staff; (ii) Strong Technical Assistance to the PMT in the areas of contract management, M&E and planning; and (iii) Admin unit with support staff. Technical short-term expertise is foreseen in the fields of for instance: planning and M&E, legal expertise, IT services. These staff will be hired as required under the guidance of the PMT on short term consultancy or Technical Assistance contracts. The PMT incremental operating costs, as well as incremental operating cost budgets by sub-component are administered by the PMT based on annual work plans and specific activity plans.

Component 5: PPA repayment. The component will finance repayment of the PPA that the Government obtained for the project preparation studies.

15. **Shire Valley Consultative Committee and community advocacy and liaison.** Apart from project specific steering and implementation, the nature of the program also requires a structured process of stakeholder consultations on different aspects of scheme development, land tenure organization and agricultural support. These structured stakeholder consultations started during project preparation, and should become more systematic and institutionalized during project implementation and form the backbone of an adaptive management strategy and information exchange. The consultative committee will have representatives from multiple stakeholders in the project, first and foremost from future water users, as well as from civil society, private sector and communities, representing the breadth of perspectives on Shire Valley development and serve as the platform for debate and information exchange. Districts, including Technical Officers from relevant departments at District and Field Extension levels, Traditional Authorities, Village Development Committees (VDCs), GVs, community groups and committees, such as Village Natural Resource Management Committees (VNRMCs), are involved to a greater or lesser extent in most sub-components. They will be represented at the Consultative Committee. Besides the formal committee the project implementation setup will invest in an outfit with the mandate to voice community concerns, questions, and in generally be the information agency of the project. This will involve community facilitators well embedded within the project management structure.

16. **Policy Dialogue.** The project will participate in existing policy dialogue forums to improve dialogue and coordination, and seek close coordination with the AgCom Project which supports the same objectives at national level. Such platforms include Joint Sector Reviews (under ASWAp, Water Sector Wide Approach), Technical Working Groups (TWGs) (Commercial Agriculture and Market Development of ASWAp, Water for Agriculture and other relevant TWGs under National Exports Strategy). The project will also utilize existing Public Private Dialogue (PPD) forum and other relevant commodity platforms.

Financial Management

17. Financial management will be the responsibility of the MoAIWD. A financial management assessment of the MoAIWD was undertaken to determine if the entity will ensure that the (a) funds will be used for the purposes intended in an efficient and economical manner and the entity is capable of correctly and completely recording all transactions and balances related to the project; (b) project's financial reports will be prepared in an accurate, reliable and timely manner; (c) assets acquired under the project will be safely guarded; and (d) project will be subjected to auditing arrangements acceptable to the Bank. The assessment complied with the (1) Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations (Catalogue number OPCS5.05-DIR.01) Issued (Retrofitted): February 4, 2015 and effective from March 1, 2010 and (2) Bank Guidance: Reference Material-Financial Management in World Bank Investment Project Financing Operations (Catalogue Number OPCS5.05-Guid.02) Issues and effective February 24, 2015.

18. The FM arrangements of the Ministry for the purposes of project management have been assessed as moderately unsatisfactory and risk is substantial. This assessment is as a result of the following:

a) The Ministry does not have an appropriate accounting system for project accounting and reporting. The Integrated Financial Management Information System (IFMIS) used by the Ministry has a number of weaknesses. The control environment around IFMIS has generally been assessed as weak and this undermines the integrity of the system. The weak control environment is worsened by weak and mostly nonexistent remedies for noncompliance;
b) Weak audit committees leading to ineffective internal audit function;
c) Weak corruption and fraud deterrence mechanisms. The risk of corruption and fraud in Community Driven Development (CDD) activities and major irrigation contracts that could be subject to elite capture;
d) The ministry uses the consolidated government bank account for project funds. The bank reconciliations are not done on time and for those that are done the reconciling items are not timely resolved. This means that the accounting and reporting may neither be accurate nor complete;
e) Delays in funds flow from the Ministry of Finance to the MoAIWD resulting in delays in implementation of some of the project activities; and
f) Lack of dedicated FM staff working on project accounting and reporting resulting in delays in reporting which affects timeliness of drawdowns on credits and grants.

19. As a result of the above weaknesses in the FM arrangements of the Ministry the following mitigation measures have been recommended – and these are already in place for management of the PPA:

a) The proposed project should have an independent PMT which will include dedicated FM staff that will be responsible for accounting and reporting for the project. The staff will be trained in FM and disbursement for World Bank funded projects;
b) The project to acquire and install an accounting software to be used for transaction processing and reporting;
c) The project should have exclusive US Dollar and Kwacha accounts at a commercial bank acceptable to the World Bank;
d) The project will be required to submit unaudited interim financial reports which will be reviewed and validated by the World Bank FM team;

e) The project will be visited at least twice a year for implementation support that will include dealing with FM issues;
f) The transactions will be internal audited at least twice a year and ensure the Ministry's audit committee is strengthened and functioning;
g) The projects financial statements will be externally audited by National Audit Office or private auditors under TOR to be agreed with the World Bank;
h) Incorporate corruption prevention and reporting mechanisms through collaboration with Anti-Corruption Bureau. This should include social accountability mechanisms covering public reporting and use of community volunteers and civil society organizations in social audits and disclosure of project information; and
i) The PIM will include the above measures and other accounting requirements for the project.

20. The conclusion of the assessment is that after the implementation of the proposed mitigation measures the arrangements will meet the Bank's minimum requirement for FM. The residual risk is substantial as summarized under risk matrix below.

FM Risk Assessment Matrix

Country Level (i) Lack of accountability; poor enforcement & compliance with existing regulations/procedures; limited implementation of auditors' recommendations; and the lack of sanctions for offenders; (ii)Weak accounting system, including poor control environment of the automated IFMIS, which affects the quality of financial statements produced by ministries implementing projects; (iii) Weak audit committees in government ministries with limited follow up on the issues raised in the audit reports to ensure they are addressed by the project; (iv) Weak legislative scrutiny of external audit reports; and (v) Problem of timeliness and regularity of various accounts reconciliations including bank reconciliations.	H	-To address frauds committed in the IFMIS, the cooperating partners are working with the Government to plug the gaps in the system and to strengthen the functional and system controls. The government has taken disciplinary and legal actions against some of the perpetrators and a forensic audit has been done that provided more details about the theft. Another forensic audit has been done covering the period of about five years prior to 2013 which was not covered by the initial forensic audit. The recommendations from these audits including expected disciplinary measures will improve the control environment albeit not in the short term. -The Government is implementing a PFM reform agenda supported by cooperating partners. These reforms include strengthening of the IFMIS and reporting and oversight functions which if properly implemented should be able to resolve some of the identified risks. However, the impact of the reforms will take time to be felt. Until then, some ring fencing arrangements will be put in place. -The proposed project will not be mainstreamed in the ministry. The project will be using a separate and exclusive accounting package for transaction processing and reporting.	S
Entity Level -There are multiple entities that will be implementing the project giving rise to problems of coordination, especially in reporting. -The MoAIWD has been involved in serious control and accountability issues.	H	-The FM will be coordinated by a PMT working under the direction of the Ministry. The Ministry has experience in handling projects implemented by different Ministries, Departments and Agencies. -The PMT arrangement will substantially insulate the project against direct influence by the ministry as was the case during cash gate and other inappropriate transactions.	S

Project Level -The project is complex with several implementing agencies. The project will involve a large amount of resources and complex contracting/procurement arrangements. -The very large size of the project inherently places a high risk exposure to the proper use of project resources, despite increased oversight by the Bank.	H	-The PAD will detail activities to be carried out by various entities and these activities will be captured in annual work plans and budgets that will be agreed between the Government and the Bank as the basis for implementation. -The PMT will have the required skills and competences to be enable effective implementation.	S
Budgeting Ministry Budget lacks enough details and budget monitoring systems are weak.	S	The activity based annual work plan and budgets will be informed by the PAD and this should provide clarity on activities to be carried out and accordingly monitored.	S
Accounting -Weak accounting systems not able to process and report on transactions properly. -Staff not experienced in project accounting.	S	-The Project will have its own accounting package for transaction processing and reporting. An accounting manual detailing policies, procedures and controls will be prepared as part pf PIM. -Staff will be trained in FM for Bank funded activities.	M
Internal Control -Weak control environment resulting from poor enforcement of existing regulations; weak management oversight and inadequate internal audit function. -There will be large irrigation contracts which could be susceptible to elite capture.	H	-The PMT set up will mitigate against weak control environment associated with mainstream government entities. The accounting manual will specify control procedures when using project resources. -The project will be required to be internal audited at least twice in a year. -Incorporate corruption prevention and reporting mechanisms through collaboration with Anti-Corruption Bureau. This should include social accountability mechanisms covering public reporting and use of community volunteers and civil society organizations in social audits and disclosure of project information. -Regular Bank reviews including technical reviews of major contracts.	S
Funds Flow -Delays in flow of funds to finance planned activities and possibility of misappropriation of PPA funds or use for unintended purpose.	S	-The project will open an exclusive US Dollar account and also Kwacha operating account for funds flow.	M
Financial Reporting -Delays in submission of reports. -Staff not experienced in reporting for World Bank funded projects.	S	-The reporting format will be agreed with the Bank. -The reporting template to be embedded in the accounting software in order to ensure accuracy and timeliness of reports.	M
Auditing -The National Audit Office (NAO) does not fully use International Standards on Auditing thus creating a risk that the audit approach may not be thorough enough to enable making of a reliable audit opinion. -Unacceptable audit and untimely submission of the audit reports and lack of follow up on audit findings.	S	-The audit will be based on agreed TORs which will specify the approach, scope and timing. -Follow up of audit findings will be done by the internal Audit of the ministry as well as Bank FM staff during implementation support missions (ISMs).	S
Overall FM Risk Rating	**S**	**The overall FM risk is considered SUBSTANTIAL .**	**S**

H-High *S-Substantial* *M-Moderate* *L-Low*

Financial Management Arrangements

21. Budgeting arrangements: MoAIWD's budgeting process is deemed to be adequate. The Ministry

through the PMT will prepare activity based annual work plan and budget guided by the PAD.

22. Accounting arrangements: The PMT managing the PPA has already acquired and installed TOMPRO accounting package that is being used for transaction processing and reporting. The same package is expected to be used for the main project. The accounting manual will be prepared for the main project detailing policies and procedures to be followed in carrying out project transactions. The PMT will be required to have qualified FM Specialist and also Assistant FM Specialist in addition to at least two accounts assistants assigned from government.

23. Internal control and internal auditing arrangements: Internal Auditing: MoAIWD like other government agencies has a weak internal audit function with audit committees totally dormant consequently issues raised by both internal and external audit reports are not adequately addressed. Government appointed independent audit committees for all ministries but due to lack of funding the committees functioned only briefly remaining dormant for almost two years. The control environment is very weak with many instances of control lapses. This type of environment requires close follow to ensure controls are adhered to. The Government will have to address the position of audit committees in order to strengthen the internal audit function and hence effectiveness of internal controls.

24. Internal Control Systems: The accounting manual will specify policies and procedures including internal controls required when using project resources to ensure funds are used for intended purpose in an economical and efficient manner. The Bank FM team will be conducting periodic reviews based on assessed risks and following up on agreed actions meant to strengthen the project FM systems.

25. **Financial Reporting Arrangements** - The MoAIWD through PMT will produce quarterly unaudited Interim Financial Reports (IFRs) for the designated account (DA) and the related project account. The IFRs are to be produced on a quarterly basis and submitted to the Bank within 45 days after the end of the calendar quarterly period. MoAIWD will agree with the Bank on the format and content of IFR. The reporting requirements will be incorporated into the accounting package to enable automatic generation of the IFRs. The IFRs submitted to the Bank will have the following minimum information:

a) Statement of Sources and Uses of Funds by category;
b) Statement of Uses of Funds by Project Activity/Component;
c) DA Activity Statement;
d) Bank Statements for both the Designated and Project Account;
e) Summary Statement of DA Expenditures for Contracts subject to Prior Review; and
f) Summary Statement of DA Expenditures not subject to Prior Review.

Auditing Arrangements

26. The project will procure the services of an external auditor using TOR to be agreed with the Bank. The project will also prepare the annual audited accounts/financial statements which must be submitted to the Bank within 6 months after the end of the accounting year i.e. no later than December 31. The audited accounts will be prepared in accordance with International Public Sector Accounting Standards. The accounts/financial statements will comprise of:

a) **A Statement of Sources and Uses of Funds/Cash Receipts and Payments**, which recognizes all cash receipts, cash payments and cash balances controlled by the entity; and separately identifies payments by third parties on behalf of the entity;

b) **The Accounting Policies Adopted and Explanatory Notes**. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a summary of IFR Withdrawal Schedule, listing individual withdrawal applications; and
c) A **Management Assertion** that Bank funds have been expended in accordance with the intended purposes as specified in the relevant World Bank legal agreement.

27. **Fraud and Corruption** - The major contract under the project is the construction of irrigation infrastructures which falls under Bank's prior review contracts and therefore will be subjected to necessary Bank's oversight checks. The project will have procedures and controls to ensure that transactions have integrity and fraud and errors are minimized. The Project will be subjected to both External and internal auditing which will further provide assurance as regards compliance with both Bank and government policies and procedures.

28. The Bank team will ensure the compliance with Bank procurement and FM rules through its oversight with Bank procurement and financial management specialists' reviews of documentation, carrying out office visits, interviews and inspections; and recommending actions to be taken if any inconsistencies are identified. Bank technical experts will also be involved in the review of all documentation deemed necessary including but not limited to prequalification documents, requests for proposals, TORs, bidding documents, contract documents, and evaluation awards. In terms government institutional building, the Bank will ensure that training of staff in procurement and FM issues is offered to strengthen internal technical capacity. The use of whistle blowers is proposed to further combat corruption and other forms of fraudulent activities. There are already a number of organizations including Bank funded activities that use reward anonymous managed by Deloitte.

29. **Financial Management Action Plan -** The following actions need to be taken in order to enhance the financial management arrangements for the Project:

	Action	Date due by	Responsible
1	Procure FM TAs	Before effectiveness	MoAIWD/IDA
2	Acquire and install accounting software for project accounting and reporting	Before disbursement effectiveness	MoAIWD
3	Open designated account	Upon effectiveness	MoAIWD
4	Agree the format of Interim Financial Report with the Bank	Before negotiation	
5	Devise ant corruption measures to deal with CDD and possible elite capture	Six months after effectiveness	MoAIWD
6	Agree audit TOR	Before negotiation	MoAIWD/IDA
7	Make arrangements for half yearly internal auditing of the project	Before negotiation	MoAIWD

30. **Implementation Support Plan** - Based on the outcome of the FM risk assessment, the following implementation support plan is proposed. The objective of the implementation support plan is to ensure the project maintains a satisfactory financial management system throughout the project's life.

FM Activity	Frequency
Desk reviews	
Interim financial reports review	Quarterly
Audit report review of the program	Annually

Review of other relevant information such as interim internal control systems reports.	Continuous as they become available
On site visits	
Review of overall operation of the FM system	Semi-annual for MoAIWD (Implementation Support Mission)
Monitoring of actions taken on issues highlighted in audit reports, auditors' management letters, internal audit and other reports	As needed
Transaction reviews (if needed)	As needed
Capacity building support	
FM training sessions	During implementation as needed.

31. **Conclusion of the assessment:** The conclusion of the assessment is that the FM arrangements meet the Bank's minimum requirements under (1) Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations (Catalogue number OPCS5.05-DIR.01) Issued (Retrofitted): February 4, 2015 and effective from March 1, 2010; and (2) Bank Guidance: Reference Material-Financial Management in World Bank Investment Project Financing Operations (Catalogue Number OPCS5.05-Guid.02) Issues and effective February 24, 2015. The residual risk is substantial.

