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Environmental Action Plan 2026-2031



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PREFACE



The adoption of the Tanzania Agriculture Master Plan (AMP) 2050 marks a historic milestone in the country's commitment to transform the agriculture sector into a key driver of industrialization, food security, and rural prosperity. The Plan targets an annual sector growth rate of 10 percent and aims to expand irrigation coverage to 1.2 million hectares by 2030. Complementing this ambition, the Agriculture Sector Environmental Action Plan II (ASEAP II) (2026-2031) provides the environmental sustainability and climate resilience framework necessary to support long-term agricultural transformation and inclusive socio-economic development.

Despite its critical contribution to national development, Tanzania's agriculture sector remains highly vulnerable to environmental degradation and climate change, which continue to threaten food security, livelihoods, and economic growth. Major challenges include unsustainable agrochemical use, inefficient water management, weak institutional capacity, and limited environmental awareness. These challenges have contributed to widespread land degradation affecting about 50 percent of the country's land area, resulting in declining soil fertility, ecosystem deterioration, and reduced agricultural productivity. According to ASEAP I, the economic cost of land degradation is estimated at over TZS 25 trillion (US\$ 10.1 billion) annually, while climate change is projected to reduce national GDP by about 1 percent each year, increasing to 2 percent by 2030 if current trends continue.

While the total national budget allocation for the agriculture sector experienced significant growth—increasing from TZS 294 billion in 2021/2022 to TZS 1.248 trillion in 2024/2025—this expansion primarily financed physical infrastructure, input subsidies, and operational costs. Direct environment-specific expenditure, specifically ring-fenced for climate-resilience, catchment conservation, agroforestry, and CSA extension services, accounted for an estimated 4.2% of the total sector budget during this period. This disproportionate ratio underscores the critical necessity of the USD 52.39 million ASEAP II financing framework to dedicatedly fund the sector's ecological base.

The Agriculture Sector Environmental Action Plan II (2026–2031) therefore provides a comprehensive framework for promoting sustainable land and water management, climate-smart agriculture, efficient irrigation, soil fertility restoration, biodiversity conservation, and strengthened land tenure security. Building on the achievements and lessons learned from ASEAP I (2012–2017), the Plan also fulfills the requirements of the Environmental Management Act, Cap 191. Thus, ASEAP II is structured around four strategic pillars: Land Use Governance and Soil Health; Climate Adaptation, Resilience and Early Warning Systems; Water Security and the Water-Energy-Food Nexus; and Agro-Pollution Control. Cross-cutting priorities include digitalization, gender equality, social inclusion, particularly for women and youth, the integration of indigenous knowledge, and institutional capacity strengthening.

Successful implementation of ASEAP II will require strong collaboration among government institutions, the private sector, development partners, civil society organizations, research institutions, and local communities. Through coordinated action, the plan seeks to build a resilient, inclusive, and sustainable agriculture sector capable of ensuring national food security, improving rural livelihoods, and increasing foreign exchange earnings through agricultural exports. The Government therefore calls upon all stakeholders to actively support and contribute to the realization of sustainable and productive agricultural development in Tanzania.

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ACKNOWLEDGEMENT



The successful formulation of the Agriculture Sector Environmental Action Plan II (ASEAP II) (2026–2031) which focuses on crop sub sector is the result of a rigorous, consultative and evidence-based process involving a wide array of stakeholders within and beyond the agriculture sector.

We are thankful to the Management of the Ministry of Agriculture for their leadership and overall guidance during formulation of the Action Plan. Further, we are grateful to the Environmental Management Unit (EMU) of the Ministry of Agriculture for their technical coordination throughout this undertaking.

We are deeply indebted to the members of the Multi-sectoral Team of Experts for their participation in data collection and technical inputs in drafting the Action Plan. The experts were drawn from the President's Office - Planning Commission; Vice President's Office; Prime Minister's Office-Regional Administration and Local Government (PMO-RALG); Ministry of Agriculture; National Environment Management Council (NEMC); Tanzania Meteorological Authority (TMA); Tanzania Plant Health and Pesticides Authority (TPHPA); Tanzania Agricultural Research Institute (TARI); National Irrigation Commission (NIRC); University of Dodoma (UDOM); Institute of Rural Development Planning (IRDPA); and Sokoine University of Agriculture (SUA).

We wish to extend sincere appreciation to all stakeholders especially respondents who participated in baseline field survey for their time in sharing experience and views towards improving environmental stewardship in the agriculture sector. These include experts from VPO, PMO-RALG and Sector Ministries; Regional Secretariat Officers; District Agricultural, Irrigation and Cooperative Officers (DAICOs); District Environmental Management Officers (DEMOs); Extension Officers; and farmers across the seven agro-ecological zones.

We are also grateful to the World Food Programme (WFP) and the Food and Agriculture Organisation of the United Nations (FAO) for their information and contributions towards accomplishment of this plan.

Finally, we acknowledge the Green Climate Fund (GCF) and CRDB through Agriculture Climate Adaptation Technology Deployment Programme (TACATDP) for their financial and technical support that facilitated the development of the Action Plan. We look forward to their continued partnership in implementation of the Action Plan and the ambition of transforming agriculture into a sustainable venture.

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EXECUTIVE SUMMARY

Introduction

Agriculture remains the backbone of Tanzania's economy and will continue to be central to growth, employment, and food security under Vision 2050. The sector is also a major source of livelihoods for the majority of Tanzanians, particularly men, women, and youth engaged in smallholder farming, making gender-responsive and socially inclusive approaches critical for ensuring equitable access to productive resources, enhancing resilience, and achieving sustainable agricultural transformation. However, the sector faces increasing environmental and climate-related challenges that threaten agricultural productivity and sustainability. These include land degradation and declining soil fertility, water insecurity and inefficient irrigation systems, agrochemical pollution and weak control mechanisms, climate change vulnerability, insecure land tenure, biodiversity loss, and weak institutional coordination among stakeholders involved in agricultural and environmental management.

These challenges underscore the urgent need not only to promote sustainable agricultural practices through improved technologies, extension services, and environmentally friendly production systems, but also to strengthen coordinated institutional and stakeholder ecosystems that encourage collaboration and integrated action rather than fragmented sectoral approaches, particularly within the crop subsector, which is the focus of ASEAP II.

In response, the Agriculture Sector Environmental Action Plan II (ASEAP II (2026–2031)) has been developed as a strategic framework for integrating environmental sustainability into agricultural development efforts. The Action Plan supports the realization of key national ambitions, including increased agricultural productivity, climate resilience, food security, commercialization, environmental conservation, and sustainable agricultural growth in line with the Tanzania Agriculture Master Plan 2050 (AMP 2050) and the Tanzania Development Vision 2050.

The formulation of ASEAP II was informed by a comprehensive ASEAP 2012-2017 evaluation and

extensive stakeholder consultations to ensure that the Action Plan is evidence-based, inclusive, and responsive to sector priorities and realities. Field assessments were conducted between October and December 2025 across all seven agro-ecological zones, covering 16 representative Local Government Authorities. The use of agro-ecological zones provided an opportunity to capture context-specific environmental, socio-economic, and cultural realities influencing agricultural production and natural resource management across different parts of the country. This approach enabled the identification of zone-specific challenges, including variations in climate risks, land degradation patterns, water availability, farming systems, and community practices, thereby informing more targeted and sustainable interventions under ASEAP II.

More than 700 stakeholders from within and beyond the agriculture sector participated in the consultative process, contributing diverse experiences, perspectives, and technical insights. ASEAP II was subsequently validated through a National Stakeholders' Validation Workshop held on 9th of July 2026 before its formal adoption by the Management of the Ministry of Agriculture.

Policy, Legal and Institutional Framework

Several relevant policy and legal instruments provide support and guidance for the effective implementation of the ASEAP II. These include National Environmental Policy (2021); National Agriculture Policy (2013); National Irrigation Policy (2010); National Youth Development Policy (2007) and Land Policy (1995) Version 2025. Key legal instruments of relevance to ASEAP II include the Environmental Management Act Cap 191; the Water Resources Management Act (2009); the Land Use Planning Act (2007); and the Plant Health Act (2020). Further, ASEAP II is also aligned with overarching national development and environmental frameworks, particularly the Tanzania Development Vision 2050; National Climate Change Response Strategy 2021-2026; Tanzania Agriculture Master Plan 2050; and Nationally Determined Contribution (NDC 3.0) (2025).

The Ministry of Agriculture operates within a comprehensive national policy and legal framework which provides a strong mandate for mainstreaming environmental issues into sectoral plans and strategies with a strong focus

on promoting climate-smart agriculture practices. Key areas for strengthening the Ministry's capacity in environmental management include improving extension services, enhancing the capacity to enforce existing environmental laws and promoting coordinated ecosystem management with increased private sector participation to leverage environmental sustainability efforts.

Environmental Profile of the Agriculture Sector

The environmental profile of the agricultural sector highlights significant potential for growth, while also revealing concerning trends of degradation in the natural resources that underpin this growth, particularly soil, water, and biodiversity. These challenges are largely driven by unsustainable anthropogenic activities alongside the intensifying impacts of climate change. Key environmental and institutional constraints include land degradation, inefficient irrigation systems and declining water security, agrochemical pollution, limited climate adaptation capacity, insecure land tenure, resource constraints, and insufficient access to reliable data for informed decision-making.

Addressing these interconnected challenges requires an integrated, participatory, and data-driven approach that generates environmental benefits while ensuring economic viability, and that systematically incorporates both adaptation and resilience considerations throughout planning and implementation in the context of climate change.

Goal, Strategic Objectives and Interventions

The goal of the Action Plan is to achieve an environmentally responsible, economically viable and socially inclusive agriculture sector towards achieving the transformation agenda of the Tanzania Agriculture Master Plan 2050.

The strategic objectives of the Action Plan are to: Facilitate restoration of degraded agricultural landscapes for securing critical ecosystems and natural capital; Strengthen adaptation to climate change and early warning systems for sustainable agricultural livelihoods; Promote water use efficiency and catchment conservation for improving agricultural productivity and growth; Enhance institutional capacity and enforcement regime for prevention and control of agrochemical pollution; and Promote digitalization, inclusive approach and

integration of indigenous knowledge for enhancing food security and environmental management.

The environmental strategic interventions in the agriculture sector therefore are organised into four coherent thematic pillars as follows:

i. Land Use Governance and Soil Health

The strategic interventions in this pillar include: first, facilitating the development and implementation of Participatory Land Use Plans and Strengthen Land Tenure Security through the Issuance of Customary Certificates of Right of Occupancy (CCROs); second, promoting Climate-Smart Soil Management Practices; Third, strengthening Soil Monitoring and Testing System; Lastly, conducting Community Awareness and Institutional Capacity Building Programs on Land Use Governance and Soil Health Management for Climate-Resilient Agricultural Development.

ii. Climate Adaptation, Resilience and Early Warning Systems (EWS)

The strategic interventions include strengthening integrated Early Warning Systems (EWS) through digital platforms and improved extension services for timely and location-specific climate advisories; enhancing climate information dissemination and communication through community-level risk assessments, guidelines, and mobile-based advisory services; and promoting the adoption of climate-smart technologies by facilitating access to practical farming equipment, resilient technologies, improved seeds, and appropriate innovations, with particular attention to women and youth farmers.

iii. Water Security and the Water-Energy-Food Nexus

The strategic interventions in this pillar include strengthening integrated Water-Energy-Food (WEF) nexus governance frameworks and coordination mechanisms to enhance compliance with water governance systems and ensure sustainable irrigation investments; and promoting sustainable water management technologies, including water harvesting, storage systems, drip-irrigation systems and other water-efficiency infrastructure, and

climate-resilient infrastructure to improve water security, irrigation efficiency, and resilience of agricultural production systems, critical to ensuring the sustainable expansion of the national irrigated area to the 1.2 million hectare target. The interventions will also promote the meaningful participation of women and youth in irrigation governance and decision-making processes.

iv. Agrochemical and agro-industrial pollution control

The strategic interventions in this pillar include enhancing sectoral environmental monitoring and regulatory compliance through a coordinated field-level monitoring framework involving key environmental and agricultural institutions; and promoting sustainable farming practices and improved farm waste management by integrating health, safety, and environmental considerations into agricultural extension services.

Cross-cutting priorities, namely gender equality and social inclusion, digitalisation, integration of indigenous knowledge, and strengthening institutional capacity, are mainstreamed across all pillars as enabling factors that support effective implementation and inclusive outcomes.

Strategic Considerations and Action Plan

The key strategic considerations are aligned with the sector's environmental and agricultural priorities and are structured across the core thematic pillars and enabling systems. These includes: firstly, natural resource management (Environment): promoting environmentally friendly inputs and sustainable agricultural practices to restore and conserve ecosystems and soil health.

Second, sustainable agricultural production (Production): supporting improved agricultural practices that enhance productivity while maintaining environmental sustainability.

Third, climate adaptation and risk management (Resilience): strengthening climate resilience through early warning systems and the establishment of agricultural insurance schemes to protect farmers from climate-related risks.

Fourthly, Land Governance (Governance): Promoting secure land tenure, particularly for smallholder farmers and other vulnerable groups,

is essential for ensuring equitable access to land, encouraging long-term investment in sustainable land management, reducing land-related conflicts, and improving agricultural productivity. Despite their significant contributions to agricultural production and value chain development, women and youth often face structural barriers in accessing land, productive resources, and decision-making processes. Strengthening land governance and tenure security is therefore critical for addressing these inequalities, enabling greater investment in sustainable land-use practices, improving soil fertility management, and enhancing the long-term productivity and resilience of agricultural landscapes.

Fifthly, Enabling Systems (Innovation, Gender Equality and Social Inclusion): Enabling systems provide the foundation for effective implementation of ASEAP II across all strategic pillars by strengthening innovation, digital technologies, research, institutional coordination, financing mechanisms, and inclusive governance. These systems are essential for improving farmers' access to tailored and affordable financial services, including credit and insurance, climate and agricultural information, digital advisory services, appropriate technologies, and other support mechanisms necessary for sustainable agricultural transformation. Gender equality and social inclusion will be mainstreamed across all ASEAP II interventions to ensure equitable participation and access to opportunities, particularly for women, youth, and other vulnerable groups. The integration of indigenous knowledge, locally appropriate solutions, and strengthened institutional capacities will further enhance the effectiveness, sustainability, and inclusiveness of the Plan's implementation.

The Action Plan, which will be implemented from 2026 to 2031, focuses on strengthening coordination and institutions, carrying out key activities and programmes, and mobilizing the financial resources needed to address these priority areas. It comprises a total of 48 priority including the promotion of climate-smart agricultural practices, strengthening of early warning systems, expansion of access to financial services, and implementation of awareness and capacity-building programmes aimed at supporting sustainable agricultural production, environmental management, and resilient rural livelihoods.

Implementation Framework

The overall coordination of implementation of the ASEAP II will be the responsibility of the Ministry of Agriculture through the Environmental Management Unit (EMU).

Key institutions with specific roles and responsibilities in the implementation of ASEAP II include Ministry of Agriculture; Vice President's Office; Prime Minister's Office; Regional Administration and Local Government (PMO-RALG); Ministry of Lands, Housing and Human Settlements Development; Ministry of Finance; National Environment Management Council (NEMC); Tanzania Plant Health and Pesticides Authority (TPHPA); Tanzania Fertilizer Regulatory Authority (TFRA); National Irrigation Commission (NIRC); Regional Secretariats; and Local Government Authorities (LGAs). Other key stakeholders include academic and research institutions; Civil Society Organizations (CSOs); private sector; media; and Development Partners.

The total estimated financial requirement for the implementation of ASEAP II over the five years (2026-2031) is USD 52.39 million (TZS 157,156,100,000) as shown in Annex 5. To close the funding gap, a proactive mobilization strategy will also capitalize on climate finance and private capital opportunities. Further, by transitioning millions of hectares to conservation agriculture and agroforestry, the sector can generate significant carbon credits. To mobilize private capital, public funds will be used to de-risk investment through the Tanzania Agricultural Development Bank (TADB). The Ministry of Agriculture, in collaboration with the Ministry of Finance, will introduce fiscal incentives such as tax reliefs and subsidies to promote investment in green and climate-smart agribusinesses. This will support the adoption of sustainable agricultural practices, improve access to climate-resilient inputs and technologies, and ultimately enhance the adaptive capacity and resilience of farming communities.

Monitoring, Evaluation and Reporting

ASEAP II will adopt a data-driven Monitoring, Evaluation and Learning (MEL) framework, integrated into the digital platform of the Tanzania Agriculture Master Plan 2050 (Flagship I I). The framework will track progress through a results-based approach, focusing on outputs, outcomes, and impacts aligned

with the Action Plan's strategic objectives and thematic pillars. It will also facilitate continuous learning by generating evidence, capturing lessons from implementation experiences, and informing adaptive management to enhance the effectiveness and sustainability of ASEAP II interventions.