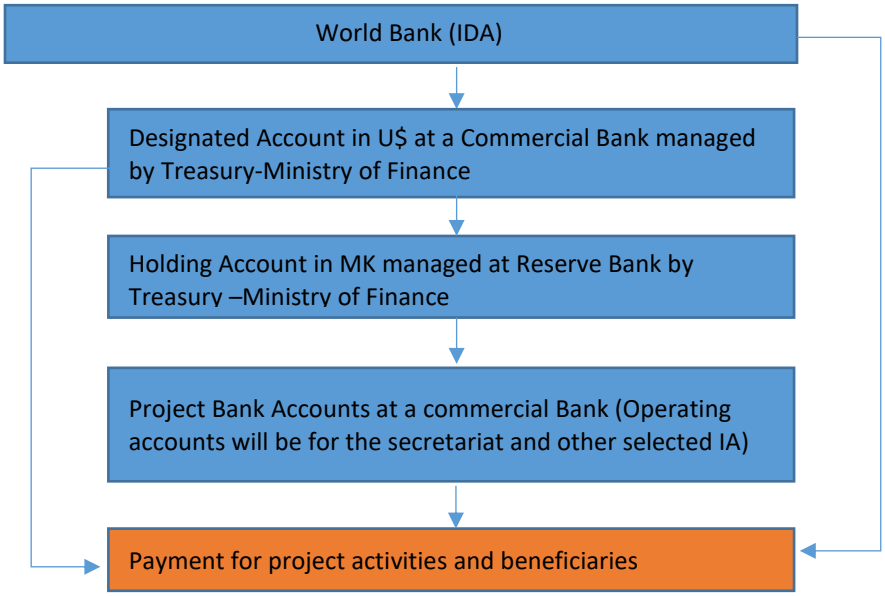
Disbursements

32. **Banking arrangements**: Government will open a DA in US Dollars at the Reserve Bank of Malawi or a commercial bank acceptable to the World Bank and a Kwacha operating account, also acceptable to the Bank.

33. **Funds Flow Arrangements:** Funds flow arrangements for the project are proposed (through the bank accounts above) are as follows:

a) MoAIWD will prepare a six-month cash flow forecast based on agreed work plans then submit a withdrawal application request to the Bank (IDA) through the Ministry of Finance.
b) IDA will process the withdrawal application and disburse funds to the DA in US dollars.
c) Ministry of Finance will transfer funds from the DA into the Project Account as and when required in local currency. Ministry of Finance can also transfer counterpart funds into the Project Accounts.
d) Project expenditure can be paid from either the DA, Project Kwacha Account or direct from World Bank to suppliers.

Funds Flow Chart



IDA Disbursement Methods

34. **Special Commitments and Direct Payments:** Special Commitments using irrevocable letters of credit may be used as well direct payments to suppliers for works, goods and services upon the borrower's request.

35. **Report-based Disbursements:** The project will also receive funds into the designated account using the report based disbursement method. IDA will make the initial disbursement to the project after receiving a withdrawal application with a six-month cash flow forecast. This withdrawal application should be prepared within one month after project effectiveness. Thereafter, IDA will disburse into the respective DA based on quarterly IFRs, which would provide actual expenditure for the preceding quarter (3 months) and cash flow projections for the next 2 quarters (6 months). The IFR will be reviewed by the Bank's FM Specialist and approved by the Task Team Leader (TTL) before the request for disbursement is processed by the Bank's Loan Department.

36. **Reimbursements:** These can also be made to the DA. These payments will also be reported in quarterly IFRs.

37. The IDA Disbursement Letter will provide details about each of the above disbursement arrangements.

Procurement

38. Procurement under the program will be carried out in accordance with the Guidelines: Procurement of Goods, Works and Non Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers; January 2011, Revised July 2014 and "Guidelines: Selection and Employment of Consultants IBRD Loans and IDA Credits& Grants by World Bank Borrowers, January 2011, Revised July

2014 as it has a Project Concept Note of before July 1, 2016. NCB will be undertaken in accordance with the Malawi Public Procurement Act of August 2003 and its Public Regulations 2004 which has been reviewed and found satisfactory to the Bank with a few exceptions.

Legal Aspects and Procurement Practices

39. Public Procurement in Malawi is governed by the Public Procurement Act of August 2003. The Act requires procurement Regulations to provide, inter alia, threshold for use of various procurement methods, bidding and bid evaluation procedures and contract management. The Law further establishes the Office of Director of Public Procurement (ODPP) with oversight for public procurement. The Office became operational in 2005 with the appointment of the Director and other substantive officers. The Government also established Internal Procurement Committees (IPCs) and Specialized Procurement Units (SPUs) in all Ministries and Departments as the responsible bodies for procurement in the Ministries and Departments. Procurement Regulations and Desk Instructions have been distributed to all procuring entities. The ODPP has also established a dedicated website for sharing of information, placing of adverts and notification of awards to the general public.

40. The Government has further established the Malawi Institute of Procurement & Supply Act 2016 which provides for the registration of procurement and supply chain management professionals and the regulation of the procurement and supply chain profession.

Implementation Arrangements and Capacity Assessment of the Implementing Agencies

Procurement under the Shire Valley Transformation Project will involve construction of a water intake, water canals, development of irrigation land, hiring of specialized Technical Assistance, project implementation services and equipment. Implementing of the project will involve MoAIWD, MLHUD as well as the Public Private Partnership Commission. However, the MoAIWD will be the lead institution on procurement of works, goods, and services and Ministry's own staff would not be able to undertake procurement functions and there is need to recruit technical assistance. The MoAIWD has already set up a PMT in Blantyre which will be responsible for procurements of all goods, consultancies, works and services under the project.

41. **Capacity Assessment of Ministry of Agriculture, Irrigation and Water Development** - As part of project preparation process, capacity assessment of MoAIWD was carried out using Procurement Risk Assessment System (PRAMS) on January 4, 2017. The MoAIWD has in the past successfully undertaken implementation of projects financed by IDA such as the NWDP I & II and it is currently implementing the SRBMP. However, procurement under the Shire Valley Transformation Project will not be undertaken by Ministry's own staff and therefore there is need for technical assistance to undertake procurement functions and it is recommended a Senior Procurement Specialist and an Assistant Procurement Specialist be recruited by the project.

42. As the project is coordinated by MoAIWD, the IPC based at Tikwere House will be responsible for award of contracts and oversight functions. The current arrangement of the IPC are that the Director of Administration Chairs the Committee and other members are Director of Irrigation Services, Director of Water Supply, Director of Water Resources, Director of Human Resources, Principal Procurement Officer (Secretary) and the Accountant. The IPC at Tikwere should be responsible for all contracts above Bank prior review whilst the existing IPC at the Regional which is chaired by the Regional Irrigation Engineer

should be empowered to award contracts which are below Bank prior review and the Bank has provided its No Objection to their procurement and in case of Consultancy Services, a No Objection has been provided to the TOR. In order for project issues to be properly presented to the IPC both at Tikwere and in Blantyre, the Project Coordinator and the Procurement Specialist of the Project should be opted members and should be in the Committee only when project issues are being discussed by the two Committees. Due to low capacity within the Ministry, contract management will be an issue that will need close monitoring.

43. **Office Space** - The project is housed in renovated guest house owned by the Ministry and the available space may only be adequate to accommodate all project staff if extra rooms are made available.

44. **Additional Equipment -** Due to increase in the number of staff that will be recruited by the project additional office such computers, desktops, printing machines and phones will be required. It's important to have a vibrant internet system as well additional vehicles to support project activities.

45. Based on the above assessment, the overall risk for the project is Substantial and the following mitigation measures has been proposed: (i) attending short procurement courses within the region at a later stage by key personnel handling procurement; (ii) strengthening of complaint handling mechanism; and (iii) post review by the Bank as per the risk rating.

Table 2.1: Procurement Risk and Mitigation measures

Risk Factor	Initial Risk	Mitigation Measure	Residual Risk
Record keeping and documentation	High	• Ministry both in Lilongwe and Blantyre and PMT in Blantyre will maintain all procurement records duly catalogued and indexed that will facilitate easy access to information.	Substantial
Fiduciary Risk relating to main principles of the Bank Procurement Guidelines	High	• Experienced procurement staff/consultant shall be positioned to guide implementing activities. • Attend training in Bank and PPP procurement procedures. • Regular supervision support and monitoring.	Substantial
Inefficiencies and delays in procurement process	High	• Regular monitoring through procurement plan and STEP.	Substantial
Contract Management	High	• Disclosure of all contract awards in UNDB Magazine for prior contracts and post review contracts in local newspapers and website of Office of Director of Public Procurement.	Substantial
Probability of staff handling procurement resigning	High	• Dialogue with Government to retain trained staff of PMT.	Substantial
Fraud and corruption risks [including collusion and outside interference] in contracting process	High	• Disclosure of procurement plan. • Disclosure of contract awards. • Creating awareness on effects of fraud and corruption. • Regular reviews such as PPR, internal Audit, external audit etc.	Substantial

Risk Factor	Initial Risk	Mitigation Measure	Residual Risk
Weak complaint redress system	High	• Disclosure of complaint redress procedure through ODPP. • Bi-annual report of all complaints received and action taken.	Substantial
Overall Risk	High		Substantial

46. **Selection of Consultants** - For all Consultancy Services under IDA financing, all consultant assignments for contracts with firms estimated to cost more than US$200,000 or equivalent per contract would be selected through Quality and Cost Based Selection (QCBS) procedures. Consultant assignments for contracts with firms estimated to cost less than US$200,000 or equivalent per contract may be selected using the Consultants' Qualifications methods. Consulting firms who will be required to carry out assignments that are standard or routine in nature, such as audit, would be selected through Least Cost Method. Individual consultants will be selected on the basis of their educational qualifications and experience in accordance with Chapter V of the Consultants Guidelines. Single Source selection will be used where it can be justified and after consultation with the World Bank. The prior review threshold for consultants' services would be US$100,000 equivalent per contract for individual consultants and US$200,000 equivalent per contract for firms. All single source consultants from firms shall be subject to prior review of the Bank.

Table 2.2: Prior Review Threshold for Consultancy Services

	Selection Method	Prior Review Threshold	Comment
1.	Competitive Methods (Firms such as QCBS, CQS, QBS, Fixed Budget, Least Cost Selection)	Above US$200,000	
2.	Works Supervision	Above US$300,000	
3.	Single Source (Firms)	All Values	
4.	Individual Consultants	Above US$100,000	

47. **Procurement of Works, Goods and Non Consultant Services** - Direct Contracting: Direct contracting for the procurement of civil works and goods (paragraph 3.7 of the procurement Guidelines) may be used to extend an existing contract or award a new contract. For such contracting to be justified, the Bank should be satisfied that the price is reasonable and that no advantage could be obtained by further competition. The direct contracting may be from the private sector, UN agencies/programs (for goods), or contractors or NGOs.

48. **Shopping:** Shopping in accordance with paragraph 3.5 of the Procurement Guidelines may be appropriate method for procuring readily available off-the-shelf goods of value less than US$200,000, or simple civil works of value less than US$200,000. The procurement plan should determine the cost estimate of each contract, and the aggregate total amount. The borrower should solicit at least three price quotations for the purchase of goods, materials, small works, or services (non-consulting), to formulate a cost comparison report.

49. **National Competitive Bidding (NCB):** Any contract exceeding shopping threshold will be subject to NCB. The model bidding documents for NCB as agreed with Office of Director of Public Procurement, Malawi Public Procurement Act, Regulations and Desk Instructions (and as amended from time to time),

shall be used for bidding. The following NCB exceptions shall apply:

a) No bidder or potential bidder shall be declared ineligible to bid for reasons other than those provided in Section I of the Bank Procurement Guidelines;
b) Bidding documents acceptable to the International Development Association shall be used;
c) The bidding documents and contract shall include provisions reflecting the Bank's policy relating to firms or individuals found to have engaged in fraud and corruption as defined in the Procurement Guidelines;
d) Each bidding document and contract shall provide that bidders, suppliers and contractors, and their subcontractors, agents, personnel, consultants, service providers, or suppliers, shall permit the Association to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Association. Acts intended to materially impede the exercise of the Association's inspection and audit rights provided for in the Procurement Guidelines constitute an obstructive practice as defined in the Procurement Guidelines;
e) Unquantifiable criteria, such as local content, technology transfer, and managerial, scientific, and operational skills development, shall not be used in the evaluation of bids; and
f) Contracts may not be split into small lots, and their award may not be restricted to small enterprises for purposes of promotion of the participation of small enterprises.

50. **Force Account** - When contractors/suppliers are unlikely to bid at reasonable prices because of the location and risk associated with the project or a certain government agency has a sole right in certain type of works/supply, borrowers may use their own government departments' personnel and equipment or government owned construction unit may be the only practical method, provided that the agency has sufficient managerial capacity and possesses the required technical and financial controls to report to the Bank on expenditure as per paragraph 3.9 of the Procurement Guidelines.

51. **Framework Agreements (FAs) -** Framework Agreements shall be used as alternative to NCB or Shopping for goods that can procured off-the shelf or are commonly used with standard specifications, non-consulting services of a simple and non-complex nature that are required from time to time, or small works under emergency. Agreement amount for the FA shall be set in the Procurement Plan and agreed with the Bank.

52. **Use of government Institutions and parastatals** - Government owned institutions or parastatal organizations in Malawi may be hired for their unique and exceptional nature if their participation is considered critical to the project implementation. In such cases, the conditions given in clauses 1.13 of Consultant Guidelines shall be satisfied and each case will be subject to prior review by the Bank.

53. The following are prior review methods and thresholds: -

Prior Review Thresholds for Goods, Works and Non Consulting Services

	Procurement Method	Prior Review Threshold (US$)	Comments
1.	ICB and LIB (Goods) and Non Consultant Services	*Above 1 million*	*All*
2.	NCB (Goods)and Non Consultant Services	*Below 1 million*	*First Contract*
3.	ICB (Works)	*Above 7 million*	*All*

4.	Shopping (Goods)and Non Consultant Services	*Below 200,000*	
5.	NCB Works	*Below 7 million and above 200,000*	*First Contract*
6	Shopping Works	*Below 200,000 million*	
7	Direct Contracting	*All Values*	

54. **Other Conditions-** Bank will also consider further simplification of procedures if so requested by the implementing agencies and are within overall framework of Bank Guidelines.

55. **Prior Review and Associated Thresholds** - The Bank will review the Procurement Plan as well as the set of Standard Bidding Documents to be used for works, goods and non-consulting services. The format of procurement plan, standard bidding documents, the procurement methods and the thresholds for prior review should be reviewed and jointly agreed by Min of Agriculture, Irrigation and Water Development and IDA.

56. Contracts which are not subject to prior review will be selectively reviewed by the Bank or on behalf of the Bank by an independent Procurement Auditor during project implementation and will be governed by the procedures set forth in paragraph 4 of Appendix I to the relevant Guidelines. All documentation used for the procedures of contracting, recruitment of consulting services, evaluation and award shall be retained for subsequent examination by auditors and IDA supervision missions.

57. **Risk of Fraud and Corruption -** Fraud and corruption are prevalent in Malawi and necessary steps such as whistle blowing, citizen engagement and open contract monitoring by Non -Government Organizations will reduce project risk in this area.

58. **Procurement Plan** - The Procurement Plan for the project shall be prepared detailing the activities to be carried out during the first 18 months reflecting the actual project implementation needs and the plan should be submitted before negotiations as it is part of the package that will be submitted for Board approval. For each contract to be financed under the project, different procurement methods, the estimated cost, prior review requirements and time frame will be agreed between the Borrower and the Bank. The Procurement Plan once finalized will be made available in the projects database and in the Bank's external website. The Procurement Plan shall be subsequently updated annually and will reflect the changes in prior review thresholds, if any.

59. The Bank normally carries out the implementation support mission on semi-annual basis. The frequency of the mission may be increased or decreased based on the procurement performance of the project. All contracts below the specified prior review threshold value shall be subject to Post Review by the Bank and the first contracts will be reviewed one year after project effectiveness.

60. Actions that need to be undertaken next by Government include preparation of the Procurement Plan for 18 months which has to be submitted together to the Board for approval.

61. SOCFEs will be provided with matching grants. Procurement will follow acceptable international standards and commercial practices as they are applied by commercial institutions in procurement of goods and services. However, before they commence, the Bank will undertake a capacity assessment of each cooperative and based on the assessment, and will provide a risk assessment upon which

procurement thresholds will be based for each cooperative.

62. Procurement under Water Cooperatives/ Users Associations once they are formed which will be provided matching grants will follow acceptable international standards and commercial practices as they applied by commercial institutions in procurement of goods and services. However, before they begin, the Bank will undertake a capacity assessment of each cooperative and based on the assessment, will provide a risk assessment upon which procurement thresholds will be based for each cooperative.

Environmental and Social

63. **Poverty and social inclusion:** The project is designed for smallholder farming communities in the targeted area, an area of extreme poverty and the most disaster prone in the country. Communities will benefit through improved productivity, improved farm organization, production and marketing support and services. Beyond productivity, the project has other social functions, such as water supply to Chikwawa boma, and support for livelihoods through community engagement in the management of conservation areas. From its inception the program has emphasized an inclusive approach that will continue during implementation has followed this up with engaging communities through structured consultations, focus group discussions and has designed the agricultural development strategy on farmer's preferences and local successful models of organization. A number of studies have been completed, including a socio-economic baseline study, a Land Tenure Diagnostic, a Gender and Youth study, a Communication study/strategy, and a political economy analysis to identify and plan for the full range of social impacts that a project of this size and scope could have in a poor, rural area with well-identified vulnerabilities.

64. **Citizen Engagement:** The communication strategy and grievance redress mechanism build on local social arrangements and are targeted at primary beneficiary communities. The strategy details the easiest and acceptable ways to have open communications with the affected people and communities throughout the life of the project; inform them about all aspects of the project's and stages of construction and establishment of irrigation blocks and receive their feedback; and the ways in which individuals can have a voice and express their concerns, ways in which these concerns will be addressed and monitored.

65. **Gender and youth:** The program will focus on the participation of women and female-headed households and youth in the program. The program developed a Gender and Youth Strategy, which amongst others highlights that (i) literacy and education rates of women are considerably lower than those of men, especially of the population above 35 years of age; (ii) access to and control over land and revenues from production is dominated by adult males over 35, also in matrilineal societies; (iii) women are less empowered to attain their rights in society; (iv) while access to finance is problematic for all poor, this is worse for female-headed households; and (v) participation of women and youths in institutions which govern the water sector is often limited. Because few women formally own land and their literacy levels are low, their participation and representation in WUAs are normally low. The strategy includes a number of activities, including (i) ensuring gender aspects are included in all ToRs, ii) staff are sensitized, iii) communication activities and consultation processes genuinely focus on issues relevant to women and youth, iv) ensure that all M&E and other data collection instruments collect gender and youth

disaggregated data, v) ensure that women, youth and vulnerable groups are represented and actively participate in consultations and in management entities, vi) ensure that all PAPs are gender, age and poverty defined, vii) ensure that land tenure administration is safeguarded against male capture and encourage where possible joint registration in name of husband and wife and ensure that women also enjoy de facto equality in access to land and shares in farm enterprises – also encourage partial transfer to youths, viii) ensure that grievance redress mechanism provides gender safe space, ix) actively promote safe multiple uses of irrigation water including for household uses, x) encourage young adult employment during construction and afterwards, xi) through social mobilization empower women and youths to actively partake in various organizations, committees and institutions to be set up under the program, xii) independently monitor gender impacts of the program as well as vulnerability trends and adjust programs as necessary.

66. **Social Safeguards:** Social inclusion, citizen engagement and gender and youth are thus included through the proposed project activities in addition to the ESMP, RPF and RAPs that will be prepared in accordance with the RPF. Specific social risks related to SVTP include but are not limited to: i) Land consolidation under the new Land Act: the project will be implemented under the new Land Act where there is no experience as of now; ii) scarcity of land in the area for those who will be resettled as a result of the irrigation infrastructure; iii) potential time lag between land consolidation and first irrigation service; iv) the fact that farmers in the future irrigation blocks will be relinquishing individual land parcels for a future share in an commercial enterprise that will operate a consolidated farm with possible consequences for food security, and uncertainty associated with business risks the future enterprises will face; and v) the need to agree within communities on options for those who opt out of the scheme. The project as currently designed is not affecting known cultural heritage areas, but the RPF and ESMP have detailed provisions for chance finds and other measures for graveyards should they be necessary. This is an area of known rich heritage and archaeology.

67. OP 4.12 is triggered. A RPF was prepared and consulted upon and has been disclosed in-country (date) and at the World Bank Website (date). Site-specific RAPs will be prepared as and when necessary during the project. These will be reviewed, approved and disclosed in-country and at the World Bank Website prior to the commencement of civil works. A number of factors have necessitated the preparation of a RPF rather than the preparation of RAPs by appraisal. First, although the general location of the Main Canal and associated infrastructure is known, the final alignment is still to be determined and until that is finalized, the identification of affected land and the precise census of project affected people needed for a RAP cannot be completed. Second, the location and configuration of the consolidated, irrigated blocks will only be determined as part of a participatory process during project implementation. However, because the general location of the project area is established, and on basis of the feasibility study design, it has been possible to include in the RPF extensive detailed socioeconomic data and information on potentially affected communities. Based on this assessment, it is estimated - for planning purposes only - that around 450 ha of land will be acquired for the main and branch canals in phase 1, out of which about 170 on a temporary basis, and around 460 ha of land in phase 2. In this scenario, foreseen works would affect 127 premises within 10 settlements. 118 are residential, 3 commercial and 6 community buildings. Of those buildings 56 premises are affected permanently and the remaining are located in the temporarily affected areas. While the specific PAPs will change with foreseen design revisions, the overall numbers

are expected to be within this same estimate. On basis of consultations with each of the potentially affected settlements, it is expected that all of the directly affected households can be reallocated within their current settlements. Extensive consultation with a wide range of stakeholders at the national, district and village level was an integral part of the RPF preparation. Stakeholders were consulted on mitigation measures for different type of impacts, mechanisms for creation of the irrigation blocks and establishment of farmers' organization, the implementation arrangements for resettlement, grievance redress mechanism, among others. Separate FGDs were held with women, men and leaders in each of the GV.

68. Specifically, the RPF identifies different categories of PAPs, here simplified and with details provided in the RPF: (i) People losing agricultural land to the canals, who will be given replacement land or cash where insufficient land is available; (ii) People who are losing residential land or commercial establishments to the infrastructure, who will be given alternative land in adjoining villages in addition to cash for improvements and resettlement assistance; (iii) People in the future irrigation blocks who are giving up land for shares in a company that are estimated to be of considerable greater value than the land they are contributing (see economic analysis) and for whom land tenure bundle of rights in a fallback position must be strong in legal terms in case the company dissolves; (iv) Livestock owners who will lose access to grazing and migration routes, where provisions have been made in design to accommodate; and (v) Communities who may be split by the canal or otherwise affected, who will be supported with investments linked to community based mitigation plans to reduce adverse impacts of the canal.

Safeguarding rights of vulnerable groups and avoiding elite capture

Successful implementation of SVTP is expected to lead to potentially dramatic gains in the value and productivity of land, and to provide beneficiaries with significantly enhanced livelihood opportunities. People currently in circumstances of often extreme vulnerability in terms of land rights, access to water, food security and livelihoods will obtain secure interest in irrigated land and become partners in potentially profitable commercial enterprises.

While the benefits of such a transformation are potentially enormous, there are also significant associated risks that they could be diverted and captured by elites. Such risks could take a variety of typical forms. People better able to understand formal legal processes or with greater connections to political or economic capital may seek to manipulate the land adjudication process and successfully lay claim to more than their share. Less sophisticated participants may be induced by local elites or outside speculators into ill-informed informal sales in advance of the land consolidation process. Once the cooperatives have been formed, more powerful members may dominate governing structures and use them to their advantage.

There are no foolproof methods to prevent such risks, and indeed, the imposition of too stringent controls designed to mitigate them could have the perverse effect of reducing choice and limiting the opportunity of beneficiaries to explore alternative livelihood options. Nevertheless, drawing upon international good practice in the governance of land rights, significant mitigation of these risks can be achieved through the careful design and implementation of project processes and institutional arrangements.

Safeguarding the rights and interests of existing land users effectively during the consolidation process will involve a number of steps:

- Baseline tenure diagnostics, designed to provide a systematic and impartial picture of existing land rights and uses, their location and governance structures. This has been substantially completed as part of the

Communication, Community Participation, Land Tenure and Resettlement Policy Framework preparatory study. .

- Early and intensive communication and education, providing sufficient information so that community members can make informed decisions to participate or to opt out, and in particular to understand the importance of retaining their land in the face of pressure to sell prematurely. This effort is already underway since feasibility studies started.
- Transparent and participatory field-based adjudication, mapping and documentation processes to identify farmers choosing to include their land in farm blocks. This would utilize governance structures consistent with the Customary Land Act, supplemented by project-supported features including simplified survey methods, presence of affected land users and other witnesses during the mapping process and accessible grievance redress mechanisms to settle disputes early and on the spot.
- Facilitation and monitoring of the process by multiple actors, including local government, traditional authorities, project personnel, project-trained community-based monitors from participating Group Villages and local NGOs.
- Development of locally-agreed mechanisms to limit transfers or accumulation [through the Communal Land Committees
- Agreed rules to ensure protection of women's land rights during the adjudication and documentation process, preventing the diversion of such rights to male family members.

Protecting and sustaining the rights of landholders who pool their land join cooperatives will require an emphasis on:

- Designing and agreeing upon cooperative constitutions that describe transparent and fair internal procedures for decision making and safeguard the voice of the smaller shareholders.
- Putting in place clear, enforceable rules – recognized both internally within the cooperative and agreed to by external governmental actors including the Ministry of Lands – providing for the re-distribution of land to members in proportion to their original contribution in case the cooperative fails or is dissolved.

Fair rules about shares transfer and inheritance that recognize the rights of individuals but also protect the sustainability of the coop (moratorium on transfer during first years of the cooperative's existence, first right to co-members, limit on maximum shares to be bought by any one member, etc.)

69. **Land Consolidation:** Farmers who will participate in the irrigation schemes (category iii in the above paragraph) will undergo a process of land consolidation in which they relinquish land for inclusion in a cooperative company. They will have the option to opt out, either individually or as a group and block development will be based on expressed demand. The farmer groups forming the company will be given land tenure security and will be assisted with the preparation of their farms and be provided with capacity building. If in the process of land preparation for the farms it is unavoidable that they lose a cropping cycle due to ongoing land leveling or other reasons, they will be compensated. Those who decide to opt out while the block is formed on their land will be provided with alternative land of equal value in their vicinity but outside the block (with a preference for land that is not irrigable because of its elevation or otherwise). These non-irrigable lands will also be carefully planned to allow for set-aside natural areas and grazing areas.

70. The institutional capacity of the borrower, especially at the district and village level, for the implementation of the safeguards instruments is limited, posing a risk. The PMT will employ safeguards personnel and a Management Consultant team will include an environmental and a social staff as well as a communication expert in its team.

71. **Labor Influx:** While specific details will not be known until ESMPs and RAPs are developed covering construction activities, it is assumed that contractors will bring in engineers and experienced equipment operators from outside the region, and these are likely to be housed in work camps during construction. A screening process will be carried out as part of the ESIA to gauge the likely size of the imported workforce relative to local communities, and the level of absorption of the community to newcomers who may bring different cultural values and mores. Rules for contractors to be included in the ESMP and works contracts include measures for managing the potential impacts of such an outside workforce on the local community. Most importantly, they include provisions for encouraging and maximizing local hiring, awareness raising within the communities, environment, health and safety guidelines, and codes of conduct for workers including penalties for failing to abide by them. Contractor oversight by the project's Supervising Engineer and the project-level GRM will be the major vehicles by which potential labor influx issues are identified and addressed. The Project will recruit community development specialists who will work with the communities throughout the project lifetime on development issues.

72. **Project level Grievance Redress Mechanism.** The program will establish a GRM which will facilitate timely resolve of program related grievances. It will support a local arrangement for the resolution of grievances and land tenure disputes, and incorporated specific elements of Grievance Redress for all project elements including resettlement, process framework, construction, land consolidation and any other project related grievance. The GRM is described in detail in the RPF and costed under component 4. The PMT will have an officer responsible for GRM oversight and the GRM is designed in such a way that it actively links with the participatory monitoring under the project, beyond anonymous complaints logging.

73. **Environmental Safeguards Overview.** SVTP-I is a large-scale, Category A project with multiple, complex environmental impacts related to new canal infrastructure, the expansion of irrigated croplands, and water abstraction from the Shire River. It is expected that, with sufficient effort and due diligence, all of the adverse impacts can and will be adequately mitigated. With the additional environmental enhancement activities planned under the Natural Resources Management Subcomponent 2.2, along with the Phase II improvements to water availability in Lengwe National Park, the program is expected to achieve a net positive impact from an environmental standpoint.

74. **Protecting Lake Malawi from Invasive Fish Species.** For SVIP to function as a purely gravity-fed (rather than pumped) irrigation scheme, the water intake from the Shire River needs to be located above (rather than below) Kapichira Falls. With a drop of about 75 meters, Kapichira Falls naturally provides an absolute barrier to the upstream movement of all Shire River fish species. As a result, two very distinct fish species assemblages occur: The Lake Malawi-Upper Shire ecoregion occurs above Kapichira Falls, while the Lower Shire-Zambezi ecoregion occurs below the falls. The ESIA report indicates that since the Main Canal intake will be above Kapichira Falls, there is a very real risk that the SVIP canal system could provide a pathway for fish occurring in the Lower Shire-Zambezi river system to enter the Upper Shire River and thus Lake Malawi (the source of the Shire River). Lake Malawi is a globally significant and unique aquatic ecosystem, with many hundreds of fish species found nowhere else. If the SVIP canal system were to enable invasive fish species (such as the aggressive Tigerfish *Hydrocynus vittatus*, among others) to enter into the upper Shire River and Lake Malawi, it could have disastrous ecological consequences,

including the global extinction of numerous fish species endemic to Lake Malawi.

75. **Fish Barrier System.** Accordingly, the SVIP requires a highly reliable, low-maintenance fish barrier system to prevent Tigerfish or other invasive species from entering the upper Shire River. The Technical Feasibility Study recommends a high fish weir consisting of a 3.5 meters drop structure topped off with a 1 meter crest. This will result in a vertical free fall of at least 2 meters when the canal is conveying the maximum amount of water (50 m3/s) and a higher free fall with any lower water flow. This fish weir will be incorporated within the Main Canal Detailed Design, with the incremental cost included as part of the total canal construction cost. This high weir is intended o effectively prevent any entry of Tigerfish--or any other fish species not native to Lake Malawi--into the upper Shire River above Kapichira Falls through the Main Canal, in perpetuity for as long as the canal is conveying water. To minimize the risks from human interference (including the accidental or deliberate release of non-native fish into the canal, above the barrier), the fish weir will be located within the Majete Wildlife Reserve, where human access is carefully controlled. During project implementation, a long-term operating agreement will be established between the Majete Reserve manager and the Main Canal operator regarding the surveillance, monitoring, and maintenance (when needed) of the fish barrier system.

76. **Panel of Experts.** To provide further assurance that the planned fish weir will effectively prevent invasive species from entering the upper Shire River (and hence Lake Malawi), the Bank will contract a special Panel of Experts to carefully review the weir's preliminary design and recommend any needed improvements before the Main Canal Detailed Design is finalized. This panel of world-class experts on Zambezi Basin invasive fish species, fish barrier design, and irrigation canal engineering is expected to make a site visit and provide their recommendations prior to SVTP-I Board presentation. The panel will then be retained to advise on as-built construction as well.

77. **Majete Wildlife Reserve.** The 77,754 ha Majete Wildlife Reserve is one of Malawi's best managed and most visited protected areas. The Reserve is presently being managed by Africa Parks, an international NGO that has a management concession from Malawi's Department of National Parks and Wildlife (DNPW). Under the revised project design, the uppermost portion of the Main Canal will pass through only 2-3 km of the Reserve, before continuing outside the Reserve to the project's irrigated areas. This represents a very substantial improvement over the previous canal design, which would have placed the intake much further upstream at Hamilton Rapids and would thus have blocked access to the Shire River for wildlife over a major section of the Reserve. Under the current Main Canal alignment and design, all portions of the canal within Majete will be either underground (as siphons – majority part) or walled off (where underground is not feasible) on both sides to prevent wildlife from falling into the canal and getting stuck or drowning. Approximately 1 km of this canal will be on community lands between two portions of the Majete Reserve; it will have a wildlife-friendly (non-slippery) surface. A very small portion of water from the Main Canal will be provided to wildlife watering areas and a tree nursery at Majete that will be expanded. This nursery expansion will enable Majete staff to restore native vegetation on degraded lands within and adjacent to the Reserve. The water supply for the Majete staff village will also be improved. The project will not damage existing Reserve infrastructure or facilities. During SVIP operation, an MoU or similar agreement between the Majete Reserve (Africa Parks and/or DNPW) and the Bulk Water Operator (BWO) will specify the procedures and responsibilities for canal and wall maintenance, fish weir monitoring, Reserve entry and exit procedures for BWO staff, and similar operational details.