Key output indicators will include, for example, the number of hectares under sustainable land management practices, the number of farmers adopting climate-smart technologies, the number of context-specific innovations deployed and scaled, the establishment of early warning systems, and the number of awareness and capacity-building programmes conducted.

Outcome indicators will assess changes resulting from these interventions, such as improvements in agricultural productivity, increased water-use efficiency, enhanced access to climate-resilient inputs, reduced agrochemical pollution, and strengthened institutional performance in land and environmental governance.

Impact indicators will be used to measure the long-term results of the ASEAP II, including improved livelihoods for rural communities, increased resilience of farming communities to climate change, enhanced food security, and better management and protection of natural resources and biodiversity.

Reporting will assess progress towards the attainment of ASEAP II Action Plan objectives and targets, including implementation performance against expenditures and the resulting impacts on stakeholders and the environment. Reports will be prepared at village/ward and district levels and transmitted through Regional Secretariats to the Environmental Management Unit (EMU) of the Ministry of Agriculture for consolidation into national reports. National reporting will include internal reporting mechanisms for government coordination, performance monitoring, decision-making, and adaptive management, as well as external reporting mechanisms for stakeholder engagement, transparency, accountability, and reporting on contributions to national and international development commitments.

During the five-year implementation period, three types of evaluations will be conducted: annual reviews, a mid-term evaluation (at 2.5 years), and a final evaluation (at 5 years). These evaluations will assess progress towards the achievement of



strategic objectives and targets. The Ministry of Agriculture, through the EMU, in collaboration with the National Bureau of Statistics (NBS) and other stakeholders, will coordinate these evaluations.

An annual workshop and a digital knowledge platform will be established to document and share successful case studies, thereby promoting peer-to-peer learning among stakeholders.



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LIST OF ACRONYMS AND ABBREVIATIONS

ACRP	Agriculture Climate Resilience Plan
AEZ	Agro-Ecological Zones
AI	Artificial Intelligence
ALRV	Agricultural Livelihoods Risk and Vulnerability Assessment
AMP	Agriculture Master Plan
ASDP	Agricultural Sector Development Programme
ASEAP	Agriculture Sector Environmental Action Plan
CBOs	Community-Based Organizations
CCRO	Certificate of Customary Right of Occupancy
CCVRA	Community-level Climate Change Vulnerability and Risk Assessment
CPP	Crop Protection Product
CRDB	Cooperative and Rural Development Bank
CSA	Climate-Smart Agriculture
CSO	Civil Society Organization
DADPs	District Agricultural Development Plans
DCD	Division of Crop Development
DEMOs	District Environmental Management Officers
DHRAM	Administration and Human Resources Management Division
DLUP	Division of Agricultural Land Use Planning Management
DMF	Division of Marketing and Food Security
DMV	Division of Mechanization and Value Addition
DPP	Division of Policy and Planning
DPs	Development Partners
DTR	Division of Training and Research
eGA	e Government Authority
EMA	Environmental Management Act
EMU	Environmental Management Unit
ESIA	Environmental and Social Impact Assessment
ESMPs	Environmental and Social Management Plans
EWS	Early Warning Systems
FAO	United Nations Food and Agriculture Organization
FFS	Farmer Field School
GCF	Green Climate Fund
GCU	Government Communication Unit
GDP	Gross Domestic Product
GIS	Geographic Information System
GRM	Grievance Redress Mechanism
ICT	Information and Communication Technology
ICTU	Information and Communication Technology Unit
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
IRDPA	Institute of Rural Development Planning
KPIs	Key Performance Indicators
LGA	Local Government Authority
LTPP	Long-Term Perspective Plan
MDAs	Ministries, Departments and Agencies

M&E	Monitoring and Evaluation
ME&R	Monitoring, Evaluation, and Reporting
MEU	Monitoring and Evaluation Unit
MIT	Ministry of Industry and Trade
MLHHSD	Ministry of Lands, Housing and Human Settlements Development
MoA	Ministry of Agriculture
MoW	Ministry of Water
NAP	National Adaptation Plan
NbS	Nature based Solution
NBS	National Bureau of Statistics
NCCRS	National Climate Change Response Strategy
NDC	Nationally Determined Contribution
NEMC	National Environment Management Council
NGO	Non-Governmental Organization(s)
NIRC	National Irrigation Commission
NLUPC	National Land Use Planning Commission
O&M	Operation and Maintenance
PBR	Plant Breeders' Rights Unit
PBRO	Plant Breeders' Rights Office
PMO	Prime Minister's Office
PMO-RALG	Prime Minister's Office – Regional Administration and Local Government
PMU	Procurement Management Unit
PPPs	Public-Private Partnerships
QDS	Quality Declared Seed
RALG	Regional Administration and Local Government
REME	Regional Environmental Management Expert
RFF	Resources for the Future
SACCOS	Savings and Credit Cooperative Societies
SDG	Sustainable Development Goals
SGR	Likely Strategic Grain Reserve
SIDO	Small Industries Development Organization
SMS	Short Message Service
SOP	Standard Operating Procedures
SUA	Sokoine University of Agriculture
SWA	Sanitation and Water for All
TACATDP	Tanzania Agriculture Climate Adaptation Technology Deployment Programme
TADB	Tanzania Agricultural Development Bank
TARI	Tanzania Agricultural Research Institute
TDV	Tanzania Development Vision
TFRA	Tanzania Fertilizer Regulatory Authority
TMA	Tanzania Meteorological Authority
TPHPA	Tanzania Plant Health and Pesticides Authority
TZS	Tanzanian Shillings
UDOM	University of Dodoma
UNDP	United Nations Development Programme
URT	United Republic of Tanzania
USD	United States Dollar
VETA	Vocational Education and Training Authority
VLUP	Village Land Use Plan
VPO	Vice President's Office



VSLAs	Village Savings and Loan Associations
WEF Nexus	Water-Energy-Food Nexus
WFP	World Food Programme
WIBI	Weather-Index Based Insurance



CHAPTER ONE

1.0 INTRODUCTION

1.1 Background and Context

Agriculture is the mainstay of Tanzania's economy and its increased production and productivity is, and will be, vital for the economy in the foreseeable future. It employs over 65 percent of the population and contributes approximately 28 percent to the national Gross Domestic Product (GDP). Agriculture is predominantly characterized by smallholder farmers and provides employment to about 67 percent of employed women and approximately 64 percent of employed men, highlighting the sector's strong dependence on gender-inclusive labour and resource utilization. A significant proportion of Tanzania's land area is utilized for agricultural activities, with potential arable land accounting for 44 percent of the total country's land area, 24 percent of which is being utilized for crop cultivation.

Despite the substantial contribution of agriculture to the national economy, the sector faces significant environmental challenges resulting from a combination of unsustainable resource management practices, socio-economic pressures, and changing climatic conditions. Unsustainable agricultural practices, including inappropriate land management, excessive exploitation of natural resources, deforestation for farming and livestock keeping, and improper use of agrochemicals, have contributed to soil erosion, declining land productivity, biodiversity loss, and pollution of water resources. These challenges are further intensified by rapid population growth, which increases demand for agricultural land, energy resources, and other ecosystem services, thereby placing additional pressure on fragile ecosystems. At the same time, climate variability and the increasing impacts of climate change continue to alter rainfall patterns, increase the frequency of extreme weather events, and reduce water availability, posing further risks to agricultural productivity and long-term sustainability. The economic consequences of these environmental and climate-related challenges are already significant. For instance, land degradation is estimated to cost the economy approximately

US\$10.1 BILLION (TZS 25.3 TRILLION) annually, while climate change impacts on agriculture result in economic losses estimated at more than US\$200 MILLION (TZS 500 BILLION) each year.

This may hinder the successful implementation of Tanzania Agriculture Master Plan 2050 (AMP 2050), which aims to create a modern, productive agricultural sector that helps Tanzania become a semi-industrialized nation. It targets 10% annual growth and expanding irrigated land to 1.2 million hectares by 2030.

The Agriculture Sector Environmental Action Plan II (ASEAP II) (2026–2031) therefore is in line with the requirements of the Environmental Management Act Cap 191 and builds upon the Tanzania Agriculture Master Plan (AMP) 2050 and Agricultural Sector Development Plan II (ASDP II), both of which integrate environmental management through the promotion of sustainable agricultural practices, climate adaptation and resilience, and natural resource conservation. The Action Plan aims to support the transformation of food systems by addressing key environmental challenges such as land degradation, water scarcity, and biodiversity loss through approaches including climate-smart agriculture, integrated pest management, promotion of cleaner technologies, and strengthened inclusive governance for responsible natural resource use.

In addition, ASEAP II leverages emerging technologies such as Artificial Intelligence (AI) to improve precision crop monitoring, pest prediction, early warning systems, and decision-making processes for sustainable agricultural management. Indeed, ASEAP II focuses on restoring natural capital to support long-term and sustainable agricultural productivity and growth through improved soil health, enhanced water security, and biodiversity conservation, while building upon the achievements and lessons learnt from the implementation of ASEAP I (2012–2017).

1.2 Implementation Review of ASEAP I (2012–2017)

The comprehensive review of the state of environmental management in Tanzania's agriculture sector and performance of the ASEAP I (2012–2017) was drawn on quantitative and qualitative data collected across seven Agro-Ecological Zones (AEZ) involving farmers, agricultural extension

officers, regional secretariats, Local Government Authorities (LGAs), Ministries, Departments and Agencies (MDAs), Non-Governmental Organizations (NGOs) and Development Partners.

Key achievements identified in implementation of the ASEAP I (2012-2017) are summarized hereunder:

1. Enhanced policy and legal framework to support sustainable agricultural productivity and growth, including TDV 2050, AMP 2050, ASDP II, National Environmental Policy (2021) and National Environmental Master Plan for Strategic Interventions (2022-2032).
2. More than 2,000 Extension Officers received training on climate-smart agriculture and use of ICT in the provision of extension services.
3. Increased community awareness and adoption of climate-smart agriculture practices, particularly terracing, contour farming, agroforestry, conservation agriculture and drip irrigation. Between 2020 and 2024, conservation agriculture practices have increased by 35 percent among smallholder farmers.
4. A total area of 4,900,130 hectares has undergone soil sampling across various parts of the country for the assessment and monitoring of soil health.
5. Increased availability of digital technologies providing farmers access to real-time weather updates, crop health monitoring and market information and thus enhancing ability to make informed decisions, reduce risks and improve yields.
6. Increased budget allocation for the agriculture sector from TZS 294 BILLION in 2021/2022 to TZS 1.248 TRILLION in 2024/2025, equivalent to an increase of 324.49 percent reflecting modest increment in budget allocation for environmental management interventions.

Some of the challenges encountered during implementation of ASEAP I (2012-2017) included inadequate institutional capacity and enforcement regime; persisting land degradation and biodiversity loss; inadequate handling and management of agrochemicals; inefficient and inadequate coverage of irrigation schemes; inadequate dissemination and application of localized climate services; and intensifying climate change impacts, particularly changing rainfall patterns, drought and floods. Other

gaps recognized were the frequent inadequacy of allocated budgets for environmental management, delayed disbursements or incomplete and absence of LGAs' autonomy and resources to respond to local environmental priorities and limited application of Artificial Intelligence (AI) in precision agriculture.

The findings from this review provide a critical evidence base for the formulation of ASEAP II (2026-2031), offering actionable insights into key challenges facing the sector, such as land degradation, climate change impacts, as well as opportunities for improving sustainable agricultural transformation in Tanzania through climate-smart agriculture, improved coordination, and increased investment in sustainable farming practices.

These insights directly inform the design of ASEAP II (2026–2031), emphasizing tailored, agro-ecological zone-specific strategies that enhance resilience, strengthen environmental governance and support sustainable agricultural growth across the country.

1.3 Rationale

Climate change presents a growing threat to Tanzania's economic development, social well-being, and environmental sustainability. The country is already experiencing the impacts of climate change through increased frequency and severity of floods, prolonged droughts, temperature extremes, and rising sea levels, which continue to affect agriculture, water supply, health systems, coastal infrastructure, and tourism (NAP, 2025).

The agriculture sector is particularly vulnerable due to its heavy dependence on rain-fed smallholder farming, increasing pressure on land and water resources, and limited adaptive capacity. Climate-related challenges, including rising temperatures, erratic rainfall, prolonged droughts, floods, and outbreaks of pests and diseases, are already undermining crop productivity, food security, and rural livelihoods. Weather-related losses in the sector are estimated at over USD 200 MILLION annually. Furthermore, projections indicate that temperature increases of 1–2°C could significantly reduce yields of key staple crops such as maize and rice, thereby worsening existing production risks (URT, 2014).

Evidence from the Agricultural Livelihoods

Risk and Vulnerability Assessment (ALRV) further shows that climate vulnerability varies across agro-ecological zones. Semi-arid areas are particularly exposed to recurrent droughts, while high-potential zones are increasingly affected by intense rainfall and flooding. In addition, limited access to irrigation, climate information services, finance, and institutional support continue to constrain effective adaptation efforts (URT, 2025).

These challenges highlight the need for targeted sector-specific environmental interventions to strengthen climate resilience and safeguard agricultural livelihoods. In this context, the development of a sector-specific Environmental Action Plan is necessary to provide a guiding framework for coordinated and effective responses to environmental and climate-related challenges facing the agriculture sector, as required under the Environmental Management Act Cap. 191. An elaborate action plan that incorporates climate and environmental risk management can also help leverage additional funding and attract investments from development partners and financial institutions that prioritize sustainability and resilience. In addition, the Action Plan provides opportunities to benefit from global carbon markets through initiatives such as soil restoration, thereby turning climate action into a potential source of income.

It is against this background that the First Agriculture Sector Environmental Action Plan (ASEAP I) (2012–2017) was developed to safeguard the environment, protect natural resources, and improve agricultural productivity without compromising the needs of future generations. However, evolving dynamics within the agriculture sector, together with emerging and intensifying environmental and climate change challenges, have necessitated the review of ASEAP I (2012–2017) in order to align it with current national and global development, environmental priorities, and sustainability aspirations.

ASEAP II therefore provides a framework for promoting sustainable agricultural practices, including conservation agriculture, improved land management, and increased use of Artificial Intelligence (AI) and other innovative technologies to support climate adaptation and sustainable agricultural transformation.

1.4 Key Steps in the Development of the ASEAP II

Key steps adopted in the formulation of the Action Plan included ASEAP I Evaluation; Stakeholders' Validation; and Approval and Adoption of the Action Plan, which are briefly elaborated hereunder. The ASEAP I evaluation conducted as part of the ASEAP II formulation process serves as a performance evaluation of ASEAP I (2012–2017) rather than a formal impact assessment.

i) ASEAP I Evaluation

An evaluation was conducted to measure the implementation performance of the First ASEAP (2012–2017) through interviews with key stakeholders, including REMEs, DEMOs, Extension Officers, and farmers, as well as a desk review of existing policy and legal frameworks. The evaluation aimed to identify relevant environmental, climate, and social issues within the agriculture sector towards achieving sustainable, inclusive, and resilient agricultural growth. Field survey was conducted across seven agro-ecological zones from October to December 2025. The survey covered 16 Local Government Authorities in 15 regions. The Authorities included Ruangwa and Tandahimba in the Southern Zone; Kilolo, Chunya, and Mbarali in the Southern Highlands; Bahi and Manyoni in the Central Zone; Monduli and Same in the Northern Highlands. Others were Magu, Nyang'hwale, and Itilima in the Lake Zone; Buhigwe and Urambo on the Plateau; and Rufiji and Lushoto in the Coastal Zone. A separate detailed Evaluation Report (2025) was provided.

ii. Management Review of the Action Plan

The preliminary draft of ASEAP II was reviewed and conditionally approved by the Management of the Ministry of Agriculture in Dodoma on 19th June, 2026, authorizing its progression to national stakeholder validation.

iii) Stakeholder Validation

Review and joint planning sessions were organized in two phases to ensure that the findings and priority interventions were practical, accepted by implementers, and ready for implementation. In the first phase, feedback sessions were convened with Regional Secretariats and Local Government

Authorities (LGAs), where participants verified the identified priorities, assessed whether the proposed interventions could be implemented using available local capacities and resources, and discussed the possible advantages and challenges associated with different strategic options.

Secondly, at the national level, the Draft ASEAP II, incorporating inputs from the Regional Secretariats and Local Government Authorities, was presented during a stakeholders' workshop held in Dodoma on 9th July, 2026. The workshop aimed to undertake an in-depth review of ASEAP II and build consensus on the key priority issues and the overall approach for addressing them.