78. **Mitigating Impacts on Tourism.** Disruption to Majete's tourism will be minimized by restricting where possible construction to the main work week, Mondays through Thursdays. Unless unavoidable and authorized by the supervising engineer, on the other days of the week plus holidays, the contractor will work on a portion of the canal that lies outside the Reserve. The project will also support the dissemination of tourism promotion materials during and following the end of construction at Majete. To ensure that SVTP-I does not undermine the Majete Wildlife Reserve's financial sustainability, the project will provide compensatory support to the Reserve, particularly through investments in long-needed wildlife fence upgrades. The SVTP-I Natural Resources Management Subcomponent 2.2 (Annex 4) will provide additional support to the Majete Reserve that goes well beyond the mitigation of SVIP canal-related impacts.

79. **Lengwe National Park.** The Lengwe National Park (LNP) now comprises the original "Old Lengwe" (11,113 ha) portion and the more recently added "New Lengwe" (77,587 ha). About 14 km of the Bangula Canal (to be constructed during Phase II) would inevitably cross the Old Lengwe portion of LNP. For topographical reasons, it is not feasible to re-route this portion of the canal around the Park's boundaries; doing so would preclude gravity-fed irrigation on most of the available Phase II agricultural lands. As mitigation, the Bangula Canal would be wildlife-friendly throughout its course within LNP, including 1:3 or gentler slopes and a non-slippery surface that all types of animals could safely traverse. Wildlife watering ponds and/or engineered wetlands would be established at selected points on both sides of the Bangula Canal within LNP; the number, location, and size of each pond are to be determined in consultation with LNP managers. Outside LNP, similar ponds would be established to enable local people to water their livestock without entering the Park. The Bangula Canal service road would only connect to other roads within LNP, so that irrigation service personnel and anyone else will still need to enter the Park by road through the main entrance. As part of SVTP (SVTP-II), this main entrance road would be upgraded to an all-weather road; this will facilitate eco-tourism as well as access by irrigation personnel to the Bangula Canal. To compensate for the spatial footprint of the Bangula Canal within LNP, the SVTP would assist LNP with the replanting of at least 80 ha of native thicket vegetation on degraded lands within the Park. To minimize future human-wildlife conflicts, SVTP would also strengthen the game-proof perimeter fence around Old Lengwe where needed (in consultation with LNP managers). These measures will minimize the SVIP's adverse impacts upon LNP, its natural habitats, and wildlife; moreover, a net gain is expected from a conservation standpoint due to increased water availability for wildlife, improved year-round tourism access, and increased support from SVTP to the DNPW for LNP management.

80. **Elephant Marsh.** The Elephant Marsh is an extensive freshwater wetland within the floodplain of the lower Shire River. While it no longer harbors any elephants, this wetland is an important habitat for aquatic birds and other biodiversity; its fisheries provide a livelihood for thousands of local residents. The entire Elephant Marsh encompasses over 78,000 ha, but the extent of the flooded area fluctuates considerably in response to seasonal flow changes in the Shire, Ruo, and other rivers. The entire Elephant Marsh currently lacks formal legal protection; in the drier portions of the marsh, much of the natural vegetation has been replaced by flood-recession agriculture.

81. SVIP will reduce dry season flows to the Elephant Marsh to a measurable but inherently limited extent. The water intake will be dimensioned to abstract a maximum of 50 m3/s from the Shire River in the month of September (with lower abstraction in other months of the year). Since some of the canal

water will simply substitute for irrigation water that is currently being pumped from the river by the Illovo sugar plantations, the maximum net abstraction will be 32 m3/s at full development (Phase II) and only 12 m3/s for Phase I (the current project). This translates to a net abstraction at full SVIP development of not more than 10 percent of the Shire River's flow during September, the dry season month of peak irrigation water demand. At other times of year, the percentage loss of water to the Shire River—and hence to the Elephant Marsh--would be lower. For Phase I, the maximum seasonal reduction in flows to the marsh would be only about 3 percent.

82. As part of the Shire River Basin Management Program and in line with the Shire Basin Plan, a series of studies were carried out on the Elephant Marsh including a hydromorphology study modeling impacts of different flow scenarios, including impacts of the upstream development of SVIP. This study observed the range of hydrological regimes that have supported the marshes in the past and through hydrology and sediment monitoring concluded that the Marsh is fairly resilient to flow and sediment changes; and that the proposed SVTP and climate change predictions do not represent a significant threat to long-term integrity and sustainability of the Elephant Marsh, particularly if they are accompanied by improved management regimes as over-harvesting of its resources is a larger environmental risk.

83. To mitigate SVIP's impacts on the Elephant Marsh due to the relatively minor irrigation water abstraction, a long-term hydrological and ecological monitoring program is planned that will (i) measure incremental changes in Elephant Marsh as SVTP proceeds and (ii) recommend adaptive management measures to the relevant Government entities. This monitoring program will be funded by SVTP-I, to the extent that it is not already receiving support from other sources (notably SRBMP). Under the Natural Resources Management Subcomponent 2.2, the SVTP-I Project will also enhance the conservation of the Elephant Marsh through follow-up support after its designation as a Ramsar Wetland of International Importance, along with the establishment of Malawi's first Community Wetland Conservation Area under the administration of the Department of National Parks and Wildlife (DNPW) (details in Annex 4). This improved protection and management of the Elephant Marsh will take place under the Phase I Project; it will thereby facilitate adaptive management to further mitigate the impacts of reduced flows from the Phase II irrigation expansion. This could include the establishment of different use zones within the Community Wetland Conservation Area that might limit further conversion of natural vegetation to flood-recession agriculture within the drier wetland areas.

84. **Irrigation Area Set-aside Lands.** Under the project, the layout of new irrigation blocks would take into account Set-aside Lands that should not be irrigated. These include (i) pre-identified areas comprising the remaining natural habitats (riverine forests, thickets, dambo wetlands, etc.), frequently flooded areas, soils unsuited for irrigation, cultural heritage sites, and a hundred-meter non-irrigated buffer zone around Lengwe National Park and (ii) woodlots, grazing lands, and other special-use areas that will be identified during the participatory land use planning process that will be part of irrigation block establishment. Avoiding the irrigation-related clearance of the very limited remaining areas of natural habitats (outside of protected areas) will comply with the Bank's Natural Habitats Policy (OP 4.04), while enhancing environmental outcomes. The non-irrigated buffer zone around the edges of the LNP (Old Lengwe) is intended to help prevent encroachment upon the park and to reduce human-wildlife conflicts.

The non-irrigated set-aside lands will also include areas that are needed as woodlots or grazing lands, to adequately meet the needs of nearby human populations and thus reduce encroachment pressures on protected areas to obtain fuelwood or construction materials, or to feed livestock. These non-irrigated

set-aside areas will be spatially contiguous where feasible. The adjusted net irrigated area that SVIP is expected to achieve at full development excludes all these types of set-aside lands. The institutional framework for managing the set-aside lands will involve the irrigation blocks and SOCFEs, as well as traditional authorities. All the SOCFEs to be established under SVTP will include within their by-laws, contracts, or other basic legal documents a commitment to respect whatever rules are established for public use of the set-aside lands, as well as the boundaries and key rules of any nearby protected areas (particularly LNP). To minimize damage to the terrestrial and aquatic natural habitats associated with the area's seasonal rivers (which flow into the Shire during the wet season), SVTP will use river training works only where needed at canal crossings or to protect existing infrastructure, but not to make frequently flooded lands irrigable.

85. **Pest Management Plan.** The PMP provides criteria and procedures for the (i) promotion of Integrated Pest Management for the crops to be irrigated as a result of the project; (ii) safe handling, storage, transport, and disposal of pesticides, including technical assistance to farmers; and (iii) criteria and procedures for safer pesticide selection. The PMP is intended to be a "living document", with procedures for periodic revision, as the crop mix changes over time and new pest issues might emerge. Successful PMP implementation will promote more sustainable pest management practices, reduced and safer use of agro-chemicals, and improved water quality in the Elephant Marsh (which will receive the drainage water from SVIP-irrigated areas).

86. **Physical Cultural Resources.** The proposed SVIP irrigation works are located in an area of known historic habitation and trade, with landscape elements of cultural value. ESIA preparation included a systematic survey of the Main Canal right-of-way and other planned civil works sites, checking for archaeological relics, fossils, human graves, shrines, sacred trees or groves, and other physical cultural resources. Based on this survey, the ESMP specifies 9 sites of archaeological interest where pre-construction salvage of pottery fragments and other items should take place, led by Malawi's Department of Antiquities. The ESMP also specifies Chance Finds Procedures for the civil works contractors to follow during irrigation canal construction, along with pre-construction training and awareness for contractor personnel; these procedures will be incorporated within all relevant bidding documents and contracts. The canal alignment will be selected so as to minimize interference with physical cultural resources. No graveyards are expected to be affected by the project; however, they would be relocated under the project if this were ever needed. Items of cultural interest will be systematically catalogued and stored or displayed, in accordance with guidance to be provided by the Department of Antiquities.

87. **Public Health Measures.** The ESMP specifies public health measures to mitigate the risks from schistosomiasis (aka bilharzia), which is often associated with irrigation canals and drains in tropical areas. The ESIA indicates that malaria is highly prevalent in the project area, but is not expected to increase as a result of the new irrigation. The project will seek to prevent the spread of HIV-AIDS and other communicable diseases by construction workers. The project also includes complementary public health investments, particularly drinking water systems for existing villages and new housing areas.

88. **Canal Design and Construction.** Outside the Majete Wildlife Reserve the Main Canal will have stairs at designated locations--staggered on either side--to enable compatible human uses (clothes washing, water collection, etc.), along with signs where appropriate. For project-initiated borrow pits, the civil works bidding documents and contracts will specify the decision-making process (including local

stakeholders) for how best to decommission these pits after they are no longer needed. Many old borrow pits are more useful if they are restored to serve as animal watering ponds, rather than being drained and covered up. The bidding documents and contracts will also specify the locations of any construction camps, equipment staging areas, new borrow pits, and other ancillary facilities, to ensure that they are not located in inappropriate or sensitive areas.

89. **Environmental and Social Rules for Contractors.** The ESMP provides environmental and social good practice rules that all SVTP contractors and construction workers will be required to follow. These rules, along with strict and transparent penalties for non-compliance, will need to be incorporated within all relevant bidding documents and contracts. These rules will prohibit contractors and workers from engaging in any (i) inappropriate behavior towards local residents or other people, including (but not limited to) sexual misconduct; (ii) hunting, wildlife capture, or bush-meat purchase; (iii) unauthorized burning of natural vegetation; (iv) pollution of waterways (including by washing vehicles or other machinery maintenance too close to rivers and streams); (v) improper waste disposal of any kind; (vi) speeding or other careless driving; and (vii) other, defined types of environmentally and socially undesirable behavior. Communities will also need to be sensitized to the potential risks of the influx of temporary workers for the works phase of the project, and encouraged and informed on how to use the GRM if issues arise between workers and community members.

90. Additional requirements will apply to canal construction within the Majete Wildlife Reserve, including (i) agreed procedures to avoid conflicts with dangerous wildlife (elephants, buffaloes, crocodiles, etc.) and for safe relocation of slow-moving animals (snakes, turtles, etc.) from construction areas; (ii) using adequate barriers around excavations to prevent wildlife from falling in; (iii) all solid waste must be removed from the Reserve; (iv) no construction materials (gravel, sand, etc.) to be obtained from within the Reserve unless specifically authorized by the Reserve Manager; (v) no staging of construction equipment, washing of vehicles or machinery, or changing of lubricants within the Reserve; (vi) rock blasting only during the hottest hours of the day (e.g. 11 am-2 pm) to minimize disturbance to wildlife, with 1 day or more advance notice to Reserve managers, using mobile sound barriers (and never on weekends or holidays); (vii) a reporting mechanism for all non-compliance and any wildlife incidents; and (viii) sensitization and training of all construction workers before their first day of work within the Reserve. Prior to launching the civil works, a detailed MoU or similar agreement will need to be signed concerning the specific environmental management duties and responsibilities of Africa Parks/DNPW, the Supervising Engineer, and the civil works contractor during Main Canal construction within the Majete Reserve. This agreement will include the criteria and procedures for issuing “stop work” orders if and when a significant problem occurs, and for resuming works only after the problem is adequately addressed. Rigorous pre-selection vetting will also be needed to assess the environmental management capacity and commitment of the main civil works contractor for construction within Majete (whether or not it is a separate contract from the remaining canal construction). Accordingly, DNPW will participate in this civil works contractor selection process.

Monitoring and Evaluation

91. Specific support will be provided to overall project Monitoring and Evaluation (M&E) and reporting. The project will establish a detailed M&E system to track progress and measure impacts over the lifetime of the program. Importantly, the results of this M&E system will be presented and discussed

with stakeholders, primarily (future) water users.

92. The project will use a result-based monitoring approach to assess progress and support project implementation in accordance with international best practice. The project already conducted socio-economic household surveys and established a baseline; carried out focus group discussions, and has created a GIS based MIS. Going forward, the M&E system will consist of the following elements: (i) detailed project progress (input-output) monitoring using project management software and a dashboard for management action; (ii) community-based monitoring and evaluation techniques; (iii) use of geotagging to monitor the progress with infrastructure and other project developments – integrated in the GIS based MIS; (iv) internal learning reviews and dissemination; and (v) impact evaluation for learning and assessing the effects of interventions on project beneficiaries. The project will employ a multilevel approach to monitoring. This will ensure that partners take timely corrective measures when required and will enable joint accountability for achieving the project objectives. The project will use a web-enabled, management information system to manage information and report progress. The database will be available on an open-access basis, to support greater transparency, collaboration and improved project governance. And the outcomes will be presented in the different management and consultative bodies of the project.

93. As a separate feature, the program will finance a socio-technical research program involving local and international universities which will focus on processes of social change, shifts in livelihoods and the socio-economic impacts and vulnerabilities during program implementation. This would be done through longitudinal surveys and qualitative action-oriented research. This activity may also document life stories (written, spoken and filmed) to provide context to the changes. While independent from program management, the project shall facilitate regular exchange on findings and utilize these to adapt implementation strategies.

94. The PMT will have the main responsibility for monitoring, evaluating and reporting data on the key performance indicators. The M&E functions will be a core element of the management support firm, to be engaged as consultants for the project period. The firm will support the PMT to build on the existing M&E framework and a plan for data collection. It will also assist in further roll-out of the project management information system, facilitate regular joint monitoring exercises, oversee the data collection for impact evaluation, reporting and feedback on lessons learned to ensure learning and continuous improvements in project implementation.

95. The results framework for the program has long term higher level indicators, as well as specific indicators for SVTP-I. The results framework includes indicators on social inclusion and citizen engagement, as well as the performance of the grievance redress mechanism.

Role of Partners

96. The GoM intends to pull together resources from different DP to achieve the objectives of the program. Individual partners will finance different projects/activities in parallel under the umbrella of the Program. The World Bank, FAO and AfDB have jointly supported and financed the preparatory phases and will provide catalytic funding to the first phase. Project phases can be overlapping and there is both donor and private sector interest in investing in agricultural development within the scheme as well as

associated services. The WB, IFC, and MIGA, have collaborated on identification and preparation of this project. Collaboration between the WB and IFC advisory has occurred at different levels in the assessment of viable role for private sector in the program and it is foreseen to continue during implementation. Preliminary studies were financed by Public Private Infrastructure Advisory Facility (PPIAF) and WPP. International Fund for Agricultural Development (IFAD) is preparing for investment in 2019, possibly in downstream development of tertiary infrastructure, support to commercial farms, considered under SVTP-II. Blended financing is sought with Commonwealth Development Corporation and others in both the infrastructure development as well as agricultural development through the challenge fund. The project has been designed in close consultation with Malawi's important DP in the sector, who have expressed interest in parallel or joint financing, particularly on the agricultural development aspects once infrastructure development is underway. The GEF will co-finance investments in support of improved natural resources management, including support for conservation areas and actions to tackle illegal logging and wildlife crimes.

97. There is close coordination and alignment between the major DP active in the sector. In addition to the WB, IFAD, the EU and AfDB support strategic work and investments in the large scale irrigation sector, and have supported projects in the sugar sector and in the lower Shire. Japan International Cooperation Agency (JICA) supports with technical assistance to the GoM and mini-scale irrigation development. The Bank is an active partner in sector coordination in both the agriculture as well as the water sector and policy dialogue is harmonized with partners. Local partners include: a) the traditional authorities that have strongly supported the development, albeit with impatience given earlier incarnations of the scheme; b) local government officials; c) private sector, most notably Illovo who have supported discussions in the Valley as well as studies to optimize design; d) Majete Park Management including Africa Parks Foundation who have contributed to discussions on optimization of the canal and advocating for wildlife friendly option selection; and e) local NGOs and existing farmer's organizations in sharing successful models and implementation lessons.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY: Malawi
Shire Valley Transformation Program - I

Strategy and Approach for Implementation Support

1. The Implementation Support Plan (ISP) describes how the Bank and other DP will support the implementation of the risk mitigation measures and provide the technical advice necessary to facilitate achieving the PDO (linked to results/outcomes identified in the result framework). The ISP also identifies the minimum requirements to meet the Bank's fiduciary obligations.
With its high risk profile, implementation support will need to be well structured. Given the development pathway, requirements will change during the course of project implementation and the ISP will be reviewed periodically to ensure that it continues to meet the implementation support needs of the project.

2. Safeguard risks for Bank-financed investments in the current project are significant. The World Bank's semi-annual missions will review social and environmental aspects of project implementation as well as overall implementation and advise on and address issues that emerge during implementation.

3. Institutional capacity risks underlie many of the other risks and the project is designed to mobilize significant third party specialized technical assistance on technical issues in irrigation, land tenure and agriculture development; as well as on overall project management, fiduciary management, safeguards implementation and documentation and overall monitoring and evaluation.

4. During SVTP-I implementation support would need to focus significant oversight on the quality of designs and works of irrigation and drainage infrastructure, land tenure registration processes and farmer organization processes.

5. The below ISP reflects estimates of skill requirements, timing, and resource requirements over the life of the project. All these estimates are flexible and open to modifications over the project implementation.

Implementation Support Plan and Resource Requirements

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	Staffing and building basic capacity Initiating critical procurements Detailed design processes Awareness-building and early farmer organization Establishing M&E and reporting systems	A variety of technical skills such as engineering, land management, environment, project management, fiduciary, M&E	US$300,000	Joint Implementation Support Mission (ISM). Participation in meetings for improved development

	FM, Procurement, Safeguards			partner coordination
12-48 months	ESIA, RAP implementation Construction works Systematic training programs, farmer organization Land registration	A variety of technical skills such as engineering, land management, environment, project management, fiduciary, M&E	US$300,000	Joint ISM. Participation in meetings for improved development partner coordination
Other				

Skills Mix Required			
Skills Needed	**Number of Staff Weeks**	**Number of Trips**	**Comments**
Team lead (irrigation specialist)	10+6 per year	2/yr	TTL and Co-TTL (HQ/Malawi), overall implementation support
Engineer	6/yr	2/yr	Technical design review and construction supervision support
Economist/Private Sector Development Specialist	4/yr	2/yr	Agribusiness, investment climate support, policy dialogue
Land Tenure Specialist	6/yr	2/yr	Land organization, land registration
			Farmer organization, agribusiness investments
Agribusiness Specialist	6/yr	2/yr	
Hydrologist	3/yr	1/yr	Water resources considerations, support safeguards, water management considerations
Ecosystem management specialist	2/yr	1/yr	Protected area management, safeguards support
M&E Specialist	2/yr	1/yr	M&E indicator tracking, refinement, use
Environmental Specialist	4/yr	2/yr	Environmental aspects and safeguards
Social Development Specialist	4/yr	2/yr	Social aspects and safeguards
Procurement Specialist	6/yr	2/yr	Procurement aspects, procurement plan revision and implementation monitoring, procurement audits
Financial Management Specialist	5/yr	2/yr	FM aspects, fund flow, FM audits
Flood management specialist	4/yr	1/yr	Review of flood management aspects
Dam Safety Specialist	1/yr	1	Dam Safety aspects

Team Assistance	2 HQ+5 Malawi	1	Team support

Partners		
Name	**Institution/Country**	**Role**
FAO-CP	FAO	Various technical experts in land, agriculture, engineering
JIT through WSDP	World Bank TF	Short term expertise as per need
AfDB	AfDB	Implementation support for its financing. Mix of skills to complement in joint ISM

6. It is planned that a significant part of this expertise can be mobilized locally in the Country Office, including team leadership. A mission based approach will not suffice in being able to adequately and timely respond to coordination and implementation issues. Currently, a significant part of the task team is decentralized and this will continue to enhance implementation support. Fiduciary support is also provided at the country office. In addition to missions and on-call support the task team proposes pro-active bi-monthly or monthly implementation support meetings, including with team members/experts based outside of Malawi connected by audio/video connection. These also include “consultant days” where financiers, governments and consultants jointly discuss progress, lessons learned and coordination/information needs to allow free exchange of information. This approach has proven to be effective in other investment programs in Malawi and ensures efficient use of resources and responsiveness to the demands of the Government. Lastly, program design places strong emphasis on monitoring and evaluation, as well as third party support to progress and impact evaluation and sub-project supervision (consultancies). This emphasis on information gathering and management will complement implementation support by the World Bank Task Team. The Bank team will interact with the PTC and PSC and with the consultative committee and beneficiary groups through field visits.

ANNEX 4: GEF-FUNDED ACTIVITIES

Overview

1. This sub-component of the program will be supported largely with GEF-6 funding and will promote an inter-sectoral approach to the management of the Lower Shire landscape by addressing biodiversity conservation, protecting and enhancing the role that forests, woodlands, rangelands and wetlands play in mitigating climate change; and promoting sustainable approaches to forest management that protect forest resources and deliver benefits to local communities. These activities should also contribute to building resilience to short term weather shocks and longer-term climate variability for local stakeholders in a region considered highly exposed and vulnerable to climate change. The activities selected for inclusion in this sub-component are designed to complement investments elsewhere in the program design that support agricultural development and broader land management.

2. At the national level GEF-6 support will help Government of Malawi to address broader regional and global priorities for wildlife conservation, consistent with the objectives and priorities of the Global Wildlife Program. Specifically, this will include support for the strengthening of wildlife crime policy, implementation of the National Elephant Action Plan, updating the IUCN Red list, and drafting legislation that can better define Access and Benefit sharing arrangements for genetic resources consistent with the Nagoya Protocol. Support at this level will also help Malawi to address growing problems associated with illegal logging and timber theft – an issue that threatens to erode the role of woodlands and forests in providing vital environmental services in the upper catchment forests of the Lower Shire landscape.

3. At the implementation level, this sub-component will support improved inter-departmental coordination and planning, and in partnership with the private sector, improved management of conservation areas and of natural resources (woodlands and grazing lands) on community land adjacent to, and between these sites. Support will be delivered through a variety of management interventions including co-management of existing forest reserves and woodlands, reforestation, community-based natural resources management, strengthened protected areas management and support for a feasibility study on the viability of a proposed community-managed corridor between two key conservation areas in the landscape. This sub-component will also help GoM implement the RAMSAR management plan for the Elephant Marsh – a key area for biodiversity conservation and what will be Malawi's first Community Conservation Sustainable Use Wetland Area.

Context

4. The government of Malawi has allocated GEF-6 resources to support investments from the Biodiversity, Climate Change, and Sustainable Forest Management focal areas. Designed as a fully blended operation, GEF funds will provide support to Components 2 (natural resources management) and 4 (program management) of the Shire Valley Transformation Project (SVTP-1). This support has been designed to complement investments in improved land management and agricultural productivity in the lower Shire Valley supported through other components and sub-components of the SVTP-1. Most GEF resources will be used under Subcomponent 2.2 of the Program, which focuses upon delivering the GEF focal area objectives.

5. Malawi's forests, biodiversity resources and wetlands make a substantial socio-economic contribution to the country and are of particular importance to the poor – supplying most rural energy needs, household construction materials and generating substantial employment and income generation. For charcoal alone, an estimated 93,000 people were employed in the value chain as of 2007[12]. The economic contribution of forests is substantial. Biomass fuels (esp. firewood and charcoal) account for around 88 percent of national energy consumption. Over 80 percent of domestic energy needs come from forests. These forests also stabilize steep slopes and catchments and prevent land degradation and soil loss. Degradation of these resources causes major problems for fisheries, irrigation and electricity generation from hydropower. Natural forests also deliver other important ecosystem services such as ecotourism and carbon sequestration. Improved management of these forests (for example, through introduction of forest co-management regimes with local communities or effective fire management approaches) could increase forest productivity and carbon sequestration as well as enhance their contribution to local livelihoods and the economy.

6. Tourism is estimated to be Malawi's third largest foreign exchange earner after tea and tobacco, and a major employer, accounting for over 5 percent of GDP and total wage employment. It contributes about 5 percent of the country's Gross Domestic Product[13] (GDP), although other sources put the figure significantly higher. A substantial proportion of this tourism is wildlife-based. Unfortunately, unsustainable hunting levels (mostly 'illegal') have also reduced stock levels in most parks and eliminated medium and large herbivores from most forest areas. A study published in 2011 estimated that the unsustainable use of wildlife resources costs MK665 Million (US$5 Million) each year in lost tourism revenues alone.

GEF strategic objectives

7. GEF focal area outcomes are summarized in Table 1. Biodiversity focal area funds will help GoM to build the systems and capacity needed to address illegal wildlife trade at the national level. At site level, biodiversity funds will be used to support biodiversity management in and around the conservation areas of the Lower Shire landscape. Support will also help Malawi address its obligations to achieve the Convention on Biological Diversity's 'Aichi Targets' (specifically, numbers 11[14] and 12[15]) which call for efforts to improve management of protected areas and conserve threatened species respectively. Progress for meeting these targets will be addressed by improving ecological connectivity between woodlands, forests, and wetlands ecosystems within key biodiverse landscapes with a strong focus of engagement with local communities, to reduce fragmentation of natural ecosystems within the landscape and to create a more integrated, ecologically representative, and well-connected systems of protected areas. Key threatened species addressed in this sub-component will include African elephant, Black rhino as well as smaller species such as Chapman's chameleon found only in Matandwe FR (the world's rarest

[12] *Kambewa et al (2007). Charcoal: The reality. A study of charcoal consumption, trade and production in Malawi. International Institute for Environment and Development. London.*
[13] Malawi Investment and Trade Centre, 2014
[14] By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative, and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
[15] By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

chameleon). There are also rare and threatened bird species found within the Elephant Marsh as well as rare butterflies.

8. **Biodiversity focal area funds** will also support start-up implementation of Malawi's first Community Conservation Area at the Elephant Marsh. This wetland was designated on July 1, 2017 as a 'Wetland of International Importance' under the Ramsar Convention on Wetlands. This investment will help the Department of National Parks and Wildlife and the Department of Fisheries to initiate programs to put biodiversity management into the marshes onto a more sustainable basis, for example, through the design, implementation and monitoring of fisheries and biodiversity conservation programs. The former will include activities consistent with the new fisheries policy to introduce community fisheries management in order to boost fisheries yields, protect fish nursery areas and conserve fisheries diversity. The latter might include the establishment of management zones and local regulations to protect key areas of important for biodiversity, such as waterbird breeding areas and roosts, sandbars used by turtles and African skimmers, and areas used by a much diminished hippopotamus population. Support will be used to curtail illegal commercial hunting of crocodiles, waterbirds and hippopotami and conversely to promote the establishment of community-based tourism development which offers prospects for contributing to local livelihoods. At national level, GEF support will also assist government to address a growing wildlife crime challenge, by strengthening capacity to respond effectively at national, regional and global levels. National level support will also help government to reporting on the National Biodiversity Strategy and Action Plan and to prepare an update of the IUCN Red List for Malawi.

Table 1: GEF Focal area outcomes

Focal Area Objectives/Programs	Focal Area Outcomes
BD-1 Program 1	Outcome 1.2: Improved management effectiveness of protected areas;
BD-1 Program 2	Outcome 2.1 Increase in area of terrestrial and marine ecosystems of global significance in new protected areas and increase in threatened species of global significance protected in new protected areas;
BD-2 Program 3	Outcome 3.1: Reduction in rates of poaching of rhinos and elephants and other threatened species and increase in arrests and convictions (baseline established per participating country)
BD-3 Program 8	Outcome 8.1: Legal and regulatory frameworks, and administrative procedures established that enable access to genetic resources and benefit sharing in accordance with the provisions of the Nagoya Protocol.
CCM-1 Program 1	Outcome 1A. Accelerated adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration.
SFM-2	Outcome 4: Increased contribution of sustained forest ecosystem services to national economies and local livelihoods of both women and men.
SFM-3	Outcome 5: Integrated landscape restoration plans to maintain forest ecosystem services are implemented at appropriate scales by government, private sector and local community actors, both women and men.

9. **Climate change focal areas funds.** Malawi is a net emitter of GHG emissions and, according to data presented in Malawi's Nationally Determined Contribution (NDC), forestry and related land use change contribute by far the largest proportion of national GHG emissions – nearly 80%. Approximate net

annual emissions from the forestry sector are 9.9 million tCO2e annually, most of which comes from forest degradation rather loss. The NDC makes clear that improved management of forests offers the highest potential for reducing emissions in Malawi and for this reason identifies the need for improved forest management as an NDC priority. Support will therefore focus on improving management of forests and woodlands – including the extensive woodlands of the lower Shire escarpments within conservation areas. Support will also promote and support scale-up of conservation agriculture and tree-based systems together with the monitoring and protection of the Elephant Marsh - one of the largest carbon storage sinks in Malawi. Measures to increase carbon storage in the landscape will also be promoted through re-afforestation and protection of natural regeneration (including through improved fire management approaches that can help increase overall carbon storage) and the establishment of woodlots.

10. **Sustainable Forest Management focal area funds** will support measures to address illegal logging improve monitoring of forests and support co-management planning and facilitation in forest reserves of the lower Shire. There will be an investment focus on Matandwe Forest Reserve and surrounding woodlands. For forest areas with co-management plans in place, investments would be provided for the implementation of forest rehabilitation and forest management activities, mostly in the forest reserves – but also extending to tree-based systems where appropriate. These will be led by local communities and with support from district forest offices, and following forest co- management plans and agreements. Examples of investments at forest and community level include tree seedling production and tree planting; natural regeneration initiatives; bamboo afforestation and bamboo charcoal production; beekeeping; establishment/management of Village Savings and Loan Schemes, forest boundary maintenance; and community-based measures to curb illegal activities in the forest reserves such as commercial charcoal production, encroachment and poaching. This work will be complemented by investments in forest survey and inventory. Capacity building initiatives will be supported for communities and district forest officers in areas such as forest management, seedling production, forest product value addition and marketing, financial management, the development of program sustainability strategies and conflict resolution.

11. **At landscape level,** support will be provided to develop and implement an integrated landscape management plan for the Lower Shire landscape to promote measures that can bring collective benefits for biodiversity conservation, forest management and for achieving climate change goals, for example for promoting forest regeneration and increased tree cover (including tree-based systems and use of trees and bamboos to address land degradation), ecotourism promotion, as well as practical strategies that could deliver better value-for-money and management effectiveness, such as knowledge sharing, pooled use of equipment, human resources, monitoring and reporting. These investments and activities are designed to complement IDA-supported investments in irrigation and agricultural development in adjacent parts of the productive landscape, by protecting environmental services and reducing human wildlife conflicts. Incremental operating costs for district forestry offices will also be supported.

Project Beneficiaries of SVTP and GEF support.

12. The primary beneficiaries of the SVTP will be smallholder farmers in the targeted districts of Chikwawa (and Nsanje for SVIP II). The estimated 2016 population in the project area is 223,000 people in 48,400 households. Of these 95,000 people are residing in 21,000 households in the SVIP I area and 128,000 people in 27,400 households in the SVIP II area. Smallholders will benefit through access to

irrigated agriculture, secure land and water tenure, farm organization, production and marketing support, through improved public and private advisory services, and access to financial services and value chain enhancement through support to value-chain enterprises. Formalized farmer groups will become clients to the irrigation services and partner with service providers and off takers in commercial agricultural production. Water supply to Chikwawa boma will support over 35,000 people. The program will focus on the participation of women and women-headed households, and seek to promote diversification to other crops than sugar, additional beneficiaries include other commercial agro-processing enterprises, traders, and private advisory services. GEF support will benefit communities living in and around forests, wetlands and conservation areas and should enhance revenue for conservation and local communities from nature-based tourism.

Global Wildlife Program and National Level Support

13. Malawi faces a growing wildlife crime challenge which includes illegal killing of African elephants (current national population of 1800) to supply illegal international markets for ivory as well as growing illegal trade in other wildlife species, including freshwater turtles collected from Lake Malawi. Efforts to address wildlife crime now have strong support from the President of Malawi.