Participants included representatives

from Regional Secretariats, Local Government Authorities (LGAs), Ministries, Departments and Agencies (MDAs), Non-Governmental Organizations (NGOs), and Development Partners. Following the review, stakeholders' comments and recommendations were incorporated into the document to produce the final draft of the Agriculture Sector Environmental Action Plan II (ASEAP II).

iv) Stakeholder Validation

Following the resolution of all technical and financial comments arising from the validation process, the final Action Plan was formally adopted for implementation in September 2026.

CHAPTER TWO

2.0 POLICY, PLANS, LEGAL AND INSTITUTIONAL FRAMEWORK

This Chapter highlights relevant policy and legal instruments that support and provide guidance towards achieving a sustainable, inclusive and resilient agriculture sector.

2.1 National Policies

There are several relevant policy and legal instruments that provide support and guidance for the effective implementation of the ASEAP II. These include the following: National Youth Development Policy (2007), National Irrigation Policy (2010); National Agriculture Policy (2013); National Environmental Policy (2021) and Land Policy (1995) as reviewed in 2025. The First Agriculture Sector Environmental Action Plan (ASEAP I) 2012-2017 also forms part of the policy and legal framework: it established the foundational framework for environmental safeguards in agriculture, providing the baseline achievements and lessons that inform ASEAP II.

National Youth Development Policy (2007)

The National Youth Development Policy (2007) contributes to environmental management mainly by promoting youth innovation and future leadership. It encourages young people to develop and apply new ideas and solutions for environmental challenges such as climate change, waste management, and sustainable use of natural resources. The policy also supports the development of future leaders by strengthening youth skills, awareness, and participation in environmental decision-making processes. Strategically, involving youth in environmental management is also a long-term investment, as it ensures continuity, sustainability, and future capacity to address environmental challenges.

National Irrigation Policy (2010)

The objective of the Policy is to have irrigation systems that are economically viable, socially acceptable and environmentally sustainable. Plans

for irrigation schemes should ensure compliance with relevant legislation; protecting and conserving water and land resources; pollution control in irrigated agriculture; and promotion of proper land use practices. These objectives are in congruence with sustainable environmental and climate action intervention strategies in the agriculture sector.

National Agriculture Policy (2013)

The Policy establishes a framework to transform agriculture into a modern and commercialized sector while prioritizing environmental sustainability to safeguard the natural resources. It focuses on improving adaptation measures to climate change, recognizing the climate vulnerability of the sector. Further, the Policy aims to combat land degradation and promote environmentally friendly agricultural practices to enhance soil health. It explicitly promotes organic agriculture to reduce chemical impacts on the environment.

National Environmental Policy (2021)

The goal of the Policy is to establish a national framework for guiding harmonized and coordinated environmental management for the improvement of the welfare of present and future generations. Relevant specific objectives of the Policy relate to strengthening coordination of environmental management at all levels; managing environmental pollution; strengthening the national capacity for addressing climate change impacts; promoting gender consideration in environmental management; promoting good governance in environmental management at all levels; and ensuring sustainable financial resources for environmental management.

Land Policy (1995) as Reviewed in 2025

The Policy aims for secure tenure, equitable access and sustainable land use for socio-economic development while focusing on balancing resource use with ecological protection, promoting sustainable development and ensuring long-term resource management through integrated planning, recognizing secure tenure fosters environmental stewardship.

2.2 National and International Policy, Planning and Legal Frameworks

A brief description of relevant national and

international policy, planning and legal frameworks, as well as global commitments applicable to environmental management in the agriculture sector in Tanzania, is provided hereunder.

2.2.1 National Policies and Plans

a) **Tanzania Development Vision 2050 (Dira 2050)**

Dira 2050 aims to transform agriculture from traditional farming to a modern, mechanized and high-technology sector focusing on sustainability, inclusivity and economic growth. Key strategies include irrigation expansion, mechanization, digital integration, value chain development, climate resilience to boost food security, create millions of jobs and achieve high-income status by 2050.

b) **Agriculture Master Plan 2050**

AMP 2050 serves as a long-term strategic blueprint for modernizing the agriculture sector into a commercial, competitive and sustainable industry by 2050. It advocates for sustainability through integration of climate-smart technologies and efficient resource management to enhance resilience against climate change. In addition, it targets capitalizing on innovation and technology through expanding irrigation, improving input use (green fertilizers, resilient seeds), mechanizing farming and digitization for better information access.

c) **Nationally Determined Contribution (NDC 3.0) (2025)**

Tanzania's NDC 3.0 sets out the country's commitments to climate-resilient, low-carbon development through integrated adaptation and mitigation actions across priority climate-sensitive sectors. Adaptation is given the highest priority, reflecting the urgency of reducing climate-related impacts and building long-term resilience, while mitigation actions complement this by contributing to national and global efforts to reduce greenhouse gas emissions. In the agriculture sector specifically, the NDC promotes improved land and water-resource management, climate-smart agriculture, crop insurance, agricultural research, extension services, climate information services, and local knowledge systems to enhance productivity, food security, and livelihoods.

d) **National Climate Change Response Strategy (NCCRS) 2021-2026**

The NCCRS 2021-2026 provides the national framework for enhancing resilience to the adverse impacts of climate change and promoting low-emission sustainable development. It guides the mainstreaming of climate change adaptation, mitigation and cross-cutting actions into national, sectoral and local government plans and budgets. The Strategy also promotes climate information and early warning systems, sustainable natural resource management, research and capacity building, climate finance, technology transfer, and gender-responsive and inclusive climate action.

2.2.2 International Frameworks and Global Commitments

The Sustainable Development Goals (SDGs), adopted under the United Nations 2030 Agenda for Sustainable Development, provide a global framework for integrating economic, social, and environmental sustainability. In the agriculture sector, SDGs are particularly relevant in promoting sustainable food production (SDG 2: Zero Hunger), efficient water resource management (SDG 6: Clean Water and Sanitation), responsible use of resources (SDG 12: Responsible Consumption and Production), climate resilience (SDG 13: Climate Action), and sustainable management of land and ecosystems (SDG 15: Life on Land). These goals guide Tanzania's efforts to promote environmentally sustainable and climate-resilient agricultural development.

2.3 National Legal Framework

a) **The Land Use Planning Act Cap 116**

The Act provides procedures for preparation, administration and enforcement of land use plans. It promotes sustainable land management that reduces resource-based conflicts which would attract high investments and enhance agricultural productivity. It specifies standards, norms and criteria for the protection and maintenance of land. Land use planning on different types of land categories influences conservation, adaptation and mitigation measures and strategies in the country.

b) **The Plant Breeders' Rights Act, 2012**

The Act provides a comprehensive legal and

institutional framework for the protection of plant breeders' rights and the promotion of innovation in plant variety development in Tanzania. The Act establishes procedures for the application, registration, protection, and management of new plant varieties and grants breeders' exclusive rights over the production, multiplication, distribution, sale, importation, exportation, and commercialization of protected varieties. The Act aims to stimulate agricultural research and investment in seed development through the promotion of improved, high-yielding, climate-resilient, and disease-resistant crop varieties that contribute to enhanced agricultural productivity, food security, and sustainable agricultural development. Furthermore, the Act supports the conservation and sustainable utilization of plant genetic resources and promotes the adoption of environmentally sound agricultural technologies in line with national environmental management principles, biodiversity conservation objectives, and sustainable agricultural transformation initiatives under Agriculture Sector Environmental Action Plans.

b) The Water Resources Management Act Cap 331

The Act provides the legal and institutional framework for the sustainable development, management, conservation, protection, and equitable allocation of the country's water resources while preventing pollution and safeguarding aquatic ecosystems and biodiversity. In agriculture, the Act provides the legal basis for promoting integrated water resources management, climate-resilient irrigation, efficient water-use technologies, watershed and catchment conservation, groundwater protection, rainwater harvesting, and pollution control from agricultural activities. Its implementation supports sustainable agricultural production, strengthens climate change adaptation and resilience, conserves ecosystems, and enhances long-term water security for environmental sustainability and food security.

c) The Environmental Management Act (EMA) Cap 191

The Act is the comprehensive framework law for environmental protection and sustainable resource management in the country. The Act

provides for legal and institutional framework for sustainable management of the environment. The Act includes provisions for institutional roles and responsibilities; impact and risk assessments; strategic environmental assessment; prevention and control of pollution; climate change; waste management; environmental quality standards; public participation in environmental decision-making, public environmental awareness and dissemination of environmental information; compliance and enforcement; implementation of international environmental instruments; state of the environment reporting; and establishment of the national environmental trust fund. The Act mandates that every Sector Ministry to establish a Sector Environmental Action Plan to manage environmental matters within its jurisdiction.

d) The Plant Health Act Cap 133

The Act provides directives for control of pesticides, phytosanitary measures, importation and use of plants and plant products, prevention of the introduction and spread of pests and establishment of the Tanzania Plant Health and Pesticides Authority. The Act, therefore, modernizes national approach by creating a unified and efficient system for protecting plants, managing pesticides and supporting agricultural trade and food security.

2.4 Institutional Framework

2.4.1 Mandates and Organizational Structure

Although this ASEAP is designed for all actors in the agriculture sector, including MDAs, Local Government Authorities (LGAs), Development partners, Private Sectors, Civil Society Organisations (CSOs) and Communities, with each stakeholder playing an equally important role in its implementation, the Ministry of Agriculture serves as the custodian of the Plan and is mandated to facilitate and coordinate its implementation. The Ministry is responsible for promoting the development of sustainable agriculture to increase productivity and profitability, thereby enhancing income and ensuring food security. Its vision is to serve as the nucleus for providing policy guidance and services for a modernized, commercialized, competitive, and effective agriculture and cooperative system.

Based on the above, each ministry division and unit is entrusted with the responsibility of working towards the successful implementation of this ASEAP. Accordingly, the duties of each division and unit are outlined hereafter:

- i. **Division of Agricultural Land Use Management (DLUP):** The Department is responsible for land use planning, soil conservation, and agroforestry mapping. Its role in the implementation of ASEAP II is to collaborate with the National Land Use Planning Commission (NLUPC) to promote Village Land Use Planning (VLUP) and ensure that agricultural land is sustainably planned and managed. The Division of Agriculture Land Use Planning and Management (DLUP) is also mandated to ensure the implementation of sustainable soil health interventions.
- ii. **Division of Training and Research (DTR):** Its primary function is to oversee provision and implementation of agricultural training and agricultural research activities. The Division of Training and Research shall support ASEAP II implementation by integrating environmental sustainability, climate resilience, and compliance into agricultural training programmes, strengthening the capacity of extension officers and field staff, generating applied research to inform climate-smart agriculture and environmental management, and supporting the development, testing, and dissemination of innovations such as early warning systems, climate-smart technologies, and risk-management tools across the agricultural sector.
- iii. **Division of Crop Development (DCD):** The primary function of the Department is to promote crop production, sustainable agronomic practices, and efficient input use to ensure food security and income generation. Its role in implementation of ASEAP II is to guide and coordinate crop development programmes, promote climate-resilient and drought-tolerant crop production, and support environmentally sound crop production through collaboration with agricultural extension services on Integrated Pest Management and safe input use, including capacity building of Regional Secretariats and Local Government Authorities..
- iv. **Division of Marketing and Food Security (DMF):** The primary function of the Division is to manage the Strategic Grain Reserve (SGR) and monitor national and sub-national food availability to safeguard food security. Its role in implementing the ASEAP II is related to supporting and assessing vulnerability of the sector to climate change impacts through continuous crop and food security monitoring, analysis of food supply trends, issuance of early warning information, and coordination of food security response strategies in collaboration with the Prime Minister's Office and the National Food Reserve Agency. In addition, the Division facilitates and coordinates public and private sector participation in agricultural produce markets, strengthens access to domestic, regional, and international markets, and supports the development and functioning of agricultural market systems and related infrastructure, in line with national food security and market stabilization objectives.
- v. **Division of Policy and Planning (DPP):** The primary function of the Division is to coordinate ministerial budgeting and planning for the Tanzania Agriculture Master Plan 2050 and manage the District Agricultural Development Plans (DADPs). Its role in implementing the Action Plan is to facilitate resource mobilization to support implementation.
- vi. **Agricultural Mechanization and Value Addition Division (DMV):** The primary function of the Department is to promote designing, manufacturing and fabrication of agro machinery which are, but not limited to, tractors, ploughs, seed planters, irrigation equipment, harvesters, milling machines and sprayers. Its role in implementing the Action Plan is to facilitate environmentally friendly mechanization-related agricultural technologies in collaboration with TARI and other Agencies and institutions.
- vii. **Monitoring and Evaluation Unit (MEU):** The Unit is responsible for monitoring the implementation of the Tanzania Agriculture Master Plan 2050 and coordinating the District Agricultural Development Plans (DADPs). Its role in implementing ASEAP II is to collaborate with the Environmental Management Unit

- (EMU) in tracking progress, evaluating performance, and reporting on environmental interventions and outcomes.
- viii. Environmental Management Unit (EMU):** The Environmental Management Unit will serve as the technical coordination point for the implementation of ASEAP II within the Ministry of Agriculture. The Unit will coordinate the implementation of ASEAP II interventions, provide technical guidance on environmental management and climate change aspects, and support integration of ASEAP II priorities into agricultural policies, programmes, and plans. The Unit will facilitate coordination among relevant stakeholders, monitor progress and outcomes of ASEAP II interventions, support reporting on implementation performance, and promote compliance with relevant environmental laws, regulations, standards, and safeguards. In addition, EMU will support knowledge sharing and continuous improvement of ASEAP II implementation through documentation of lessons, emerging environmental challenges, and best practices.
- ix. Information and Communication Technology Unit (ICTU):** The primary function of the Unit is to provide expertise and services on the application of ICT within the agriculture sector. In the implementation of ASEAP II, the ICTU supports data management, digital information sharing, and ICT-based solutions that enhance planning, monitoring, evaluation, reporting, and decision-making for environmental and climate-related interventions. The Unit also promotes the use of GIS, climate information systems, mobile advisory services, remote sensing, and precision agriculture technologies to support climate-smart agriculture, early warning systems, and sustainable resource management.
- x. Procurement Management Unit (PMU):** Accountable for all procurement processes under ASEAP II in accordance with the Public Procurement Act, No. 7 of 2023. The PMU manages bidding, contracting, and vendor performance monitoring for all environmental infrastructure, consultancy engagements, and analytical supplies, ensuring environmental and social criteria are embedded in tender specifications.
- xi. Plant Breeders' Rights Unit (PBR):** The primary function of the Unit is to coordinate and oversee the protection of plant breeders' rights and promote innovation in plant variety development within the Agriculture Sector. In the implementation of the ASEAP II, the Unit will support the promotion of climate-resilient and environmentally sustainable crop varieties, facilitate compliance with biodiversity conservation requirements, and enhance awareness on sustainable use of plant genetic resources.
- xii. Administration and Human Resources Management Division (DHRAM):** The primary function of the Division is to manage human resources, administration, and institutional support services within the Ministry. In the implementation of the ASEAP II, the Division will support coordination of human resources, capacity building, staff welfare, and administrative services necessary for effective implementation, monitoring, and coordination of environmental and climate-related interventions.
- xiii. Finance and Accounts Unit:** The primary function of the Unit is to manage financial resources, budgeting, accounting, and financial reporting within the Ministry. In the implementation of the ASEAP II, the Unit will support budgeting, financial planning, disbursement, and accountability of funds allocated for environmental and climate-related activities to ensure efficient and transparent utilization of resources.
- xiv. Internal Audit Unit:** The primary function of the Unit is to provide independent assurance and advisory services on risk management, internal controls, and governance processes within the Ministry. In the implementation of the ASEAP II, the Unit will support compliance monitoring, financial and operational audits, risk assessment, and strengthening of internal control systems to enhance accountability and effective implementation of environmental and climate-related interventions.
- xv. Government Communication Unit (GCU):** The primary function of the Unit is to coordinate government communication, public awareness, and stakeholder engagement

within the Ministry. In the implementation of the Agriculture Sector Environmental Action Plan (ASEAP II), the Unit will support the dissemination of information, enhance stakeholder awareness and participation, and communicate environmental and climate-related initiatives, policies, achievements, and best practices to the public and other relevant stakeholders.

- xvi. Legal Services Unit:** The Unit provides legal expertise and services within the Ministry. In the implementation of the Agriculture Sector Environmental Action Plan (ASEAP) 2026–2031, the Unit will provide legal expertise to ensure that environmental and climate-related interventions are implemented in compliance with national laws, regulations, and government policies. The Unit provides legal interpretation and advice on contracts, agreements, memorandum of understanding, procurement documents, and other legal instruments related to ASEAP implementation. It also supports the preparation and review of legislative and regulatory instruments relevant to environmental management and sustainable agriculture, participates in negotiations requiring legal expertise, and ensures that partnerships and implementation arrangements are legally sound, thereby strengthening governance, accountability, and effective delivery of the Plan.

2.4.2 Institutional Capacity Assessment

The organizational structure of the Ministry of Agriculture includes a dedicated Environmental Management Unit (EMU) for providing expertise on environmental management and climate change issues within the agricultural sector. Further, the Ministry operates within a comprehensive national policy and legal framework which provides a strong mandate for mainstreaming environmental issues into sectoral plans. There is a strong focus on promoting climate-smart agriculture practices, offering learning ground and opportunity for

improved environmental management of the sector.

In addition, the Ministry and related agencies have substantial experience and established procedures for conducting Environmental and Social Impact Assessments (ESIA) for new projects, which is crucial for identifying and mitigating potential negative environmental and social impacts. However, the sector is faced with several challenges, with reference to strengthening environmental management capacity, including inadequate human resources and training at national, regional, and district levels for state and non-state organizations; limited availability of funds for implementing environmental interventions; low adoption of green technology; inadequate data management, monitoring and reporting systems, which are crucial for effective environmental oversight.

Key areas for improving the institutional capacity of the Ministry of Agriculture with respect to environmental management include strengthening human resource capacity through targeted recruitment and continuous training in environmental management, and monitoring and evaluation at all levels; enhancing agricultural extension services to effectively deliver climate-smart and precision agriculture practices to farmers; and improving environmental data management, monitoring, and reporting systems to support evidence-based planning and decision-making. There is also a need to increase financing for environmental and climate interventions to reduce overreliance on limited public resources, and to strengthen climate resilience by promoting sustainable water management, irrigation development, and climate-resilient agricultural technologies to reduce dependence on rain-fed agriculture. Furthermore, strengthening coordination and partnerships among government institutions, the private sector, and non-state actors is critical not only for mobilizing financial resources but also for leveraging technical expertise, innovation, and advanced technologies such as precision agriculture, digital farming tools, and climate-smart solutions to enhance effective implementation of ASEAP II.

CHAPTER THREE

3.0 ENVIRONMENTAL PROFILE OF THE AGRICULTURE SECTOR

This Chapter provides a brief account of the current environmental profile in the agriculture sector. The information presented has been drawn from the field assessment as part of the review of implementation of ASEAP I. It is depicted that while there is great potential for agricultural growth, the natural resources on which this growth depends, particularly soil, water, and biodiversity are showing signs of degradation.

3.1 Land Degradation and Soil Health

Land degradation is currently the most widespread environmental challenge facing the country. ASEAP I Evaluation report (2025) indicates that this problem is affecting approximately 50 percent of the total country land area, as it is noted before. About 86 percent of the Agricultural Extension Officers interviewed reported land degradation occurring in their areas of jurisdiction. The most common forms of land degradation reported were soil erosion (soil washing), deforestation (loss of trees and vegetation) and loss



Plate 1: Use of fire in preparation of farmland for planting crops is a widespread practice which contributes to land degradation - Songea District Council, Ruvuma Region. (Source: Ministry of Agriculture, 2024)

of soil fertility. Key drivers of the widespread land degradation was deforestation associated with agricultural land expansion and overdependence of fuelwood and charcoal for cooking; overgrazing; and unsustainable agricultural practices such as farming on steep slopes without terracing and use of wildfire for agricultural land clearance and land tenure insecurity.

However, agro-zonal differences were noted in terms of drivers of land degradation where in the semi-arid Central zone overgrazing was reported to be the key driver of land degradation as compared to the Plateau zone, the main driver is deforestation, while in the Northern Highlands, unsustainable agricultural practices is the primary concern.

The impacts of land degradation were cited to include reduced crop yields, increased land-use conflicts and forced migration of villagers because their land can no longer support their needs.



Plate 2: Charcoal burning leads to land degradation – Gwandi village, Chemba District, Dodoma Region (Source: Ministry of Agriculture, 2024)

3.2 Water Security and Irrigation Efficiency

The Tanzania Agriculture Master Plan 2050 (AMP 2050) has a major goal of expanding the area of land under irrigation to 1.2 million hectares. The existing irrigation systems are often outdated and characterized by low efficiency. The baseline survey found that, based on National Irrigation

Commission (NIRC) inventory data, only 1.3 percent of existing irrigation schemes are reported to be working at full capacity due to maintenance and management challenges. Further, about 80 percent of interviewed farmers rely on traditional open canals for irrigation. Open canals lose a lot of water through evaporation and seepage into the ground. Only about 14 percent of farmers are using sustainable irrigation methods, particularly drip irrigation. The baseline survey found that 63 percent of irrigating farmers acknowledge water is being misused in their schemes due to poor management



Plate 3: Livestock encroachment in a river stream contributing to competition for water resources - Nyang'wale District Council, Geita Region (Source: Field Survey, 2025)



Plate 4: Unsustainable abstraction of water for irrigation leads to poor management of water resources - Igawa Mbarali district Mbeya. (Source: Field Survey, 2025)

3.3 Agrochemical Pollution and Control

As agriculture becomes more commercial with increasing food demand due to population growth, farmers are using more inputs to increase their production. This includes synthetic (industrial) fertilizers and chemical pesticides. While these can

help produce more food, they also bring significant risks if not managed carefully. The use of plant protection products and agrochemicals such as pesticides and herbicides has increased dramatically by 4 to 20 folds since 2021, according to Tanzania Plant Health and Pesticides Authority (TPHPA) datasets. The interviewed Extension officers reported that about 86 percent of farmers in their areas use synthetic fertilizers while 80 percent are using synthetic pesticides.

While the appropriate use of these inputs is important for improving crop productivity and managing pests and diseases, their increasing use requires corresponding improvements in soil and environmental management practices. In particular, fertilizer application needs to be informed by soil health status, crop nutrient requirements and appropriate application practices, while pesticides should be managed in accordance with Integrated Pest Management (IPM) principles. Without adequate technical guidance and monitoring, inappropriate or excessive application may contribute to soil degradation, nutrient imbalance, contamination of water resources, loss of beneficial organisms and other environmental impacts that may undermine long-term agricultural productivity.

Moreover, safety practices have not kept up with the increase in chemical use as only about 25 percent of farmers were reported to wear protective gear such as masks or gloves when applying agrochemicals on their farms. This indicates that most farmers are exposed to toxic substances during applications, mainly due to the unaffordability of protective gears and low awareness on its importance. Furthermore, it was reported that 9 out of 11 Local Government



Plate 5: Poor disposal of empty chemical containers poses significant risks to environmental health, including water and soil pollution - Igawa Mbarali District, Mbeya Region (Source: Field Survey, 2025)

Authorities do not conduct regular health surveillance or collect systematic data related to the widespread use of agrochemicals and its potential health impacts. This gap contributes to weak public health protection, limited regulatory oversight, and insufficient evidence for informed decision-making on agrochemical safety.

3.4 Climate Change Vulnerability

ASEAP I Evaluation report shows that about 86 percent of interviewed farmers across all agro-ecological zones are aware of the climate change concerns, which they often associate with changes in rainfall patterns and prolonged droughts. However, only about 51 percent have implemented specific adaptation measures including planting early-maturing crops, drought-resistant seeds, conservation agriculture and agroforestry. The remaining farmers often lack financial resources to purchase drought-resistant seeds, install irrigation, or invest in long-term solutions such as planting trees.



Plate 6: Drought affected maize farmland in Same District Council, Kilimanjaro Region. Agriculture is highly vulnerable to climate change impacts (Source: Field Survey, 2025)

3.5 Land Tenure

How land is owned shapes how it is managed; however, ownership does not necessarily guarantee effective access or control, particularly in context of multiple land users and unequal power relations. Although 75 percent of farmers report some form of legal land ownership, only 29 percent hold formally registered rights, and a significant share operate on leased land (30 percent in the Coastal zone and 25 percent in the Northern Highlands). In practice,

land access is mediated by social, economic and institutional power, leaving many villagers especially those with fewer resource mainly small-scale farmers and pastoralists, women and youth without secure land access despite nominal ownership. This tenure insecurity, which also affects small-scale farmers and pastoralists through insecure access to farmland, grazing areas and water points, discourages long-term investment in sustainable land management practices and promotes short-term land use strategies that contribute to soil erosion, nutrient depletion, overgrazing and overall land degradation. Strengthening land tenure security for smallholders' farmers is therefore critical for improving soil health and reversing land degradation trends.



Plate 7: Land clearing for planting crops contributes to land degradation – Gwandi village, Chemba District Council, Dodoma Region. (Source: Field Survey, 2025)

3.6 Overall Implications on Environmental Status of the Agriculture Sector

The environmental profile of the agriculture sector points towards degrading trends of Environmental resources due to immense pressure from unsustainable anthropogenic activities and climate change. Key stakeholders are relatively aware of these challenges, but they are constrained by resources, limited resilience, inadequate land tenure and scarce supportive information. The problems are interconnected, whereby insecure land tenure contributes to poor soil management; poor soil management contributes to increased chemical use; and increased haphazard chemical use endangers public health. Addressing these

issues requires an integrated, participatory and data-driven approach that generates environmental benefits while ensuring economic viability.

The review provides a critical evidence base for the formulation of ASEAP II (2026–2031), offering actionable insights into key challenges facing the sector, such as land degradation and climate change impacts, as well as opportunities for improving sustainable agricultural transformation

in Tanzania through climate-smart agriculture, improved coordination, and increased investment in sustainable farming practices.

The design of ASEAP II (2026–2031) emphasizes tailored, agro-ecological zone-specific strategies that enhance resilience, strengthen environmental governance and support sustainable agricultural growth across the country as designated in Chapter Four.

CHAPTER FOUR

4.0 GOAL, STRATEGIC OBJECTIVES AND INTERVENTIONS

This Chapter presents the framework for the Second Agriculture Sector Environmental Action Plan (ASEAP II) (2026–2031), building on the achievements, experiences, and lessons learned from the implementation of ASEAP I (2012–2017). The chapter is informed by the review findings, which provide a critical evidence base for the formulation of ASEAP II by highlighting key challenges facing the agriculture sector, including land degradation, climate change impacts, and limited coordination mechanisms. At the same time, the review identifies opportunities for accelerating sustainable agricultural transformation in Tanzania through the promotion of climate-smart agriculture, strengthened environmental governance, improved coordination, and increased investment in sustainable farming practices.

In response, ASEAP II emphasizes tailored interventions and agro-ecological zone-specific strategies aimed at enhancing resilience and supporting sustainable agricultural growth across the country.

The chapter therefore outlines the overall goal of the Plan, strategic objectives, and corresponding interventions that will guide implementation during the 2026–2031 period. It further presents the strategies, activities, and logical sequence of actions required to overcome identified constraints, achieve desired environmental and agricultural outcomes, and facilitate effective monitoring of progress toward sustainable sector development.

4.1 Goal

The goal of the Action Plan is to contribute to a transformed agriculture sector that is environmentally sustainable, economically viable, and socially inclusive, thereby enhancing resilience, improving livelihoods, and supporting the achievement of the Tanzania Agriculture Master Plan 2050 transformation agenda and TDV 2050.

4.2 Strategic Objectives

The analysis of Tanzania's agro-ecological zones showed that while progress has been made in integrating environmental management into agriculture, implementation remains weak due to systemic governance challenges. Thus, ASEAP II adopts specific objectives as outlined below:

- i. To facilitate restoration of degraded agricultural landscapes for securing critical ecosystems and natural capital
- ii. To strengthen adaptation to climate change and early warning for sustainable agricultural livelihoods
- iii. To promote water use efficiency and catchment conservation agricultural productivity and growth
- iv. To enhance institutional capacity and enforcement regime for prevention and control of agrochemical pollution
- v. To promote digitalization, inclusive approaches, and the integration of indigenous knowledge in support of food security and effective environmental management.

4.3 Theory of Change

To address the specific gaps identified in the ASEAP I evaluation particularly in areas where targets were not fully achieved, including land governance, water efficiency, and agrochemical control - the Theory of Change (ToC) (Annex 2) outlines the logical pathway from strategic investment to national impact.

4.4 Strategic Pillars and Interventions

The Action Plan, covering a five-year period (2026–2031), is structured into four thematic pillars: Land Use Governance and Soil Health; Climate Resilience and Early Warning Systems; Water Security and Water Energy Food (WEF) Nexus Governance; and Agrochemical and Agro-Industrial Pollution Control. In addition, cross-cutting issues, namely gender equality and social inclusion, digitalization and the integration of indigenous knowledge, are mainstreamed across all thematic pillars to ensure that proposed interventions are inclusive, context-responsive and sustainable. Each pillar comprises strategic interventions that contribute to the achievement of its objectives. The description and objectives of each strategic

intervention are provided in Annex I.

4.4.1 Thematic Pillar I: Land Use Governance and Soil Health

The Agriculture Sector Environmental Assessment Report (2025) reveals that Tanzania's natural capital base is under significant pressure, with land degradation affecting approximately 50 percent of the country's total land area. Inadequate agricultural land use planning, weak enforcement of land management regulations, and limited security of land tenure continue to drive unsustainable practices, including deforestation, intensive tillage, expansion into fragile ecosystems, and excessive use of agrochemicals, all of which contribute to declining soil health. These challenges negatively affect agricultural productivity, biodiversity conservation, and water quality, with disproportionate impacts on smallholder farmers, particularly women, youth, and other vulnerable groups who depend heavily on land and natural resources for their livelihoods.

The economic implications of land degradation are substantial, with annual costs estimated at approximately TZS 25 trillion (US\$10.1 billion). This situation undermines agricultural productivity, threatens the achievement of the 10 percent annual agricultural sector growth target, and affects rural livelihoods and foreign exchange earnings from agricultural exports as envisioned under the Tanzania Agriculture Master Plan (AMP) 2050. The challenges are further exacerbated by insecure land tenure, which discourages long-term investments in sustainable land management, limits farmers' access to financial services and agricultural support programmes, and contributes to land-use conflicts. Therefore, strengthening integrated, socially inclusive agricultural land use planning, effective land administration systems, and secure land rights is critical for promoting sustainable agricultural transformation.

The core objective of land use governance is to guide agricultural development towards balanced social, economic, and environmental sustainability while ensuring equitable access to land and natural resources for all land users, with particular attention to smallholder farmers, women, youth, and vulnerable groups. This includes promoting efficient land resource utilization, preventing and resolving land-based conflicts, strengthening community participation in land management decisions, and

improving land administration systems that respond to the needs and priorities of different social groups within communities.

A key focus of this pillar is to strengthen land tenure security through the systematic adjudication, demarcation, and issuance of Customary Certificates of Right of Occupancy (CCROs) to agricultural land users. This intervention directly contributes to the implementation of Pillar 14 of the Agricultural Master Plan (AMP 2050), which targets expanding the area of farmland secured through CCROs to 1.2 million hectares. Enhancing access to legally recognized land rights will provide farmers with greater confidence to invest in long-term sustainable land management practices, climate-smart agriculture, soil and water conservation, and improved agricultural technologies. Furthermore, secure tenure will enhance farmers' ability to access credit and other agricultural services, reduce land-related conflicts, promote responsible land stewardship, and strengthen resilience and productivity across agricultural landscapes.

This pillar also seeks to address the limitations identified under ASEAP I, which primarily focused on protecting the physical land resource base, including agricultural land and other productive ecosystems. ASEAP II expands this focus by integrating land governance, tenure security, and inclusive land administration as essential components for sustainable agricultural development. Particular emphasis will be placed on improving land rights for women, youth, and vulnerable groups, ensuring their meaningful participation in land-related decision-making processes and enabling equitable access to productive resources.

Maintaining healthy soils will remain a cornerstone of sustainable agricultural productivity and environmental resilience. Healthy soils are fundamental for achieving food and nutrition security, enhancing climate change mitigation through carbon sequestration, improving water retention and regulation, conserving biodiversity, strengthening the resilience of smallholder farmers to climate and economic shocks, and reducing dependence on external inputs such as synthetic fertilizers and pesticides. Through improved soil management practices, sustainable land governance, and secure land tenure systems, this pillar will contribute to the development of productive, resilient, and environmentally sustainable agricultural

systems capable of supporting Tanzania's long-term agricultural transformation agenda.

Four strategic interventions will be implemented under this pillar. The first intervention is to strengthen sustainable land use planning through the development and implementation of 4,000 climate-smart Village Land Use Plans (VLUPs) by 2030, contributing to the national target of 10,672 VLUPs by 2035. The intervention will further strengthen land tenure security through the adjudication, demarcation, and issuance of Customary Certificates of Right of Occupancy (CCROs) to agricultural land users, thereby contributing to the achievement of Flagship 14 of the AMP (2050), which aims to expand the area of farmland secured under CCROs to 1.2 million hectares. Secure and legally recognized land rights will encourage long-term investments in sustainable land management, climate-smart agriculture, and soil and water conservation practices. Furthermore, improved land tenure security will help reduce land-use conflicts, enhance farmers' access to credit and agricultural support services, promote responsible land stewardship, and strengthen the resilience, sustainability, and productivity of agricultural systems.