14. Malawi is part of the GEF financed Global Wildlife Program (GWP) which supports participating countries to address the growing challenge posed by wildlife crimes, and strives to enhance efforts by individual countries to combat such crimes at a regional and international level. National level interventions will therefore complement site level support in the Lower Shire Valley (see Figure 3- Theory of Change). International cooperation afforded by the GWP and ICCWC will foster strong links between Malawi and other countries, especially in SADC, and will enable greater coordination and cooperation to address this growing challenge. The same organized criminal groups involved in wildlife crime are often also active in illegal logging and timber theft. Malawi recently interdicted and successfully prosecuted the largest case of illegal logging so far, inside New Lengwe – an area that provides critical watershed protection for the lower Shire floodplains. The degradation of these forests not only impacts biodiversity, but also increases the vulnerability of local livelihoods to flooding.

15. At national level, the project will support implementation of the National Elephant Action Plan (NEAP) and aspects of the Elephant Protection Initiative (EPI) as endorsed by a recent Presidential decree, and acknowledges the importance of the recent CITES decisions to close domestic elephant ivory markets globally. As such these measures will support Malawi's obligations under the Convention on Biological Diversity (CBD) and CITES to protect priority species such as elephants and rhinos (CITES Appendix 1). Support to the project will look to increase the national populations of both species as well as protecting their habitat.

Site level support for Conservation Area of the Lower Shire Landscape

16. The landscape selected for inclusion in this program sustains globally significant biodiversity, protects and delivers important ecosystem services - particularly carbon sequestration and watershed protection. Natural ecosystems in this landscape also contribute important ecosystem-based resilience as co-benefits. Conservation areas that will benefit from GEF support within this landscape total over 281,000 hectares.

17. *Mwabvi Wildlife Reserve and Matandwe Forest Reserve* protect the largest remaining block of woodlands and forests remaining in the Lower Shire valley. These woodlands and forests are key for protecting environmental services on the steep slopes of the western escarpment. Support will strengthen inter-agency planning and implementation between DNPW, DoF and develop nature-based tourism to deliver livelihood benefits for local communities and revenues to sustain landscape management. Support would also extend ongoing participatory forest management and linkages to wider tourism packages for the Lower Shire that includes a selection of sites.

18. *Co-management of forest reserves in Malawi* have been piloted at Matandwe FR since 2013. It is one of six forest reserves in which co-management was supported by the Forest Department with support from the first phase of the Shire River Basin Management Project, which is now coming to a close. This support has created a solid base from which activities can be scaled up to communities. The project will support village-level income generating activities, (such as beekeeping, livestock production, timber/firewood harvest and sale, tree seedling production and sale), the establishment of woodlots and tree-based systems on customary land, and the establishment and management of Village Savings and Loan Schemes in the impact area. The benefits of this approach can introduce lessons to other forest reserves in the lower Shire landscape such as those on the Kapichira-Thyolo escarpment and this knowledge-sharing approach will be embedded for support in a Lower Shire landscape management plan.

19. *Elephant Marsh*: These wetlands are critical for supporting a key freshwater fisheries as well as dry season agriculture and livestock grazing for communities in the lower Shire. The wetlands also 'soak-up' major flood peaks from the Shire and Ruo rivers and sustain internationally important wetland biodiversity. Within the Elephant Marsh the main harvested resources include fish, mammals, birds, papyrus, reeds, thatching grass and water lilies. These are almost exclusively harvested by poorer households on a subsistence basis or to generate some cash income. The fisheries, particularly important in the southern part of the marsh, are estimated to produce between 2,000 and 12,000 tons per annum with an estimated value of between US$1.5 – US$8.8 million per year (productivity is dependent on the flood cycle). The total annual provisioning value is estimated to be approximately US$5-US$12 million per annum. Beyond provisioning services, the Elephant Marsh also provides important regulating services in the form of flood attenuation, water quality amelioration, sediment retention and carbon sequestration. It was estimated that the Shire River peak flows would increase by approximately 20% if there was no Elephant Marsh. The Elephant Marsh is also a very important carbon sink with an estimated 28 million tons of carbon storage.

20. Government of Malawi is planning to establish the Elephant marsh as Malawi's first 'Community Conservation Wetland Area' with the intention of balancing local livelihood needs with the longer-term, sustainable management of the marsh ecosystem. The project will support start-up management of the wetland management plan for the Elephant Marsh with a strong focus on building resilience of local livelihoods given the impacts of climate variability. This will include the establishment and implementation of a monitoring program covering marsh hydrology, biodiversity and livelihoods. In the context of the park management plan, support would also enable the implementation of the first phase of the Community-based Management Plan for the Elephant Marsh. The project will support conservation measures for the remaining fish biodiversity and wildlife populations through support for participatory planning and identification of areas of usage and non-usage zones, the introduction of community fisheries

management regimes and development of community-based ecotourism.

21. *New Lengwe and Majete Wildlife Reserve* – Collectively the new Lengwe-Majete protected-area-complex covers a large area (>1500km2), and is strategically placed within the lower Shire biodiversity network. New Lengwe (also known as the Lengwe Extension Area) was established by government to protect the steeply sloping catchments of the lower Shire, which suffer regularly from severe flooding. The woodlands of these conservation areas also maintain important populations of Elephant (400), Black Rhino (20), and naturally occurring Nyala (600). Support to these sites would build on prior investments at Old Lengwe and would provide support to introduce improved management regimes in the extensive woodlands and forests of New Lengwe – which are currently under severe pressure from illegal commercial logging and over-exploitation. The project will support for the extension of the park management plan to cover New Lengwe, including the development of co-management arrangements with local communities – building on an existing platform of Community-based Organizations around the Park, support for measures to reduce Human Wildlife Conflicts, development of access routes and support for day-to-day Park management, including survey, monitoring and patrolling activities. Support will also be provided to prepare a feasibility for a possible landscape corridor that could protect ecological linkages between New Lengwe and Majete Wildlife Reserve, perhaps through the introduction of a community conservancy-based approach.

22. *Majete Wildlife Reserve* is adjacent to New Lengwe and is managed under a concession management arrangement by the African Parks Network. This concession arrangement has been extremely successful, and it is anticipated that a partnership arrangement with the African Parks Network will bring wider benefits to landscape management efforts in the lower Shire – in particular through knowledge exchange and capacity-building support. Support to Majete is likely to include support for community development as part of the Reserve's outreach strategy as well as support for park management operations that will help to secure effective conservation of forests, woodlands and wildlife. Since African Parks Network took over the management of the government owned Majete Wildlife Reserve in 2003 there has been a dramatic increase in revenue generated from tourism at this site as a result of re-stocking of animals and improved management. For example, the number of visitors has risen from just 10 in 2003 to 7300 in 2015. In 2003, Reserve revenues were close to zero compared to US$370,000 generated in 2015. Around Majete, 19 CBO's have been created since 2003, and the Reserve now employs 137 local people on a full-time basis, and also 641 local people working on IGA's (in 2003 there were no local employment opportunities). The SVTP-I will provide additional support to expand and consolidate such community livelihood initiatives as well as for investments in improved Reserve management that go well beyond the impact mitigation requirements related to SVIP canal construction (which is covered under component 1).

Table 2. Lower Shire landscape conservation areas and their relative sizes

Name of site	Total area (ha)
Elephant Marsh	61,556
New Lengwe	77,587
Majete	77,754

Matandwe	28,915
Mwabvi	35,193
Total	**281,005**

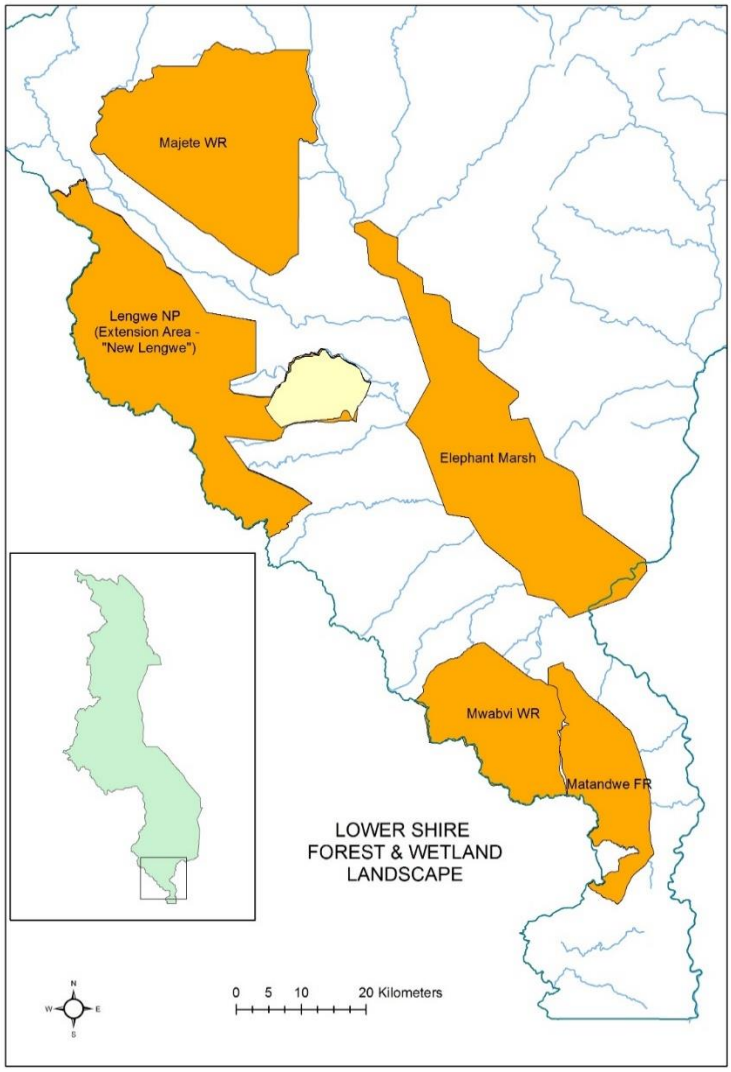
Biodiversity Conservation

23. The PAs of the lower Shire hold rare and threatened biodiversity. In the lower Shire, Majete Wildlife Reserve hosts impressive populations of Elephant (*Loxodonta africana*), Black Rhino (*Diceros bicornis*), Lion (*Panthera leo*), Leopard (*Panthera pardus*), and Kudu (*Tragelaphus strepsiceros*); while neighboring Lengwe National Park is home to the most northern naturally occurring populations of Nyala (*Tragelaphus angasii*). Further south is the Elephant Marsh that covers an area approximately 600km^2 and is internationally recognized for water birds (African Skimmer (*Rynchops flavirostris*), African Pygmy Goose (*Nettapus auritus*), and Pel's Fishing Owl (*Scotopelia peli*)) and important fish species such as Chambo (*Oreochromis* sp.) and Tiger Fish (*Hydrocynus vittatus*). In the very south is Mwabvi Wildlife Reserve, which has recently experienced high levels of illegal wildlife hunting, and once home to the last naturally occurring populations of Black Rhino in Malawi, it boasts a stunning landscape with many species of antelope. It borders the larger Matandwe Forest Reserve (Figure 1) thus providing a much larger protected area landscape for animals to disperse. Matandwe Forest Reserve is home to the endemic Chapman's Pygmy Chameleon (*Rhampholeon chapmani*) – often referred to as the world's rarest chameleon: *https://news.mongabay.com/2014/11/meet-the-worlds-rarest-chameleon-chapmans-pygmy/*.

Climate Change and Natural Resources

24. Malawi's Nationally-Determined Contribution (NDC) document identifies the need for sustainable management of natural resources at the landscape and watershed level as a top priority – to reduce GHG emissions and also build resilience of highly-vulnerable populations to increasing climatic variability. These are key to Malawi's economic development and are import to the rural poor. Forests might actually contribute as much as 8 percent of GDP - with household consumption of fuel wood contributing the largest contribution. Biomass fuels (esp. firewood and charcoal) account for around 88 percent of national energy consumption. They are associated with environmental degradation, poverty and under-development and so opportunities to manage and develop this resource as a livelihood asset have been missed. Over 80 percent of domestic energy needs come from forests. These forests also stabilize steep slopes and catchments and prevent land degradation and soil loss. This causes major problems for fisheries, irrigation and electricity generation from hydropower. Natural forests also deliver other important ecosystem services such as ecotourism and carbon sequestration. Improved management of these forests (for example through introduction of forest co-management regimes with local communities and by introducing effective fire management approaches) could increase forest productivity and their contribution to local livelihoods and the economy.

Figure 1. Map of GEF intervention sites



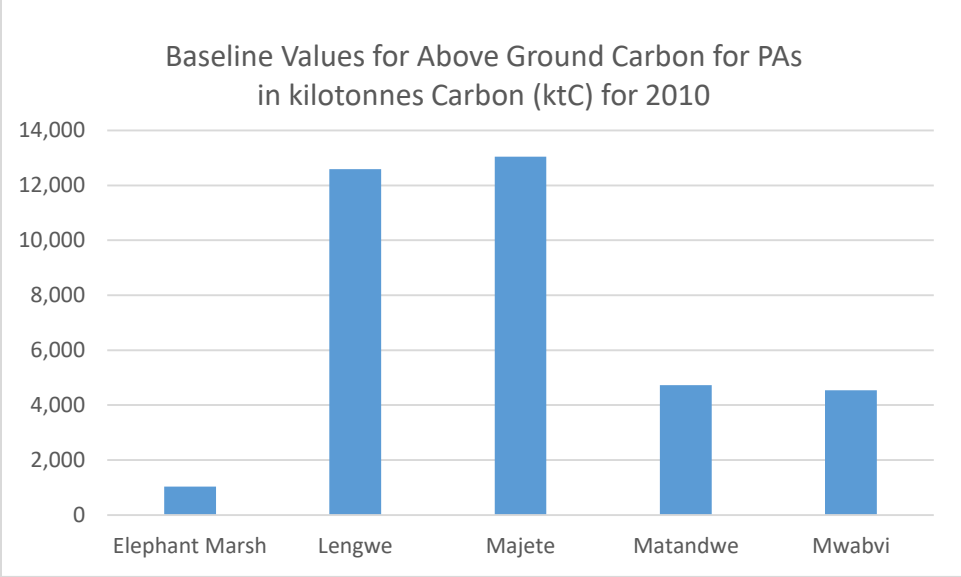
25. Greenhouse Gas (GHG) emissions from forest loss, degradation and land use change accounted for 78 percent of national emissions – by far the largest contribution by sector. On an annual basis, Malawi emits approximately 0.8 million tCO2e from deforestation, and approximately 10 million tCO2e from forest degradation. The current level of tree planting and natural or assisted regeneration sequesters approximately 0.9 million tCO2e annually. The result is an approximate net annual emission from the forestry sector of 9.9 million tCO2e annually[16]. Malawi's Intended Nationally Determined Contribution (INDC) document estimates that enhanced protection and conservation of Malawi's conservation areas (wildlife reserves and forest reserves) could reduce emissions by approximately 4.8 million tCO2e annually. By increasing tree cover on customary land outside forest and wildlife reserves, this figure could be increased further (see also figure 2 – for above ground carbon). Figure 2 shows the baseline carbon

[16] These figures are cited in Malawi's INDC document (May 2015).

values for above ground biomass for all sites given in kilotons of carbon for 2010 (FAO Land Use data).

26. It is estimated that GEF support as part of Phase 1 of this program would mitigate 0.657 MtCO2-eq *per annum*, once the project is fully operational and achieving impacts. This would result in a total mitigation of an estimated 3.29 MtCO2-eq emissions over years 2 to 6 year of the project period. The basis of this estimation is as follows: Above ground carbon stored for all GEF-supported conservation areas is 35.9 MtC, equivalent to 131.4 MtCO2-eq if released (based on 3.66 tons CO2: 1-ton carbon). Current levels of carbon loss based on rates of deforestation and degradation (the latter accounts for by far the largest share of forest-related emissions) plus gradual depletion of below ground carbon in the Elephant marsh (through reclamation, vegetation clearance and drying) is estimated at 2-2.3 percent per annum. It is assumed conservatively that, as a result of project intervention, this figure would be reduced to around 1.5 percent per annum, giving a conservative estimate of carbon mitigation of 0.5 percent per annum during years' 2 to 5 of the project. (i.e. 2.5 percent over the lifetime of SVTP-I). The longer term impact over 15 years is estimated at 9.855 MtCO2-eq.