Second, regenerative agriculture and climate-smart soil management will be scaled up by transitioning 1 million hectares to verified Climate-Smart Agriculture (CSA) practices directly mapped to land degradation hotspots. Third, soil monitoring and testing systems will be strengthened. Lastly, the Ministry will conduct Community Awareness and Institutional Capacity Building Programs on Land Use Governance and Soil Health Management to ensure local buy-in and climate-resilient development.

4.4.2 Thematic Pillar II: Climate Resilience and Early Warning System

Tanzania's agricultural sector is overwhelmingly dependent on rainfall, with more than 95 percent of crop production relying on natural seasonal patterns. This heavy dependence makes the sector particularly vulnerable to the accelerating impacts of climate change. The majority of interviewed smallholder farmers reported noticeable changes in rainfall patterns, prolonged droughts and floods. These climate-related stresses disproportionately affect smallholder farmers

especially women and the youth whose livelihoods and food security are closely tied to rain-fed agriculture. In response to these growing climate risks, effective, inclusive, and people-centered Early Warning Systems (EWS) are essential for strengthening adaptive capacity and resilience. Such systems provide timely and reliable information on impending weather and climate hazards, enabling farmers and other stakeholders to prepare for, respond to, and minimize the adverse impacts of droughts, floods, and other climate-related shocks. However, significant challenges persist, including limited financial resources, inadequate technical capacity and communication barriers that constrain the effectiveness of EWS in reaching all vulnerable and marginalized communities.

It is therefore critical to incentivize the adoption of sustainable and climate-smart agricultural practices that enhance the adaptive capacity of smallholder farmers with specific focus on women and youth. In parallel, strengthening inclusive and accessible EWS is fundamental to building climate resilience by providing timely, reliable and actionable information that enables farming communities to anticipate and prepare for climate-related hazards.

Three strategic interventions are earmarked for implementation under this pillar on Climate Resilience and Early Warning Systems. These include the strengthening of integrated Early Warning Systems (EWS), aimed at operationalizing AMP Flagship 15 through the creation of a unified digital platform that delivers actionable and location-specific climate and weather advisories to 5 million farmers by 2030. The intervention will also strengthen extension services to ensure that climate and weather information is communicated effectively to women and men farmers in accessible formats, thereby enhancing preparedness and resilience to climate-related risks.

The second strategic intervention is to enhance Climate Information Dissemination and Communication by conducting climate risk and vulnerability assessments at the community level and developing climate risk management guidelines, manuals, and mobile-based advisory services.

Lastly is the adoption of Climate-Smart Technologies, intending to shift investment from mainly training and awareness activities to the provision of practical farming equipment and

technologies. This intervention seeks to ensure that 4.8 million smallholder farmers access climate-resilient technologies by 2031, while promoting equitable access to improved seeds and appropriate technologies, particularly for women and youth. This reach is achieved via a Training of Trainers (ToT) cascade: the 2,000 costed training sessions each train 40 lead farmers, and each lead farmer subsequently trains 60 peer farmers through localized Farmer Field Schools ($2,000 \times 40 \times 60 = 4,800,000$ farmers).

4.4.3 Thematic Pillar III: **Water Security and WEF Nexus Governance**

Tanzania's agricultural sector faces significant water security challenges arising from climate change, including recurrent droughts and floods alongside land degradation and pollution, placing increasing stress on Water–Energy–Food (WEF) nexus linkages. These challenges disproportionately affect smallholder farmers whose livelihoods and food security are highly dependent on reliable water access. The Tanzania Agriculture Master Plan 2050 (AMP 2050) sets an ambitious target to expand irrigated land to 1.2 million hectares by 2030, a critical step toward reducing dependence on erratic rainfall and strengthening national food security. However, only 1.3 percent of existing irrigation schemes are reported to be fully operational. Moreover, approximately 80 percent of irrigating farmers many of them smallholders, including women and youth, rely on traditional open canal systems that are highly vulnerable to seepage and evaporation, with water losses often exceeding 50 percent. In the context of a warming climate with rising evaporation rates, such inefficiencies constitute a major structural vulnerability.

While notable efforts are ongoing to promote climate-smart agriculture to address these challenges, the initiatives require improved coordination, sustainable financing and strengthened technical capacity to integrate holistic and inclusive WEF nexus approaches that enhance long-term sustainability and resilience for all users. To address these challenges, Pillar III of ASEAP II adopts a “Compliance and Facilitation” approach. This means ensuring that agricultural investments and irrigation practices follow environmental regulations, protect natural ecosystems, and promote the sustainable and fair use of water resources. The pillar will also

support equitable access to water resources for smallholder farmers, particularly vulnerable groups such as women and youth.

Two strategic interventions are earmarked for implementation under this pillar on Water Security and WEF Nexus Governance. These include: One, operationalize integrated Water-Energy-Food (WEF) Nexus governance frameworks and coordination mechanisms to strengthen cross-sectoral coordination and compliance with basin-level water governance systems. This intervention aims to institutionalize a robust internal compliance mechanism to ensure that irrigation investments comply with water rights, water allocation plans, and other regulatory requirements established by the Basin Water Boards before implementation. Such an approach will promote sustainable water resource management, reduce resource-use conflicts, and enhance the long-term sustainability of irrigation investments.

Second, include promotion of sustainable water resources management technologies, including rainwater harvesting and storage systems, water-efficient irrigation technologies, and climate-resilient irrigation infrastructure, to enhance water security, improve irrigation efficiency, reduce water losses, and strengthen the resilience of agricultural production systems to climate variability and prolonged droughts. This intervention aims to contribute to the Agricultural Master Plan (AMP 2050) target of expanding the national irrigated area to 1.2 million hectares, supported by the development of 5,000 deep boreholes under the implementation of Flagship 1. The borehole programme will be guided by basin-level groundwater and hydrogeological assessments to safeguard sustainable abstraction, and will be underpinned by clear ownership arrangements, affordable water tariff structures, and community-based operation and maintenance mechanisms, including the training and equipping of local water-point committees, to ensure the long-term functionality and financial sustainability of the water points. In parallel, the intervention will strengthen the meaningful participation and leadership of women and youth within Irrigators' Organizations by enhancing their representation in decision-making processes, water governance, operation and maintenance of irrigation infrastructure, and equitable access to irrigation services, thereby

promoting inclusive, efficient, and sustainable management of water resources.

4.4.4 Thematic Pillar IV: Agrochemical and Agro-Industrial Pollution Control

As Tanzania advances towards achieving the targets of the Tanzania Agriculture Master Plan 2050 (AMP 2050), the use of agro-inputs has increased significantly. Available data indicate that the importation and distribution of Crop Protection Products (CPPs) have risen between four and twenty folds since 2021. While this intensification of agrochemical use has contributed to increased agricultural production, it has also heightened environmental and public health risks, with disproportionate exposure and impacts on smallholders, farmers and communities living near agricultural and agro- industrial operations.

Addressing these risks requires a strengthened, integrated and gender-responsive approach to control agrochemical and agro-industrial pollution within a multi-sectoral governance framework that promotes sustainable production while safeguarding human health and environmental integrity.

The first strategic intervention is to strengthen sectoral environmental monitoring and regulatory compliance by operationalizing a comprehensive field-level environmental monitoring and compliance framework across the agricultural sector. The intervention aims to establish a coordinated monitoring system in which the Environmental Management Unit (EMU) works closely with the Tanzania Plant Health and Pesticides Authority (TPHPA), the National Environment Management Council (NEMC), Local Government Authorities (LGAs), and other relevant institutions to monitor compliance with environmental laws, regulations, standards, and safeguards. This pillar addresses both farm-level agrochemical application and larger-scale agro-industrial processing impacts: interventions include establishing measurable compliance outputs for agro-industrial effluent, emissions, and waste generation, integrating health, safety, and environmental considerations into continuous monitoring protocols.

The second strategic intervention is to promote sustainable agricultural practices and strengthen farm waste management by mainstreaming health, safety, and environmental considerations into the Ministry's agricultural extension services. The

intervention aims to enhance farmers' knowledge, awareness, and adoption of safe agricultural practices while addressing existing gaps in the handling and use of agricultural inputs, occupational health and safety, and environmentally sound farm management. It will further strengthen agricultural waste management systems through enhanced coordination with NEMC and other relevant stakeholders to address the increasing accumulation of agricultural waste, particularly plastic waste such as empty pesticide containers. The intervention will promote the establishment of sustainable waste management systems, including the safe collection, segregation, storage, transportation, recycling, recovery, and environmentally sound disposal of agricultural waste in compliance with national environmental legislation, international conventions, and best environmental management practices, thereby minimizing risks to human health, biodiversity, soil, and water resources.

4.5 Strategic Considerations and Approach

Achieving a resilient, sustainable and inclusive agriculture sector requires an integrated and multi-pronged approach combining policy support, targeted interventions and multi-stakeholder collaboration. With land degradation costing TZS 25 TRILLION annually, the strategic shift toward regenerative agriculture aims to safeguard the US\$20 billion growth trajectory of the AMP 2050. Key strategic considerations adopted for this purpose include the following:

- i) **Policy Coherence and Integration:** Aligning agricultural targets with national development and environmental frameworks ensures that the agriculture sector supports climate, biodiversity, and economic goals simultaneously. This helps maintain a balance between environmental, social, and economic objectives while promoting national development, climate action, and biodiversity protection. It also enhances shared benefits across these areas and reduces conflicts between competing priorities.
- ii) **Incentives and Subsidies Reform:** Policies should redirect subsidies away from chemical-intensive practices and towards environmentally friendly inputs and sustainable

farming actions. This provides the right economic signals to encourage the adoption of sustainable agricultural practices.

iii) **Secure Land Tenure:** Clear and secure land tenure policies are critical especially for smallholder farmers and marginalized groups like women and the youth. Secure access to land incentivizes long-term investments in land improvement and conservation, which are essential for agricultural sustainability and resilience.

iv) **Financial Inclusion:** Priority shall be accorded to policies that enhance farmers' access to tailor and affordable financial services including loans and insurance so as to manage risks and

invest in climate-resilient technologies and practices.

v) **Climate Risk Management:** Establishing weather-indexed insurance, which is a system that provides compensation to farmers when extreme weather conditions such as drought or excessive rainfall occur based on measured weather data. It also includes early warning systems supported by digital agriculture, climate information systems, data-driven decision-making, and the integration of indigenous knowledge to enhance productivity, resilience, environmental management, and inclusive participation across agricultural value chains.

CHAPTER FIVE

5.0 IMPLEMENTATION FRAMEWORK

This Chapter presents coordination mechanisms and specific institutional roles and responsibilities to ensure effective and sustainable implementation of ASEAP II.

5.1 Coordination

The overall coordination of implementation of ASEAP II will be the responsibility of the Ministry of Agriculture through the Environmental Management Unit (EMU). The Prime Minister's Office-Regional Administration and Local Government (PMO-RALG) will have an advisory and supportive role in the implementation of ASEAP II.

5.2 Specific Institutional Roles and Responsibilities

a) Ministry of Agriculture

The primary functions of Environmental Management Unit (EMU) of the Ministry of Agriculture are to coordinate the activities related to environmental management within the Ministry; prepare and coordinate the implementation of environmental action plans at the national and local levels; ensure that environmental concerns are integrated into the ministry or departmental development planning and project implementation in a way which protects the environment; and promote public awareness on environmental issues (Section 31 of the Environmental Management Act Cap 191). It shall have the role of providing overall coordination in the implementation, monitoring and reporting on ASEAP II. The following institutions will be involved:

- i) **Tanzania Plant Health and Pesticides Authority (TPHPA):** The Authority is responsible for the registration, licensing and monitoring of all pesticides, bio-pesticides and pesticide application equipment; and plant biodiversity conservation.
- ii) **Tanzania Fertilizer Regulatory Authority (TFRA):** The Authority is responsible for regulating the fertilizer industry, including registration, importation, distribution, sale, and quality control of all fertilizers in the country.

In the implementation of ASEAP II, TFRA ensures the availability and use of safe, quality, and environmentally sustainable fertilizers, promotes balanced and efficient fertilizer use, and supports compliance with standards that minimize environmental degradation such as soil and water pollution.

- iii) **Plant Breeders' Rights Office (PBRO):** The Office is responsible for facilitating protection of new plant varieties, promoting breeding innovation, supporting climate-resilient variety development, facilitating access to quality seed systems, and contributing to conservation and sustainable utilization of plant genetic resources for food and agriculture.
- iv) **Tanzania Agricultural Research Institute (TARI):** The institute will play a key role in ASEAP II through conducting agricultural research and promoting development and scaling of climate-smart and environmentally sustainable technologies to enhance agricultural productivity, food security, and resilience. The Institute will support dissemination of improved crop varieties and implementation of the Quality Declared Seed (QDS) system for maize, legumes, and rice to improve farmers' access to quality seeds and modern agricultural technologies. TARI will also strengthen research-extension linkages, capacity building, and adoption of sustainable agricultural innovations for resilient and sustainable agricultural transformation.
- v) **National Irrigation Commission (NIRC):** NIRC is mandated to coordinate, promote and regulate the development of the irrigation sector in the country. Some of the functions include planning, studying, designing and supervising the construction and rehabilitation of irrigation and drainage systems.
- b) **Ministries, Agencies and Departments (MDAs)**
 - i) **Vice President's Office:** The Vice President's Office (VPO) shall be responsible for overseeing government's response to environmental issues that are relevant to the implementation of the ASEAP II by ensuring sustainable environmental conservation and

equitable use of natural resources for meeting basic needs for present and future generations.

- ii) **Prime Minister's Office–Regional Administration and Local Government (PMO-RALG):** The PMO-RALG performs its environmental functions primarily through the coordination, supervision, and capacity building of Local Government Authorities (LGAs), which are responsible for implementing environmental policies at the local level. It shall provide a link on implementation of ASEAP II between Regional Secretariats and the Ministry of Agriculture.
 - iii) **Ministry of Lands, Housing and Human Settlements Development:** The Ministry shall ensure equitable distribution and access to land for all citizens; facilitate land accessibility for agricultural investment; and provide land adjudication, registration services and issuance of title deeds for commercial agriculture.
 - iv) **Ministry of Finance:** The Ministry of Finance, in collaboration with Ministry of Agriculture, shall facilitate availability of financial resources to ensure adequate funding for environmental management.
 - v) **National Environment Management Council (NEMC):** The primary function of NEMC is to oversee environmental enforcement and compliance by ensuring adherence to environmental laws and regulations. Its main role relates to managing and preventing environmental pollution and waste management.
 - vi) **Tanzania Meteorological Authority (TMA):** Provide timely, accurate, and downscaled weather and climate information to support agricultural planning, early warning systems, and climate risk management under ASEAP II, including the generation of seasonal forecasts, real-time weather monitoring, and climate data required for advisories, disaster preparedness, and instruments such as Weather-Index Based Insurance (WIBI), working closely with EMU, ICTU, GCU of the Ministry of Agriculture, the media and extension services to ensure climate information is translated into actionable guidance for farmers and decision-makers.
- c) **Regional Secretariats**
The Regional Secretariats will have the role of supporting LGAs in terms of capacity building, providing technical backstopping and monitoring the performance of LGAs. The Regional Secretariats shall facilitate technical coordination between the PMO-RALG and the LGAs.
 - d) **Local Government Authorities (LGAs)**
The Local Government Authorities shall be responsible for implementing ASEAP II in their respective areas of jurisdiction; promoting protection and conservation of the environment; and raising awareness of environmental management issues in their geographical jurisdiction.
 - e) **Academic and Research Institutions**
Academic and research institutions have the role in conducting agricultural related research and training as guided by the National Agricultural Research Agenda, which aims to create a modern, competitive and profitable agricultural sector through smart, technology-driven solutions that benefit smallholder farmers and contribute significantly to the national economy.
 - f) **Civil Society Organizations (CSOs)**
The roles of CSOs including Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOS), and other relevant civil society groups, will include promoting of environmental education and public awareness, participation and empowerment; facilitating environmental information sharing and networking; advocating for sound environmental management; supporting Climate-Smart Agriculture (CSA), sustainable land and natural resource management, and climate adaptation and resilience initiatives; and developing and supporting sustainable alternative livelihood activities that contribute to environmental conservation and improved community resilience.

g) Private sector

The private sector will participate in supporting environmental management initiatives; promoting and investing in environmentally sound and climate-smart agricultural technologies and practices; improving resource efficiency and sustainable production; supporting sustainable agricultural value chains; and complying with applicable environmental standards and regulations.

h) Media

The role of the media will be to provide environmental information to the public. Further, the Ministry of Agriculture, in

collaboration with other actors, shall be responsible in preparation of public awareness programmes on environment conservation and management.

Development Partners

Development partners will provide catalytic financing, technical assistance, capacity building, knowledge and innovation to support the implementation of ASEAP II. They will also support institutional strengthening, monitoring and learning, and the scaling up of successful environmental management and climate-resilient agricultural interventions, and livelihoods.

CHAPTER SIX

6.0 RISK MANAGEMENT

This Chapter presents the Risk Management Framework for the Agriculture Sector Environmental Action Plan II (ASEAP II) 2026–2031. The framework is designed to support effective implementation of the Action Plan by identifying, assessing, monitoring, and mitigating risks that may affect achievement of the sector's environmental sustainability, climate resilience, productivity, and livelihood objectives.

The framework is aligned with the priorities, challenges, institutional arrangements, and strategic interventions identified in the Agriculture Sector Action Plan 2026–2031. It responds directly to key risks highlighted during the baseline assessment conducted across the seven agro-ecological zones, including land degradation, climate variability, inefficient irrigation systems, weak environmental governance, agrochemical pollution, limited institutional capacity, inadequate financing, and increasing vulnerability of smallholder farmers.

The Risk Management Framework further supports implementation of national policies and frameworks including the National Agriculture Policy (2013), National Environmental Policy (2021), Tanzania Agriculture Master Plan 2050 (AMP 2050), Nationally Determined Contribution (NDC 3.0), Tanzania Development Vision 2050, National Climate Change Response Strategy 2021-2026, Environmental Management Act Cap 191, Water Resources Management Act Cap 331, and the Land Use Planning Act Cap 116.

The framework recognizes that the agriculture sector is highly vulnerable to environmental and climate-related shocks due to its dependence on rain-fed agriculture, natural resources, and smallholder farming systems. Therefore, risk management shall be integrated into all stages of planning, budgeting, implementation, monitoring, reporting, and evaluation of ASEAP II interventions. The implementation of this framework will strengthen institutional preparedness, improve coordination among stakeholders, enhance adaptive capacity, safeguard environmental resources, and improve

the sustainability of agricultural investments. The objectives of the Risk Management Framework are to:

1. Identify potential environmental, climate, institutional, financial, operational, and social risks that may hinder implementation of ASEAP II interventions;
2. Minimize adverse impacts on agricultural productivity, livelihoods, natural resources, and implementation outcomes;
3. Strengthen institutional preparedness, coordination, and response mechanisms for environmental and climate-related risks;
4. Promote accountability, transparency and informed decision-making during implementation of the Action Plan;
5. Strengthen resilience of farming systems, communities, and institutions against climate variability and environmental degradation;
6. Enhance sustainability of investments in climate-smart agriculture, irrigation, agroforestry, land restoration, and environmental management; and
7. Facilitate adaptive management and continuous learning throughout implementation of ASEAP II.

6.1 Risk Management Process

The risk management process under ASEAP II shall involve:

- i. Continuous identification and assessment of implementation risks;
- ii. Monitoring of emerging environmental, institutional, social, and climate threats;
- iii. Development and implementation of mitigation measures;
- iv. Integration of risk management into planning, budgeting, monitoring, and reporting systems;
- v. Coordination among Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs), development partners, private sector, Civil Society Organizations (CSOs), and communities;
- vi. Periodic review and updating of the risk matrix and mitigation measures.

Risk management shall be mainstreamed across all thematic pillars and interventions under ASEAP II, particularly those related to:

- i. Climate-smart agriculture;
- ii. Soil health and land restoration;
- iii. Sustainable irrigation development,
- iv. Agrochemical management,
- v. Biodiversity conservation,
- vi. Environmental governance,
- vii. Early warning systems,
- viii. Capacity development,
- ix. Digital agriculture and climate information services

Mitigation measures shall include:

- Promotion of climate-smart agriculture (CSA),
- Expansion of sustainable irrigation systems,
- Promotion of drought-tolerant and early-maturing crop varieties,
- Strengthening climate information and early warning systems,
- Agroforestry and watershed restoration,
- Disaster preparedness and contingency planning.

6.2 Risk Rating Criteria

Risks will be categorized according to likelihood and impact as follows:

Table 1: Risk rating criteria

No.	Rating	Likelihood Description	Impact Description
1.	Low	Unlikely to occur	Minor effect on implementation
2.	Medium	Possible occurrence	Moderate disruption to implementation targets
3.	High	Very likely to occur	Significant impact on implementation outcomes

The overall risk level shall be determined through combined assessment of likelihood and impact. The detailed risk matrix showing Key Implementation Risks and Mitigation Measures is provided in Annex 3.

6.3 Key Implementation Risks under ASEAP II

Implementation of ASEAP II may be affected by various environmental, institutional, financial, technical, operational, and social risks.

6.3.1 Climate Change and Extreme Weather Events

Climate change remains one of the most significant risks to implementation of ASEAP II. The baseline assessment established that farmers across all agro-ecological zones are already experiencing prolonged droughts, erratic rainfall, floods, rising temperatures, crop failures, pest outbreaks, and water scarcity. These risks may:

- Reduce agricultural productivity and food security;
- Damage irrigation infrastructure and rural roads;
- Increase land degradation and soil erosion;
- Undermine resilience investments;
- Affect livelihoods of vulnerable communities.

6.3.2 Land Degradation and Loss of Soil Fertility

Land degradation was identified during the baseline

assessment as one of the most widespread environmental challenges affecting nearly half of the country's land area. Key drivers include deforestation, unsustainable farming practices, overgrazing, charcoal production, and insecure land tenure. Potential impacts include:

- Reduced crop productivity;
- Soil fertility decline;
- Increased conflicts over land and water resources;
- Reduced ecosystem services;
- Increased vulnerability to climate change.

Mitigation measures will include:

- Promotion of conservation agriculture;
- Village Land Use Planning (VLUP);
- Soil health testing and integrated soil fertility management;
- Terracing and contour farming;
- Agroforestry and afforestation;
- Community awareness and enforcement of environmental regulations.

6.3.3 Water Scarcity and Inefficient Irrigation Systems

The baseline survey found that irrigation systems remain inefficient, with heavy reliance on traditional open canals associated with water losses through seepage and evaporation.

Risks associated with water insecurity include:

- Reduced irrigation efficiency,
- Competition over water resources,
- Declining agricultural productivity,
- Environmental degradation of water catchments,
- Conflicts among water users.

Mitigation measures shall include:

- Rehabilitation and modernization of irrigation infrastructure,
- Promotion of water-efficient technologies such as drip irrigation,
- Strengthening water governance and water-use efficiency,
- Catchment conservation and watershed management,
- Capacity building for Irrigation Water User Associations,
- Enforcement of sustainable water abstraction practices.

6.3.4 Agrochemical Pollution and Unsafe Input Use

Increasing use of fertilizers, pesticides, and herbicides presents growing environmental and public health risks. The baseline assessment established that many farmers do not adequately use protective equipment during agrochemical application. Potential risks include:

- Soil and water pollution;
- Human health hazards;
- Biodiversity loss;
- Unsafe disposal of agrochemical containers;
- Increased environmental contamination.

Mitigation measures include:

- Promotion of Integrated Pest Management (IPM),
- Training on safe handling and use of agrochemicals,
- Strengthening enforcement under the Plant Health Act Cap 133,
- Promotion of organic and environmentally friendly agricultural practices,
- Regular environmental and epidemiological monitoring,
- Awareness campaigns on agrochemical safety.

6.3.5 Weak Institutional Capacity and Coordination

The implementation of ASEAP II may be constrained by limited human resources, inadequate technical capacity, weak coordination mechanisms, and insufficient environmental management skills at national and local levels. Potential impacts include:

- Delayed implementation of interventions;
- Weak enforcement of environmental regulations;
- Poor monitoring and reporting;
- Duplication of interventions;
- Reduced effectiveness of climate and environmental actions.

Mitigation measures shall include:

- Strengthening Environmental Management Unit (EMU),
- Capacity building for extension officers and LGAs,
- Establishment of inter-institutional coordination platforms,
- Strengthening digital monitoring and reporting systems,
- Enhancing collaboration among MDAs, LGAs, CSOs, and development partners.

6.3.6 Inadequate Funding and Delayed Disbursement

Implementation of environmental and climate interventions may be affected by limited financial resources, delayed release of funds, and dependency on external financing. Potential impacts include:

- Delays in implementation of planned activities;
- Reduced coverage of interventions;
- Weak environmental monitoring and enforcement;
- Incomplete infrastructure projects.

Mitigation measures shall include:

- Strengthening resource mobilization,
- Integration of environmental priorities into sector budgeting,
- Leveraging climate finance and carbon market opportunities
- Strengthening partnerships with development partners and private sector,
- Improving financial planning and expenditure tracking.

6.3.7 Social Risks and Community Resistance

Some interventions may face resistance due to inadequate awareness, exclusion of vulnerable groups, conflicts over natural resources, or weak stakeholder engagement. Potential impacts include:

- Reduced community participation;
- Delays in implementation;
- Resource-use conflicts;
- Social exclusion and inequality.

Mitigation measures shall include:

- Regular stakeholder consultations;
- Community awareness and sensitization;
- Inclusive participation of women, youth, and vulnerable groups;
- Establishment of grievance redress mechanisms;
- Participatory planning and implementation.

6.4 Risk Management Approach

ASEAP II shall adopt a proactive, participatory, adaptive, and integrated risk management approach. The approach recognizes that environmental, climate, financial, social, and institutional risks are interrelated and require coordinated responses.

The approach shall emphasize:

- Prevention and preparedness;
- Early detection and response;
- Stakeholder participation;
- Evidence-based decision-making;
- Continuous learning and adaptive management.

The following strategies shall guide implementation of the risk management approach.

6.4.1 Regular Stakeholder Consultations

Stakeholder consultations shall be conducted regularly to strengthen participation, transparency, ownership, coordination, and collective problem-solving during implementation of ASEAP II.

The consultations shall support:

- Identification of implementation risks and emerging environmental concerns;
- Validation of local priorities and interventions;
- Information sharing and coordination;
- Strengthening accountability and ownership;
- Conflict prevention and resolution.

Key stakeholders shall include:

- Ministries, Departments and Agencies (MDAs);
- Regional Secretariats and Local Government

Authorities;

- Farmers and community groups;
- Irrigation Water User Associations;
- Civil Society Organizations (CSOs);
- Development partners;
- Private sector actors;
- Research and training institutions.

Consultations shall be conducted through:

- Community meetings and public forums;
- Technical Working Groups;
- Multi-stakeholder workshops;
- Participatory planning sessions;
- Feedback and grievance mechanisms.

6.4.2 Environmental and Social Safeguards Screening

Environmental and social safeguards screening shall be undertaken to identify, assess, and manage risks associated with ASEAP II interventions.

The safeguards process shall ensure:

- Compliance with Environmental Management Act Cap 191 and other applicable laws;
- Prevention and minimization of adverse environmental impacts;
- Protection of vulnerable groups and ecosystems;
- Sustainable natural resource management.

Key environmental risks to be assessed include:

- Land degradation and deforestation;
- Soil erosion and water pollution;
- Biodiversity loss;
- Waste generation and pollution;
- Unsustainable irrigation and water abstraction.

Key social risks include:

- Land and water-use conflicts;
- Gender inequality and social exclusion;
- Community health and safety concerns;
- Child labor and labor rights issues;
- Displacement and livelihood disruption.

Safeguards measures shall include:

- Environmental and Social Impact Assessments (ESIAs);
- Environmental and Social Management Plans (ESMPs);
- Public consultations and disclosure;
- Compliance monitoring;
- Grievance Redress Mechanisms (GRMs).

6.4.3 Climate and Disaster Risk Assessments

Climate and disaster risk assessments shall be conducted regularly to strengthen preparedness and resilience against climate-related hazards. The assessments shall focus on:

- Droughts and floods;
- Crop and livestock diseases;
- Water scarcity;
- Heat stress and temperature variability;
- Land degradation and desertification;
- Food insecurity.

Key measures shall include:

- Climate vulnerability assessments;
- Hazard mapping and early warning systems;
- Promotion of climate-smart agriculture;
- Disaster preparedness planning;
- Climate-resilient infrastructure design;
- Community awareness and preparedness training.

The assessments shall support implementation of national climate commitments under NDC 3.0 and resilience objectives under AMP 2050.

6.4.4 Financial and Procurement Controls

Strong financial management and procurement systems shall be applied to ensure transparency, accountability, value for money, and efficient utilization of resources. Financial and procurement controls shall include:

- Budget planning and expenditure tracking;
- Segregation of duties and authorization procedures;
- Internal and external audits;
- Transparent procurement procedures;
- Supplier due diligence;
- Contract management and performance monitoring.

These measures shall strengthen fiduciary risk management and improve stakeholder confidence.

6.4.5 Monitoring and Evaluation of Risks

Risk monitoring shall be integrated into the Monitoring and Evaluation (M&E) framework of ASEAP II. The M&E system shall support:

- Tracking implementation progress;
- Monitoring emerging risks and vulnerabilities;
- Assessing effectiveness of mitigation measures;
- Supporting evidence-based decision-making;
- Adaptive management and continuous learning.

Key components shall include:

- Baseline assessments;
- Performance indicators and targets;
- Routine data collection and analysis;
- Field supervision and inspections;
- Quarterly risk review meetings;
- Mid-term and final evaluations;
- Risk reporting mechanisms.

Reports shall include:

- Monthly and quarterly progress reports;
- Risk assessment reports;
- Field supervision reports;
- Evaluation and learning reports.

6.4.6 Community Feedback and Grievance Redress Mechanism

ASEAP II shall establish participatory grievance redress mechanisms to enable communities and stakeholders to raise concerns and provide feedback on implementation. The mechanism shall:

- Promote transparency and accountability;
- Strengthen stakeholder trust and participation;
- Facilitate timely resolution of grievances;
- Improve responsiveness of implementing institutions.

Grievance uptake channels shall include:

- Community meetings;
- Ward and village offices;
- Suggestion boxes;
- Hotline numbers and SMS platforms;
- Email and online systems;
- Local grievance committees.

The grievance handling process shall involve:

- Receipt and registration of complaints;
- Acknowledgement to complainants;
- Investigation and assessment;
- Resolution and corrective action;
- Feedback to complainants;
- Documentation and reporting.

6.4.7 Institutional Coordination Mechanisms

Effective coordination mechanisms shall be established to strengthen collaboration among implementing institutions and stakeholders.

The coordination mechanisms shall:

- Clarify institutional roles and responsibilities;
- Avoid duplication of interventions;
- Improve communication and information

- sharing;
- Facilitate coordinated responses to emerging risks;
- Strengthen alignment with national development priorities.

Coordination activities shall include:

- Regular coordination meetings;
- Joint planning and review sessions;
- Integrated reporting systems;
- Harmonization of implementation approaches.

The Ministry of Agriculture through the Environmental Management Unit (EMU) shall coordinate implementation of the Risk Management Framework in collaboration with relevant divisions, LGAs, sector ministries, development partners, and stakeholders.

6.4.8 Capacity Building for Risk Management

Capacity-building interventions shall be undertaken to strengthen technical, managerial, institutional, and community capacities for effective implementation of ASEAP II.

Priority areas for capacity development shall include:

- Environmental management and safeguards;
- Climate-smart agriculture;
- Irrigation management and water-use efficiency;
- Disaster preparedness and risk management;
- Monitoring and evaluation;
- Digital agriculture and climate information systems;
- Financial management and procurement;
- Conflict resolution and social inclusion.

Target groups shall include:

- Extension officers;
- Local Government Authorities;
- Farmer organizations and cooperatives;
- Community leaders;
- NGOs and CSOs;
- Technical staff from MDAs.

Capacity-building interventions shall include:

- Training workshops and seminars;
- Technical coaching and mentoring;
- Exchange visits and learning platforms;

- Development of operational guidelines and manuals;
- Community awareness campaigns.

6.4.9 Dynamic Risk Register

A dynamic risk register shall be maintained throughout implementation of ASEAP II as a central tool for monitoring and managing implementation risks.

The register shall include:

- Risk identification number;
- Risk description;
- Risk category;
- Likelihood and impact ratings;
- Overall risk level;
- Mitigation measures;
- Responsible institutions;
- Timelines;
- Status updates and remarks.

The risk register shall be:

- Updated regularly by implementing institutions;
- Reviewed during quarterly risk meetings;
- Integrated into the M&E system;
- Maintained electronically where possible

6.4.10 Institutional Arrangements for Risk Management

Implementation of the Risk Management Framework shall involve collaboration among institutions at national, regional, district, and community levels.

Effective risk management is essential for successful implementation of ASEAP II and achievement of sustainable, inclusive, climate-resilient, and environmentally sound agricultural development.