Figure 2. Above Ground Carbon values for the selected PAs using 2010 FAO Land Use data (kilotons carbon)



27. In terms of carbon storage (Total Above and Below Ground carbon) the figures are much higher. For example, the Elephant Marsh has low above ground carbon but high below ground stored carbon. A Total Carbon storage value of 28.1 million tons is estimated for the Elephant Marsh if Above and Below Ground carbon is calculated.

Table 3. Total Carbon Storage for 3 focal sites

Site	Area (Hectares)	Total Carbon Storage (Mg)
Lengwe NP	91699	20560220
Matandwe FR	28464	5566886
Elephant Marsh	78344	28118663
Total	**198,507**	**54,245,769**

28. This equates to a total of 54.3 million tonnes of Total Carbon stored in these 3 PA sites alone, which is equivalent to 199 million tonnes of CO2 if ALL were to be released (based on 3.66 tonnes CO2: 1 tonne Carbon). One of the first jobs under GEF-6 funding will be to undertake this analysis for all of the sites (remaining Mwabvi and Majete WRs to do). These calculations are also based on the FAO 2010 Land Use database. An analysis of more recent land use categories is also recommended under the GEf-6 funding. Such an analysis would provide the change in carbon stored and thus provide data on sequestration and emissions.

29. Currently national parks, wildlife reserves, and forest reserves cover 18 percent (1.7 million hectares) of the land mass of Malawi. This is a large area that if properly protected will contribute significantly to address the drivers of climate change through afforestation and reforestation practices, carbon storage and sequestration, and through best practice land management to combat land degradation. Such measures will form part of Malawi's 'Reducing Emissions from Deforestation and Forest Degradation' (REDD+)' initiatives. Central to these protected areas are the Shire River and the associated wetlands that form an aquatic network between these sites. The largest of which is the Elephant Marsh that covers an area of up to 600km^2 in the flood season and is vital to the functional ecology of the Shire River, acting as a filter to the main river course, a floodplain to both the Shire and Ruo Rivers, and a source of livelihoods to local communities. Sustainable management of these marshes, together with a comprehensive catchment restoration approach that combines protection of natural habitats with improved land management in production landscapes, will mitigate flood damage and support climate resilient livelihoods based on sustainable natural resources management principles.

30. The Elephant Marsh is also home to significant rare and threatened biodiversity requiring improved management that balances the needs of local people and the imperative of building resilience of these communities to highly variable climatic conditions and longer-term climate change. The site meets the criteria of a 'Wetland of International Importance' as defined by the RAMSAR convention and the marsh was designated on July 1, 2017 as a 'Wetland of International Importance' under the Ramsar Convention on Wetlands and will be proposed for national designation as Malawi's first Community Conservation Area.

Project Baseline

31. Malawi has a population of just over 16.3million: The country is one of southern Africa's most densely populated countries (estimated at 134 people per km^2). Approximately 85 percent of the

population live in rural areas, and are engaged in smallholder, rain-fed agriculture for subsistence. Over 70 percent% of all farmers cultivate less than one hectare, and struggle to produce enough food for their consumption needs. Malawi's economy is based on agriculture, comprising of around 40 percent of the GDP and 90 percent of the export revenues predominantly from tobacco, tea and sugar processing. Malawi has experienced uninterrupted solid growth from 2006-2010 with real GDP growth averaging about 7.4 percent, compared to an average of 2 percent for 1999-2004 amid a decline in inflation. In addition to a positive macroeconomic environment, good weather and a fertilizer subsidy program have also made significant contributions to the growth in agriculture. Growth slowed in 2011 to 4.3 percent due to a poor agricultural season. In 2010, approximately 50 percent of the population was living below the poverty line, though the implementation of Government strategies and supporting organizations, this is decreasing.

Objectives of GEF Alternative

32. The development objective of the project is to provide access to reliable gravity fed irrigation services, secure land tenure for smallholder farmers, and strengthen management and landscape connectivity of natural resources in the Shire Valley. The GEF support will be specifically to develop and implement sustainable natural resource strategies at landscape level in the lower Shire landscape. This objective will be achieved through a range of activities included in a Natural Resources Management subcomponent of the SVTP-I.

Activities:

33. At landscape and park level, this sub-component would: (i) Invest in community-level natural resource management in areas adjacent to the irrigation and conservation areas (Lengwe National Park, Mwabvi and Majete Wildlife Reserves, Matandwe Forest Reserve and the Elephant Marsh proposed Community Conservation Area) and in wildlife corridors, (ii) Provide targeted support to these conservation areas to strengthen conservation and community management and encourage private sector investments (e.g. by tourism concession investors) that could boost revenues for re-investment in local community development and conservation management, and (iii) Invest in establishment of the *Elephant Marsh Community Conservation Wetland Area*, with a strong emphasis on community-based natural resources management strategies, based on the wetland management plan currently being finalized with the support of the Shire Basin Management program (SRBMP) phase 1.

34. The above will be complemented by investments at national level, including operational support, technical assistance, measures to enable improved use of geospatial and mapping applications, actions to address illegal logging and combat wildlife crimes; and support for trans-frontier cooperation and operations (Lengwe, Mwabvi, Majete and Elephant Marsh are aligned along national borders). These investments will be in addition to mitigation measures identified in the project ESIA; and they will build on earlier work under the ongoing SRBMP, with which this component shall be closely coordinated.

Monitoring and Evaluation

35. A comprehensive M&E framework that will include Global Wildlife Program (GWP) Tracking Tool (TT) used for the GWP GEF investments in 19 countries. The M&E framework and TT will be used to track and monitor implementation progress and impacts, including national level indicators to track wildlife

seizures and trade and illegal logging, and site level indicators on management effectiveness at site level. For the SVTP-I, which includes the GEF specific investments, the M&E framework will be embedded within national institutions.

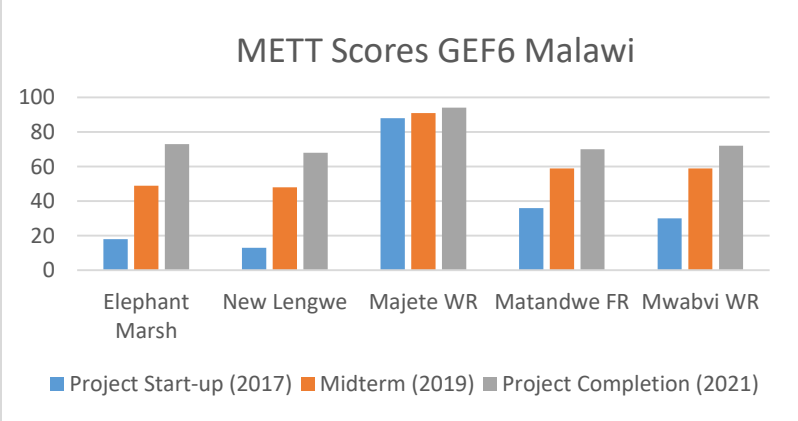
36. Management effectiveness baselines are already in place for the protected areas included in the lower Shire landscape (Table 3- METT scores). These indicators will be tracked and measured (Figure 3) in parallel to the M&E results framework of the overall SVTP-I; these indicators cover in part the use of the GEF funds but are not focused on the GEF-funded components. Based on the METT assessment an indicator for management effectiveness of conservation areas supported with GEF funds has been included as a high-level indicator in the SVTP-I, the results of which will be integrated into project execution and decision-making in an adaptive management approach.

Table 3. METT scores for the Lower Shire Protected Areas at select time intervals

	Project Baseline (2017)	Midterm Projection (2021)	Completion Projection (2023)
Elephant Marsh	14	46	68
New Lengwe	13	40	65
Majete WR	87	89	93
Matandwe FR	35	53	63
Mwabvi WR	26	52	67
TOTAL	**175**	**280**	**356**

Note: Old Lengwe vs New Lengwe. If a comparison is made between the METT Scores of Old Lengwe and New Lengwe we can see the need for site investments at New Lengwe. The April 2017 score for Old Lengwe is 68 points while the April 2017 score for New Lengwe is only 13 points. This highlights the need for GEF support to New Lengwe and demonstrates that there is much to do before New Lengwe is of a similar standard to Old Lengwe.

Figure 3. METT Scores from Project start, projected Mid-term, and projected End for the selected PAs



Detailed Description of Activities Under Sub-Component 2.2.

GEF Activity 1: National level strengthening of frameworks for Biodiversity Conservation

1.1 Strengthen legal capacity to develop effective regulatory and administrative frameworks for implementation of the Nagoya Protocol on Access and Benefit Sharing.
Comprehensive policy and legislation regulations and guidelines need to be developed and adopted on Access and Benefit Sharing of genetic resource. Support is needed to raise legal awareness, build an effective legal and institution framework, build capacity of national lawyers and ABS institutions, and share experiences to foster further ABS innovation across the country. This work will be led by EAD.

1.2 Conduct assessment and update the IUCN Red Data list for Malawi to include threatened, endangered, endemic and rare species.
The National IUCN RED list is out of date (2005) and needs updating. GEF support will help organize the review process, contract suitable consultant(s), fund a presentation workshop, and cover the costs of production and distribution of the updated IUCN Red List for Malawi. This work will be led by EAD working closely with DoF, DoFi and DNPW.

1.3 Increase capacity for implementation and cooperation among law enforcement agencies and relevant international organizations in range, transit, and consumer states to reduce illegal wildlife trafficking.
GEF support would focus on implementing the recommendations of the National Elephant Action Plan (NEAP) and the wider goals of the Elephant Protection Initiative (EPI). Malawi is now a "Country of Primary concern" and requires a National Ivory Action Plan (NIAP), for which technical assistance from the project can help draft. Addressing the issues of the use of Malawi as a supply and transit country will require greater understanding and strengthening the capacity of the National Wildlife Crimes Investigation Unit, combined with more effective protection at landscape level. Support will enable DNPW and DoF to participate actively in international meetings, engage effectively with Interpol and UNODC, support training in intelligence-based approaches for addressing wildlife crime and improving overall capacity for detection, investigations and crime suppression (including prosecution case handling in collaboration with ICCWC and SADC partners. This activity will be led by DNPW in collaboration with EAD and DoF.

1.4 Reduce the levels of illegal hunting and logging in the protected areas in the Lower Shire through aerial and remote sensing monitoring of illegal hunting and logging. *Monitoring wildlife crime and forest extent is essential to enable careful targeting of Malawi's limited 'on-the-ground' enforcement resources. However, this also poses significant challenges over large and often inaccessible areas. The project will support the use of aerial (including the use of fixed wing and quadricopter drones) and remote sensing technologies. The latter may include use of the European Space Agency's 'Sentinel' satellite data which provides high resolution satellite imagery interpretation,* Geographical Information Systems (GIS), the use of drones, and aerial photography are all important tools employed in such an analysis. analysisFunds *will*

be used to strengthen monitoring and provide support to DoF and DNPW for aerial surveys and geospatial applications to monitor illegal hunting and logging. This will include support to access geospatial applications for monitoring, analysis, and mapping of enforcement data collected by forest guards and DNPW patrols to improve strategy and targeting. This activity will be led by Department of Forestry in close coordination with Department of National Parks and Wildlife.

1.5 Increase in Nature-based tourism at PAs through marketing strategies and improving visitor attractions at sites.

This will provide support for tourism marketing and associated activities of the biodiversity and cultural assets of the lower Shire conservation areas. This activity will aim to boost visits and investment in tourism as a means of increasing the financial viability of conservation areas and to boost benefits to local communities. This activity will be led by DNPW in collaboration with Department of Tourism.

GEF Activity 2: Sustainable Landscape Management (US$4.4 million)

2.1 Develop and Implement three site based management plans in collaboration between relevant stakeholders (New Lengwe, Elephant Marsh, Mwabvi) and support management of Majete Wildlife Reserve.

The existing management plan for Old Lengwe NP will be expanded to incorporate management strategies for New Lengwe and field activities will primarily be focusing on engagement strategies with local communities, monitoring and surveys and other protected area management support (for example, capacity-building work in support of new field patrols groups, establishment of scout camps, graded roads, and boundary demarcation. For the Elephant Marsh, the main goal will be to support and implement the RAMSAR management plan as developed through the SRBMP phase 1 (see below). These activities will be led by Department of National Parks and Wildlife for Mwabvi, New Lengwe and by DNPW working with Department of Fisheries for the Elephant Marsh. At Majete Wildlife Reserve, support will be used by APN to support work with local communities around the Park and to share with other conservation areas the results of successful engagement strategies that have helped build local community capacity and agricultural value chains at local level. Support for fence management to reduce Human Wildlife Conflicts in agricultural areas adjacent to the Park will also be included.

2.2 Reduce the number of Human Wildlife Conflicts and Problem Animal Control incidents through implementing appropriate mitigation measures.

This activity will focus on particular species such as hippo, buffalo, and crocodile. The aim will be to reduce the number of HWC situations through design and implementation of a range of mitigation measures e.g. use of cheap and effective fencing measures to protect crops in the Elephant marsh from hippos, awareness activities to reduce fatalities from crocodile attacks. There will be a strong community engagement in this activity. This activity will be led by DNPW in close coordination with DoFi.

2.3 Establish and implement the Elephant Marsh Community Conservation Wetland Area through the

endorsement of the RAMSAR nomination file and management plan.
This important activity will focus on creating Malawi's first Community Conservation Wetland Area under the administration of the Department of National Parks and Wildlife (DNPW) and supporting the establishment and operation of a wetland management committee to coordinate and monitor the implementation of the multiple use Elephant marshes management plan. This activity will be led by DNPW in close coordination with Department of Fisheries.

2.4 Support for the start-up of initial wetland management operations.
These will be designed and implemented to place biodiversity management onto a more sustainable footing and in ways that optimize benefits to local communities and livelihoods – including helping building resilience to weather and climate shocks. The project will help to implement the management prescriptions set-out in the wetland management plan for different zones, including the development of co-management arrangements (most notably, of community fisheries – see below), piloting of community-based wetland ecotourism, controlling illegal and unsustainable commercial hunting of key species and protecting key areas for biodiversity, such as waterbird breeding colonies and roosting sites.

2.5 Support for the conservation of fish biodiversity and sustainable wetland management.
S*upport for the scale-up of community fisheries management. CFM regimes will be designed in a participatory way with fishing communities in the marshes to protect key nursery and fish refuge areas in order to boost yields on a longer-term and sustainable basis. CFM agreements will be integrated into the overall wetland management plan. Consideration will also be given the development and introduction of local fisheries bylaws and regulations, consistent with the new fisheries policy. Support will also be provided to scale-up conservation agriculture approaches in the Elephant marshes, consistent with the wetland management plan and focusing on the protection of river banks and introduction of climate resilient farming practices. This activity will be led by the Department of Fisheries, coordinating closely with DNPW.*

2.6 Forest co-management planning and implementation.
The project will support planning of forest co-management in and around forest reserves in the Lower Shire watershed and an expansion of forest co-management at key sites, including at Matandwe Forest Reserve. Matandwe and other forest reserves provide an important source of biomass fuels for communities in the lower Shire basin. Support for forest co-management at Matandwe FR was provided following the closure of EC-funded support for forest co-management at national and forest reserve level. Support under the SRBMP enabled the completion of the development of the forest co-management planning process. Support under SVTP will enable full implementation of the plan in and around Matandwe FR. Support will also develop forest co-management plans at other forest reserves in the lower Shire with a view to implementation financing in subsequent phases of the program. Lessons derived from promising experience at Matandwe and other forest co-management sites will be shared with forest management institutions and sites managers at other forest areas and reserves – for example at Thambani, Masenjere, and Thyolo Forest Reserves to address the severe sedimentation run-off caused by deforestation practices

in these areas. Support would be provided for the implementation of forest rehabilitation and forest management activities involving local communities following prescriptions stipulated in the management plans and agreements: including tree seedling production and tree planting; natural regeneration initiatives; bamboo woodlots and bamboo charcoal production; and forest boundary maintenance.

2.7 Increase in Nature-based tourism at PAs through marketing strategies and improving visitor attractions at sites.

As a result of a nature-based tourism consultancy through the SRBMP phase1 a series of nature-based tourism packages and knowledge products have been produced aimed at the regional, national, and international audiences. These need to be marketed and implemented at the regional and national level. This activity will aim to promote these to increase visitors to the various protected areas.

GEF activity 3: Monitoring and evaluation and project management - Lead: Environmental Affairs Department and Department of National Parks and Wildlife (US$500,000)

3.1 Build capacity for and undertake METT assessment to changes in Management Effectiveness for Lower Shire Conservation Areas.