The Risk Management Framework provides a structured mechanism for identifying, monitoring, mitigating, and responding to implementation risks across the agriculture sector. Through strong institutional coordination, stakeholder participation, safeguards compliance, climate resilience measures, and continuous monitoring, ASEAP II will strengthen adaptive capacity, protect natural resources, improve agricultural productivity, and enhance livelihoods of farmers communities across the country.

Table 2: Institutional arrangements for risk management

Institution	Key Responsibilities
Ministry of Agriculture	Overall coordination, policy guidance, resource mobilization, monitoring and reporting
Environmental Management Unit (EMU)	Mainstreaming environmental safeguards and risk management
Local Government Authorities	Local implementation, monitoring, community mobilization
Disaster Management Authorities	Early warning systems and disaster response
Research and Training Institutions	Research, innovation, capacity building, climate information services
NGOs and CSOs	Community engagement, awareness creation, technical support
Development Partners	Financial and technical assistance
Communities and Farmer Groups	Participation, local monitoring, ownership of interventions

CHAPTER SEVEN

7.0 MONITORING, EVALUATION AND LEARNING

This chapter provides information on how progress towards achieving the objectives and targets of the Action Plan will be tracked, monitored, and evaluated. It also outlines the review processes to be undertaken during implementation, as well as how performance lessons learned and emerging good practices will be assessed and reported both internally and externally. Funding for these activities is generally integrated into the Tanzania Agriculture Master Plan 2050, which is organized into major priority areas (flagship programmes). However, a dedicated operational budget for Monitoring, Evaluation and Learning (ME&L) and Reporting has been established under Enabling Component I (Pillar 5) of this Action Plan at TZS 2,577,500,000 (Annex 5), fully allocated across the digital M&E system, environmental and social safeguards monitoring, data collection and management, implementation monitoring, and evaluation activities over the plan period. This chapter therefore provides the framework and key considerations to guide the detailed implementation of these ME&L activities, including mechanisms for capturing and applying lessons learned to improve implementation.

7.1 The Digital Monitoring and Evaluation System

The Monitoring and Evaluation is meant to establish benchmark of indicators for assessment of the implementation of the Action Plan, guide stakeholder participation in implementation and monitoring activities and control use of resources during implementation.

ASEAP II shall adopt a data-driven Monitoring and Evaluation framework to be integrated into the digital platform of the Tanzania Agriculture Master Plan 2050 (Flagship II). The system will include automated data collection and a centralized database. It will also incorporate Agriculture Sector Greenhouse Gas Inventory complying with international obligations and enable the country to explore and benefit from carbon markets

7.2 Key Performance Indicators

Key Performance Indicators (KPIs) are essential in tracking progress towards achieving targets set out in the specific strategic objectives within the Action Plan. Emphasis is on outcome indicators that demonstrate tangible changes in behavior and environmental status. The specific KPIs for each strategic objective of this Action Plan are presented in Annex 4. The Annex outlines a Result Matrix in form of priority actions, specific targets, indicators, implementation timelines and responsible institutions.

7.3 Reporting

This will involve reporting on the performance in compliance to the progress towards attainment of Action Plan Objectives and Targets or implementation of targets against expenditures focusing on the impacts to stakeholders and the environment at large. The reports will be prepared at village/ward and district level, and submitted to the EMU-Ministry of Agriculture through respective Regional Secretariats, for consolidating national reports. The national reporting will involve internal and external reporting.

7.3.1 Internal Reporting Plan

This plan will involve preparation of four types of reports namely monthly, quarterly, annually and final progress reports. These reports intend to provide an overview of implementation progress on cumulative basis against Action Plan Implementation targets (output level) reached and progress made in realizing its outcomes (impacts) against budget. Table 3 of Internal reporting plan stipulates how the internal reporting will be handled.

7.3.2 External Reporting Plan

The external reporting will be done by ministry responsible for environment and will involve preparation of financial performance, annual, midterm and outcome reports. The reports will consist of type of reports, recipients, Frequency of reports and responsible institutions. These reports will be submitted to external stakeholders such as Ministries, Parliament and Public at large. Table 4 further elaborates the plan.

Table 3: Internal Reporting Plan

Type of Reports		Recipient of the Reports	Frequency	Responsible
1.	Monthly Progress Reports	Head of Department	Monthly	Head-EMU
2.	Quarterly Progress Reports	Permanent Secretary	Quarterly	Directors and Head of Units
3.	Annual Progress Reports	Permanent Secretary	Annually	Directors and Head of Units
4.	Final Progress Report	Permanent Secretary	After 5 years	Directors and Head of Units

Table 4: External Reporting Plan

Type of Report		Recipient of the Report	Frequency	Responsible Institution
State of Agricultural Environment Report	Vice President's Office (VPO), NEMC	Annually	MoA (EMU) / PMO-RALG	Head-EMU
Environmental & Social Safeguards (ESG) Audit	Development Partners, Financing Entities	Bi-Annually	MoA (Internal Audit / EMU)	Directors and Head of Units
Sector Performance & Financing Review	Ministry of Finance, Parliament	Annually	MoA (DPP)	Directors and Head of Units
Mid-Term Impact Evaluation	Public, CSOs, National Bureau of Statistics	Year 3 (Mid-Term)	MoA / Independent Evaluators	Directors and Head of Units
Final Implementation Close-Out Report	Parliament, VPO, Public	Year 5 (Close-Out)	MoA (EMU)	

7.4 Evaluation

During the five years of implementation of the Action Plan, the evaluation schedule consists of five annual reviews, one mid-term evaluation, and one final evaluation. The five annual reviews will be conducted in July of each financial year (FY 2026/27 to FY 2030/31). A comprehensive mid-term evaluation will occur in December 2028. The final evaluation timeline has been established for August 2031, timed to directly inform project close-out and the next strategic plan. These evaluations will assess progress towards attainment of Action Plan strategic objectives and targets. The challenges encountered during the implementation will be identified and measures to address them will be developed accordingly. The final evaluation will be conducted to obtain evidence as to whether the interventions and outputs have led to the achievement of the outcomes as envisioned in the Action Plan.

The Ministry of Agriculture through the EMU, in collaboration with the National Bureau of Statistics (NBS) and other stakeholders, will coordinate the evaluations.

7.5 Knowledge Management

There is a strong need to build a body of knowledge on the effectiveness and achievements of strategic interventions in greening the agriculture sector that can help to identify and prioritize management efforts. The experiences gained from the implementation of the Action Plan must therefore be kept track of in a systematic way, collected and analyzed on a periodic basis, in order to enrich the information available on environmental footprint and adaptation efforts in the agriculture sector.

An annual workshop and digital library where successful case studies are documented and shared to promote peer-to-peer learning among internal and external stakeholders.

CHAPTER EIGHT

8.0 FINANCING FRAMEWORK

The implementation of the Second Agriculture Sector Environmental Action Plan (ASEAP II) requires sustainable, predictable, and diversified financing mechanisms to support restoration of degraded agricultural landscapes, climate resilience, water security, agrochemical pollution control, digital transformation, and institutional strengthening. The Financing Framework provides a comprehensive mechanism for mobilizing, allocating, managing, and monitoring financial resources necessary to achieve the objectives of ASEAP II and contribute to the realization of the Agriculture Master Plan (AMP 2050).

The Framework adopts a blended finance approach that combines public financing, climate finance, development partner support, private sector investment, NGO's contribution and community-based financing mechanisms. It aims to reduce financing risks, improve investment efficiency, and ensure long-term sustainability of environmental interventions within the agriculture sector.

The financing goal is to mobilize and efficiently utilize adequate financial resources for implementation of ASEAP II in order to achieve environmentally sustainable, climate-resilient, and economically productive agricultural systems.

Implementation of this Framework shall be guided by the following principles:

- i. Alignment with national development priorities and AMP 2050 Flagships;
- ii. Additionality and value for money;
- iii. Transparency and accountability;
- iv. Equity and inclusiveness;
- v. Environmental sustainability;
- vi. Climate resilience and risk reduction;
- vii. Private sector participation and innovation; and
- viii. Results-based financing and performance monitoring.

8.1 Estimated Financing Requirement

The total financing requirement for implementation of ASEAP II during 2026–2031 is estimated at Tshs. 157,156,100,000, which is

equivalent to USD 52.39 million, as detailed in Annex 5. The investment is intended to safeguard agricultural productivity, reduce climate-related losses, restore degraded ecosystems, and protect the natural resource base supporting agricultural growth.

The framework provides a phased financing plan; a funding gap analysis; and a resource mobilization strategy linked to priority interventions.

The financial Plan has three Financing Phases of Preparatory and Foundation Phase (Year 1), Scaling-Up and Investment Phase (Years 2–3) and Consolidation & Sustainability Phase (Years 4–5).

The first phase of **Preparatory and Foundation Financing** will be in the first year focusing on establishing the institutional, technical, and financial foundations necessary for effective implementation of the Action Plan. Its Indicative Financing Allocation is 20% of total five-year financing requirements.

The second phase of **Scaling-Up and Investment** will focus on expanding priority environmental interventions and mobilizing larger investments to address key environmental challenges within the agriculture sector. Its Indicative Financing Allocation is 50% of total five-year financing requirements. The phase will be for two-years of second and third years of plan implementation, (years 2–3).

The final third phase of **Consolidation and Sustainability** will focus on consolidating achievements, institutionalizing successful interventions, and establishing long-term financing mechanisms for sustainability. Its Indicative Financing Allocation is 30% of total five-year financing requirements. The phase will be for the last two-years of fourth and fifth years of plan implementation, (years 4–5).

8.2 Financing Sources

8.2.1 Government Financing

The Government of Tanzania serves as the principal strategic owner and driver of the Action Plan. Resources will be mobilized through Ministry of Agriculture budget allocations, ASDP II, AMP 2050 Flagship programs, and Local Government Authority budgets, contributing an estimated USD 13.03 million (TZS 39.08 billion).

8.2.2 Climate Finance

Expected contributions of USD 6.51 million (TZS 19.54 billion) will be mobilized through established climate funds (e.g. Green Climate Fund, Adaptation Fund). To leverage global carbon markets, the Ministry will establish rigorous Measurement, Reporting, and Verification (MRV) protocols to ensure the additionality and tenure security of carbon credits generated through soil restoration, incorporating a 70/30 benefit-sharing arrangement in favor of local communities.

8.2.3 Development Partner Support

Development Partners constitute the largest single financial contributor to the Plan, providing an estimated USD 19.54 million (TZS 58.61 billion) in secured and indicative funding. This includes catalytic financing, technical assistance, and infrastructure investments from multilateral and bilateral agencies including FAO, WFP, IFAD, the World Bank, the African Development Bank, the European Union, UNDP and other bilateral development agencies.

Table 5: Financing Sources Classification

Financing Source	Amount	Classification	Status & Evidence
Government of Tanzania	TZS 39.08bn	Secured	MTEF projections; ASDP II and AMP 2050 flagship allocations
Development Partners	TZS 58.61bn	Committed	Secured and indicative commitments (multilateral and bilateral agencies)
Climate finance (GCF, Adaptation Fund)	TZS 19.54bn	Indicative	Funding proposals under submission (Q2 2026)
Private sector	TZS 15.63bn	Expected	Market-based incentives and risk-sharing mechanisms
Community Contribution	TZS 3.91bn	Expected	60% in-kind labour/materials; 40% revolving finance (SACCOS, VSLAs)s
NGOs and humanitarian agencies	TZS 19.54bn	Indicative	Subject to documented funding confirmations
Total identified sources	TZS 156.31bn (USD 52.10m)	—	Sum of sources above
Total financing requirement	TZS 157.16bn (USD 52.39m)	—	Annex 5 detailed cost analysis
Financing gap (unconfirmed and unfunded)	TZS 59.47bn (USD 19.82m)	Unfunded	To be mobilized through the resource mobilization strategy (private sector, climate finance and development partner pipelines)

Note: The classification table 5 has been reconciled with the narrative figures above (Government TZS 39.08bn; Development Partners TZS 58.61bn; Climate finance TZS 19.54bn; Private sector TZS 15.63bn; NGOs TZS 19.54bn; Community TZS 3.91bn — totalling TZS 156.31bn of identified sources). Against the Annex 5 requirement of TZS 157.16bn (USD 52.39m), and taking confirmed commitments (Government and Development Partners) of TZS 97.69bn, the financing gap stands at TZS 59.47bn (USD 19.82m), comprising indicative/expected sources and the unfunded balance

8.2.4 Private Sector Investment

Private sector participation shall be enhanced through market-based incentives and risk-sharing mechanisms. The expected contribution is USD 5.21 Million which is equivalent to Tsh 15.63 BILLION where by the priority investment areas include; green agribusiness; sustainable irrigation technologies; solar-powered agricultural systems; digital agriculture solutions; agricultural input supply chains; agroforestry; and landscape restoration enterprises. The financing mechanisms shall involve Public-Private Partnerships (PPPs), Blended finance arrangements, Impact investment funds, Green credit facilities, Matching grants and

Credit guarantee schemes through TADB.

8.2.5 NGOs and humanitarian agencies

International and local non-governmental organizations will contribute an estimated USD 6.51 million (TZS 19.54 billion), subject to documented funding confirmations and alignment with ASEAP II thematic pillars

8.2.6 Community-Based Financing

Community participation is expected to contribute USD 1.30 million (TZS 3.91 billion). This contribution is structured as 60% in-kind labor/materials and 40% revolving finance mobilized through Village Savings and Loan Associations (VSLAs) and SACCOS. Strict equity and affordability safeguards will be applied to ensure vulnerable groups are not excluded from accessing matching funds.

- i. Savings and Credit Cooperative Societies (SACCOS);
- ii. Village Savings and Loan Associations (VSLAs);
- iii. Producer Organizations;
- iv. Community Revolving Funds; and
- v. Cooperative Development Funds.

8.3 The Financing Gap

The estimated total financing gap is USD 19.82 MILLION, (Tshs. 59.47 BILLION) where major gap areas are

- i. Climate adaptation infrastructure
- ii. Long-term livelihood financing
- iii. Rural economic infrastructure
- iv. Digital and innovation systems, insurance and
- v. risk financing.

8.4 Resource Mobilization Strategy

To address financing gaps, the Ministry will do the

following initiatives:

- i. Develop a pipeline of bankable investment projects aligned with climate finance requirements including blended finance;
- ii. Strengthen fiduciary, procurement and environmental safeguard systems;
- iii. Develop public-private investment partnerships;
- iv. Integrate ASEAP II financing priorities into national and sector planning frameworks; and
- v. Promote innovative financing instruments including green bonds and sustainability-linked investments.

8.5 Monitoring and Evaluation of Financing Performance

The Ministry shall establish a robust financial governance framework to ensure transparency in resource allocation, timely financial reporting, independent audits, results-based budgeting, performance monitoring as well as stakeholder participation and oversight.

Performance of the ASEAP II Financing Framework shall be monitored annually using the following indicators:

- i. Amount of funds mobilized;
- ii. Percentage of financing gap closed;
- iii. Share of climate finance secured;
- iv. Level of private sector investment leveraged;
- v. Number of bankable projects developed;
- vi. Carbon revenue generated;
- vii. Percentage of planned interventions financed;
- viii. Financial absorption rate;
- ix. Environmental and socio-economic returns on investment; and

Mid-term and end-term financing reviews shall be conducted to assess effectiveness, sustainability and emerging financing opportunities.

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ANNEXES

ANNEX I: OBJECTIVES OF THE STRATEGIC INTERVENTIONS

No.	Strategic Interventions	Objective
1.	Strategic Interventions for land use governance and Soil Health	
1.1	Facilitate the Development and Implementation of Participatory Land Use Plans and Strengthen Land Tenure Security through the Issuance of Customary Certificates of Right of Occupancy (CCROs)	To facilitate the development of 4,000 climate-smart Village Land Use Plans (VLUPs) by 2030, contributing to the national target of 10,672 by 2035.
1.2	Promote Climate-Smart Soil Management Practices	To enhance soil health, productivity, and climate resilience through the promotion and adoption of climate-smart soil management practices in the agricultural sector.
1.3	Strengthen Soil Monitoring and Testing Systems	To transition 1 million hectares to verified Climate-Smart Agriculture (CSA) practices within degradation hotspots.
1.4	Conduct Community Awareness and Institutional Capacity Building Programs on Land Use Governance and Soil Health Management for Climate-Resilient Agricultural Development.	To strengthen community awareness and institutional capacity on sustainable land use and soil health management by 2030.
2.	Climate Resilience and Early Warning Systems	
2.1	Strengthen Early Warning Systems	To operationalize AMP Flagship 15 by creating a unified, digital Early Warning System that delivers actionable, location-specific advisories to 5 million farmers by 2031.
2.2	Enhance Climate Information Dissemination and Communication	To improve access to timely, accurate, and reliable climate information for informed agricultural decision-making and climate risk management.
2.3	Adoption of climate smart Technologies	To increase the adoption of climate-smart technologies for enhanced agricultural productivity and climate resilience by 2030
3.	Water Security and (Water- Energy- Food) WEF Nexus Governance	
3.1	Operationalize integrated Water-Energy-Food (WEF) Nexus governance frameworks and coordination mechanisms	To strengthen integrated Water-Energy-Food (WEF) Nexus governance and coordination for sustainable and climate-resilient agricultural development.
3.2	Promote sustainable water management technologies, including water harvesting, efficient irrigation, and climate-resilient infrastructure	To enhance sustainable water management through the adoption of water-efficient technologies and climate-resilient infrastructure
4.	Agrochemical And Agro-Industrial Pollution Control	
4.1	To conduct regular monitoring, inspection, and enforcement of agrochemical use and agro-waste management	To operationalize a field-level monitoring framework where the EMU coordinates with TPHPA and NEMC to use the agricultural extension network for data collection
4.2	Promote sustainable agricultural practices and environmentally friendly farm waste management systems to reduce pollution and protect natural resources	To ensure that safety and Integrated Pest Management (IPM) are central to the Ministry's extension services, addressing the "Safety Gap".