A periodic review will be undertaken (Project Start, Mid-term Review, Project End) to monitor the effectiveness of the various management prescriptions at the various protected areas in line with the tracking tools developed specifically for GEF investments and in particular for those countries in the GWP through GEF-6. These scores will help guide the implementation process and identify where activities are working and those that need additional support.

3.2 Build capacity for field level monitoring and management of information for enforcement. *For mapping and management of enforcement data, the project will explore the use of 'SMART' that enables the collection, storage, communication, and evaluation of data on: patrol efforts, results (e.g. snares removed, arrests made), and threat levels. This approach has been developed and tested in Kenya and has shared experience of this approach through the Global Wildlife Program. This approach can be applied effectively by both Park and community patrols. When effectively employed to create and sustain information flow between ranger teams, analysts, and conservation managers, the SMART Approach can help to substantially improve protection of wildlife and their habitats.*

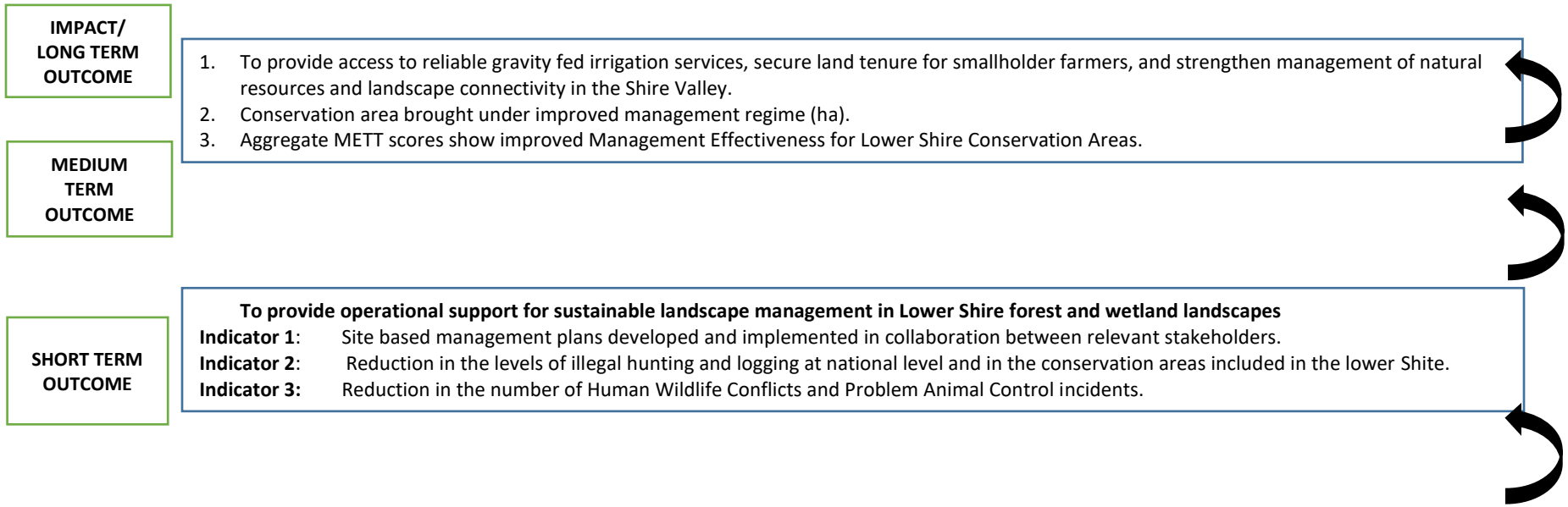
3.3 Wetland Monitoring. The project will develop and support the implementation of a hydrological and biological monitoring program for the marsh. This will include monitoring of fish biodiversity and yields, wildlife populations as well habitat changes, and hydro-morphological parameters. This activity will be led by DoFi working closely with DNPW.

3.4 Support EAD, DNPW, DoFi and DoF for management, coordination, monitoring and reporting on institutional and landscape level interventions.

Support to the various government departments will be agreed prior to the start of the project in order to

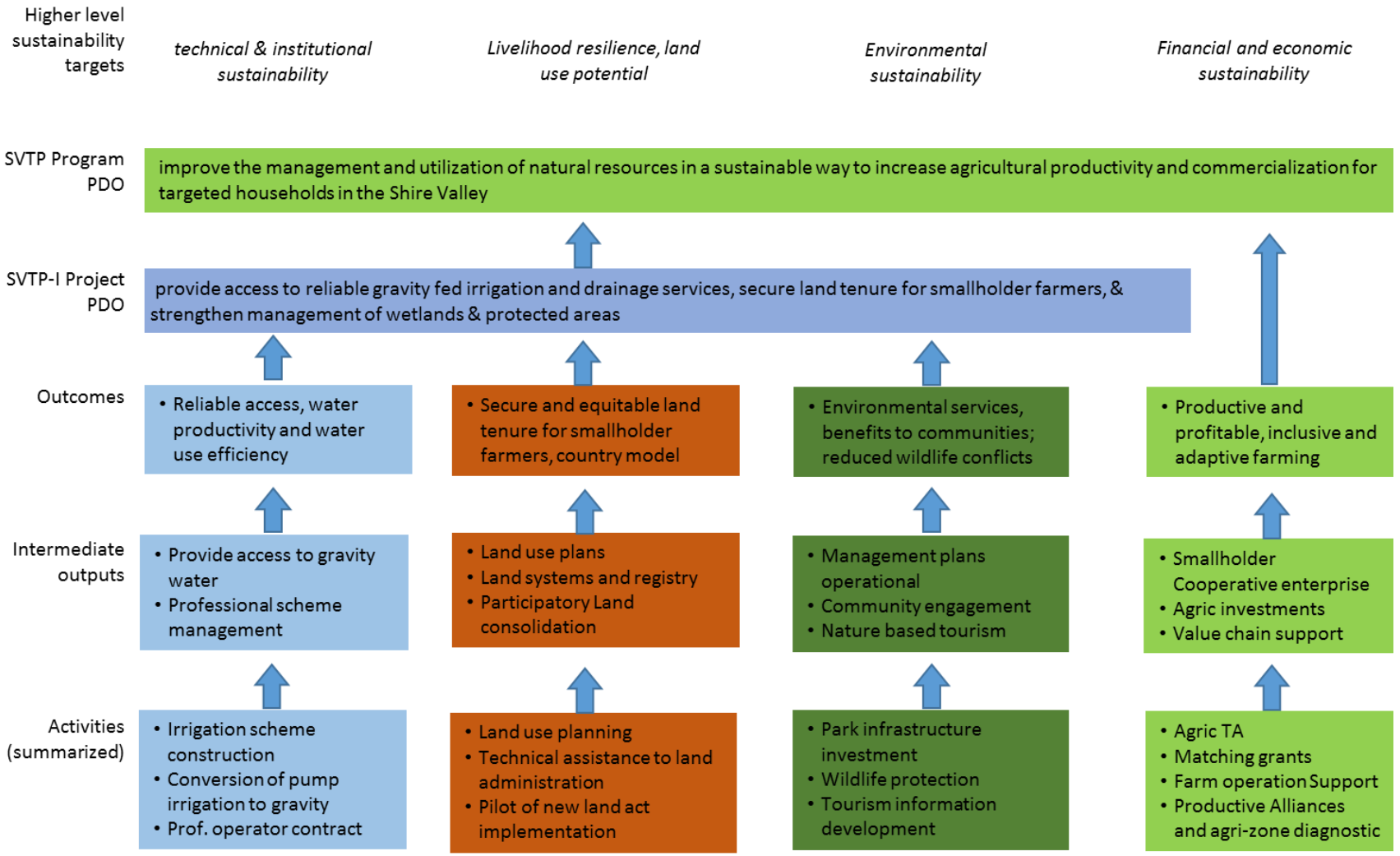
successfully implement the project over the project duration. Support will be given to activities such as workshops, meetings, presentation, reporting and monitoring and evaluation.

Figure 4: Theory of Change specific to GEF-funded activities and integrated into the Shire Valley Transformation Program



ANNEX 5: THEORY OF CHANGE

Shire Valley Transformation Program: Theory of Change



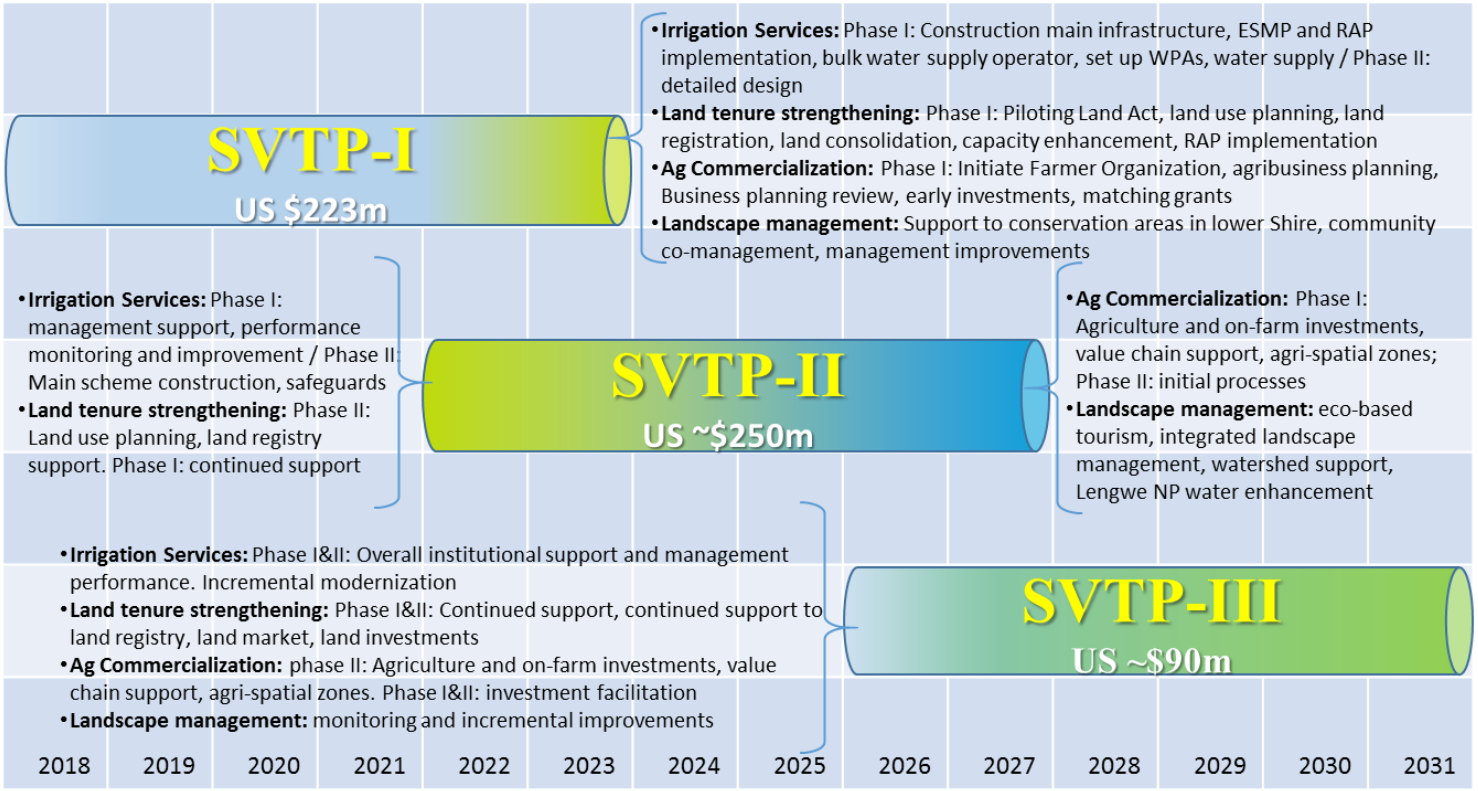
ANNEX 6: INVESTMENT PROJECT PHASING

COUNTRY: Malawi

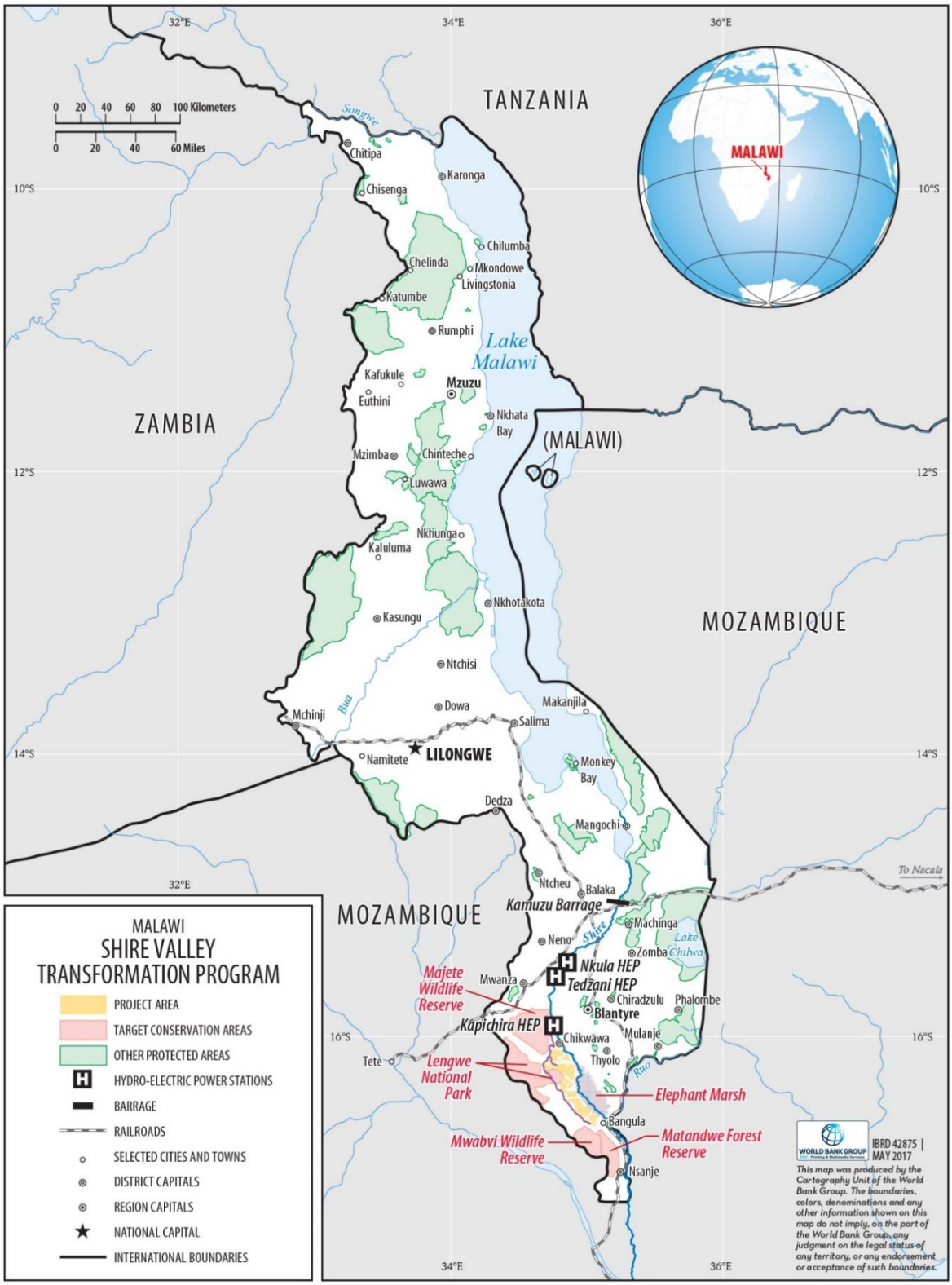
Shire Valley Transformation Program - I

Program Focus Areas:

- **Irrigation Services:** *Irrigation and Drainage Infrastructure, Professional Operation, Environmental integration, Multiple Use Services*
- **Land tenure strengthening:** *integrated Land Use planning, participatory customary land tenure administration, registration, consolidation*
- **Ag Commercialization:** *Farmer Organization, Value Chain Development, Productive Alliances, Investment facilitation, Production Support*
- **Landscape and conservation areas:** *conservation area management, wildlife conservation, community based NRM and development*



ANNEX 7: MALAWI COUNTRY MAP



ANNEX 8: SVTP PROGRAM AREA MAP