ANNEX 2: ASEAP II THEORY OF CHANGE



ANNEX 3: KEY IMPLEMENTATION RISKS AND MITIGATION MEASURES

S/N	Key Risk	Likelihood	Impact	Mitigation Measures	Responsible Institutions
1	Inadequate funding or delayed disbursement of funds	High	High	Diversify funding sources; strengthen financial planning and budgeting; establish timely fund release mechanisms; enhance donor coordination	Ministry of Finance, Implementing Ministries, Development Partners
2	Climate change impacts such as droughts, floods, and extreme weather events	High	High	Promote climate-smart agriculture and resilient infrastructure; establish early warning systems; strengthen disaster preparedness and response	Disaster Management Authorities, Ministry responsible for Environment, Local Government Authorities
3	Weak institutional coordination among implementing agencies	Medium	High	Establish inter-agency coordination committees; define clear roles and responsibilities; conduct regular coordination meetings	Prime Minister's Office, Sector Ministries, Local Government Authorities
4	Limited technical capacity among implementing staff and communities	Medium	Medium	Conduct capacity-building programs; provide technical training and extension services; recruit specialized personnel where necessary	Sector Ministries, Training Institutions, NGOs
5	Community resistance or low participation in project activities	Medium	High	Strengthen community engagement and awareness campaigns; involve local leaders and beneficiaries in planning and implementation	Local Government Authorities, Community-Based Organizations, NGOs
6	Corruption, fraud, and misuse of project resources	Medium	High	Strengthen internal controls and audits; enforce procurement regulations; promote transparency and accountability mechanisms	Anti-Corruption Agencies, Internal Audit Units, Procurement Authorities
7	Political interference and policy changes affecting implementation	Medium	Medium	Promote policy dialogue and stakeholder engagement; align interventions with national priorities and legal frameworks	Central Government, Parliament, Sector Ministries
8	Conflicts over natural resources such as land and water	Medium	High	Strengthen land-use planning and conflict resolution mechanisms; promote participatory resource management	Ministry responsible for Lands, Local Authorities, Community Leaders
9	Weak monitoring and evaluation systems	Medium	Medium	Develop robust M&E frameworks; strengthen data collection and reporting systems; conduct regular reviews and evaluations	M&E Units, National Statistics Offices, Implementing Agencies

ANNEX 3: (CONTINUED...) EXPANDED RISK REGISTER FIELDS

S/N	Key Risk	Inh. Likelihood (1-5)	Inh. Impact (1-5)	Inherent Risk Rating	Mitigation Measures	Res. Likelihood (1-5)	Res. Impact (1-5)	Residual Risk Rating	Responsible Institutions
10	Inadequate funding or delayed disbursement of funds	4	5	High (20)	Diversify funding sources; establish blended finance; secure DPs and climate finance commitments.	2	3	Medium (6)	MoF, MoA, DPs
11	Climate change impacts (droughts, floods, extreme weather)	5	5	High (25)	Promote CSA; establish digital early warning systems reaching 5 million farmers; weather-index insurance.	3	3	Medium (9)	Disaster Mgt Authorities, TMA, MoA
12	Agrochemical & agro-industrial pollution	4	4	High (16)	Routine inspections; construct 200 ventilated storage shelters; enforce effluent and emissions standards.	2	2	Low (4)	NEMC, TPHPA, MoA
13	Unsustainable groundwater abstraction (5,000 Boreholes)	4	5	High (20)	Mandatory basin-level cumulative impact and hydrogeological assessments prior to drilling; allocate 5% budget to ESIA/ESMP.	1	3	Low (3)	MoW, Basin Water Boards, NIRC
14	Weak institutional coordination	3	4	High (12)	Operationalize RACI accountability matrix; establish multi-sectoral WEF Nexus committees.	1	2	Low (2)	PMO-RALG, MoA, Sector Ministries
15	Land tenure insecurity limiting CSA investment	4	4	High (16)	Adjudicate, demarcate, and issue CCROs securing 1.2 million hectares with gender/youth inclusion.	2	2	Low (4)	MLHSD, NLUPC, LGAs

ANNEX 3:(CONTINUED...) EXPANDED RISK REGISTER FIELDS

S/N	Key Risk	Monitoring Trigger	Mitigation Deadline	Current Status	Escalation Procedure
16	Inadequate/Delayed Funding	30-day delay in scheduled Treasury or DP disbursements	Annually (Q1)	Active / Ongoing	Escalate via MoA Permanent Secretary to Ministry of Finance (MoF)
17	Climate Change Impacts	TMA issuance of severe seasonal drought or flood alerts	Continuous	Active / Monitored	Escalate to Prime Minister's Office - Disaster Management Department
18	Agrochemical Pollution	LGA reports of contamination or >10% compliance failure rate	Bi-Annually	Active / Monitored	Escalate to NEMC Director General and TPHPA Enforcement Division
19	Unsustainable Abstraction	Basin Water Board telemetry indicates >80% recharge limit reached	Pre-drilling (Design Phase)	Not Started	Immediate halt order; escalate to National Irrigation Commission (NIRC)
20	Weak Coordination	Two consecutive missed multi-sectoral WEF Nexus committee meetings	Quarterly	Active / Monitored	Escalate to National Steering Committee (NSC) Chair
21	Land Tenure Insecurity	District land tribunal backlogs exceeding 6 months for CCROs	Annually (Q4)	Active / Ongoing	Escalate to Ministry of Lands (MLHSD) Commissioner for Lands

ANNEX 3:(CONTINUED...) M&E INDICATOR PROTOCOLS

S/N	Key Performance Indicator (KPI)	Numerator	Denominator	Data Source & Frequency
22	% of targeted land transitioned to verified CSA practices	Total hectares of agricultural land independently verified as utilizing Climate-Smart Agriculture methods	1,000,000 hectares (target baseline for degradation hotspots)	GIS Mapping / Annual Extension Reports
23	% of irrigating farmers utilizing water-efficient technologies	Number of surveyed farmers actively using drip irrigation or closed-pipe systems	Total number of irrigating farmers within the targeted 1.2 million hectares	NIRC Inventory / Quarterly LGA Data
24	% of demographic participation in ASEAP II interventions	Number of registered women and youth actively participating or receiving specific benefits	Total number of registered participants in the specific intervention	Digital M&E Dashboard / Quarterly
25	% of environmental grievances resolved within 30 days	Number of formally lodged grievances closed out within the 30-day service standard	Total number of grievances recorded in the GRM database for the period	GRM Database / Monthly

ANNEX 3: (CONTINUED...) KEY IMPLEMENTATION RISKS AND MITIGATION MEASURES

S/N	Key Risk	Likelihood	Impact	Mitigation Measures	Responsible Institutions
26	Market instability and fluctuating commodity prices	Medium	Medium	Promote value addition and market diversification; strengthen producer cooperatives and market information systems	Ministry responsible for Trade and Agriculture, Private Sector Organizations
27	Outbreaks of pests, diseases, or pandemics affecting livelihoods	Medium	High	Strengthen surveillance and response systems; support extension services; promote public health awareness	Ministry of Health, Ministry of Agriculture, Authorities
28	Environmental degradation resulting from unsustainable practices	Medium	High	Enforce environmental safeguards; promote sustainable natural resource management practices; conduct environmental monitoring	Environmental Management Authorities, Local Governments
29	Gender inequality and exclusion of vulnerable groups	Medium	High	Mainstream gender and social inclusion in all interventions; ensure equitable participation and benefit sharing	Gender Ministries, NGOs, Community Organizations
30	Security challenges and social unrest in target areas	Low	High	Strengthen collaboration with security agencies and local leaders; conduct conflict-sensitive programming	Security Agencies, Local Authorities
31	Delays in procurement and implementation processes	Medium	Medium	Improve procurement planning and contract management; streamline approval processes	Procurement Units, Implementing Agencies

ANNEX 4: STRATEGIC INTERVENTIONS RESULTS MATRIX

Note: on strategic architecture: this Action Plan comprises four thematic pillars (Pillars 1–4) supported by two cross-cutting enabling components — Enabling Component 1 (Pillar 5): Monitoring, Evaluation and Reporting System, and Enabling Component 2 (Pillar 6): Risk Management. The enabling components serve all four thematic pillars and are therefore presented under dual labels in this Annex and in Annex 5; activity codes 5.x and 6.x refer to Enabling Components 1 and 2 respectively

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
THEMATIC PILLAR I – LAND USE GOVERNANCE AND SOIL HEALTH										
Component 1 - Integrated Land Use Governance and Soil Health Management for Climate-Resilient Agricultural Development										
Activity 1 - Facilitate Development and Implementation of Participatory Land Use Plans										
I.1.1.1	Conduct village sensitization meetings	Sensitized communities on participatory land use planning	community on participatory land use plan sensitized	Village meeting Report	4925 Villages have village land use plans (VLUPS)	4000 sensitization meetings	Sensitization meetings Reports	Quarterly & Annually	Lead: MoA; Supporting: Ministry of Lands, Housing and Human Settlements Development (MLHSD), MNRT, NLUPC, LGAs	July 2026 -June 2031
I.1.1.2	Undertake land use surveys and demarcate different uses within the agricultural areas	Sustainable land use management practices in place	- Demarcated areas - Land use maps	Maps showing demarcated and protected areas Hectares of conserved areas	4925 Villages have village land use plans (VLUPS)	4000 villages	Survey Reports	Quarterly & Annually	Lead: MoA; Supporting: MNRT, MLHSD, National Land Use Planning Commission (NLUPC), LGAs	July 2026 -June 2031
I.1.1.3	Validate and approve village land use plans (VLUPS)	approved and validated VLUPS	Gazetted Village Land Use Plans	Number of VLUPS approved and gazetted	4925 Villages have village land use plans (VLUPS)	4000 Validated land use plans	VLUPS Maps	Annually	Lead: MoA; Supporting: MLHSD, MNRT, National Land Use Planning Commission (NLUPC), LGAs	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
I.1.1.4	Strengthen land tenure security through the issuance of Customary Certificates of Right of Occupancy (CCROs) for agricultural land users	Improved land tenure security and sustainable land management	CCROs issued to farmers, with emphasis on women and youth	Number of CCROs issued to agricultural land users.	0	1.2 million Ha of additional farmland with CCROs	CCRO issuance registers and database.	Annually	Lead: MoA; Supporting: MLHSD, National Land Use Planning Commission (NLUPC), LGAs	July 2026 -June 2031
I.1.2	Activity 2 - Promote Climate-Smart Soil Management Practices									
I.1.2.1	To conduct training on sustainable soil management practices to farmers and extension officers	Increased adoption of climate smart soil management practices	Farmers implementing Climate Smart soil management practices	Number of Farmers adopting soil management practices	192,664 practice sustainable farming practices	4,816,600 farmers	Training reports	Quarterly & Annually	Lead: MoA; Supporting: SUA, DPs	July 2026
I.1.2.2	To promote integrated soil fertility management through efficient use of organic manure, bio-fertilizers, biochar and inorganic fertilizer	Improved soil fertility and agricultural productivity	Soil fertility management and Agriculture productivity promoted	Number of farmers applying organic manure, bio-fertilizer and efficient fertilizer application	0	1,000 campaigns conducted; 100,000 farmers applying improved soil fertility practices	Promotion Reports	Quarterly & Annually	Lead: MoA; Supporting: SUA, DPs	July 2026 -June 2031
I.1.3	Activity 3 - Strengthen Soil Monitoring and Testing Systems									
I.1.3.1	To procure soil testing equipment	Improved laboratory capacity for accurate soil analysis	Functional soil testing laboratories equipped	Number of laboratories equipped and operational	143 soil scanners procured	43 soil scanners	Soil scanners in place	Annually	Lead: MoA; Supporting: PMO- RALG	July 2026
I.1.3.2	To train extension officers on soil sampling and testing procedures	Enhanced technical capacity in soil monitoring and analysis	training sessions conducted	Number of extensions Officers trained	139 extension officers trained	43 extension officers	Training reports,	Quarterly	Lead: MoA; Supporting: LGAs	July 2026 -June 2027

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
I.1.3.3	To conduct regular soil sampling, monitoring and farmers awareness	Increased soil health monitoring and farmer awareness on soil management	Soil monitoring reports and community outreach activities completed	Number of soil samples analyzed	143 districts	185 districts	Reports	Quarterly & Annually	Lead: MoA; Supporting: LGAs, NGO	July 2026 -June 2031
I.1.4	Activity 4 - Conduct Community Awareness and Institutional Capacity Building Programs on Land Use Governance and Soil Health Management for Climate-Resilient Agricultural Development									
I.1.4.1	To develop and disseminate awareness materials, including brochures, posters, radio programs, and digital content on environmental management issues	Increased awareness on environmental conservation and sustainable practices	Awareness on environmental conservation and sustainable practices disseminated	Number of awareness materials developed and disseminated	0	36 Wards benefited from the interventions	Copies of materials disseminated,	Quarterly & Annually	Lead: MoA; Supporting: LGAs, NEMC, NGOs and Media	July 2026 -June 2031
I.1.4.2	To strengthen community-based environmental management committees and stakeholder platforms	Improved community participation and coordination in environmental management activities.	Community environmental committees and stakeholder platforms established	Number of committees/platforms established	0	36 Wards benefited from the interventions	Committee reports, meeting minutes, registration records.	Quarterly & Annually	Lead: LGAs; Supporting: MoA, Community Organizations	July 2026 -June 2031
2	THEMATIC PILLAR 2 – CLIMATE RESILIENCE AND EARLY WARNING SYSTEMS									
2.1	Component 2 -Strengthened Climate Resilience and Integrated Early Warning Systems for Sustainable Community and Agricultural Development									
2.1.1	Activity 1 - Strengthen Early Warning Systems									
2.1.1.1	To conduct training programs on disaster preparedness, climate risk monitoring, and emergency response procedures.	Increased community knowledge on disaster preparedness.	Training programs conducted.	Number of trainings conducted and participants trained.	0	100 Trainings	Training reports, attendance sheets.	Quarterly & Annually	Lead: Ministry of Agriculture; Supporting: TMA, PMO-RALG and LGAs	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
2.1.1.2	To develop and disseminate localized weather information and climate information to farmers and vulnerable communities.	Improved access to climate information.	Localized climate information disseminated.	Number of Farmers receiving climate advisories	0	100,000 farmers	Climate bulletins, dissemination reports.	Quarterly & Annually	Lead: TMA; Supporting: MoA, LGAs and PMO-RALG	July 2026 -June 2031
2.1.2	Activity 2 - Enhance Climate Information Dissemination and Communication									
2.1.2.1	To conduct climate risk and vulnerability assessments in agricultural and rural communities.	Strengthened climate resilient agriculture planning	Climate risk assessments completed.	assessments reports in place	0	Vulnerability Assessment Completed	Vulnerability Assessment reports.	Annually	Lead: MoA; Supporting: TMA, VPO, PMO-RALG, and PMO-RALG	July 2027- June 2028
2.1.2.2	Develop and disseminate climate risk management guidelines, manuals, awareness materials, and climate information through radio programs, mobile SMS platforms, social media, and community meetings.	Improved access to climate adaptation resources and climate information for informed decision-making and resilience building.	Climate risk management guidelines, manuals, awareness materials, and climate information products developed and disseminated.	Number of climate risk management materials developed and disseminated	0	10,000 guidelines and manuals	Distribution records, copies of manuals and guidelines, Media reports	Quarterly	Lead: Ministry of Agriculture; Supporting: NEMC, VPO, LGAs and PMO	July 2027- June 2028

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
Activity 3 - Adoption of climate smart Technologies										
2.1.3	To establish climate smart agriculture technologies and practices such as drought-tolerant seeds, efficient irrigation systems, and conservation agriculture practices.	Improved productivity.	Climate-smart agriculture technologies and practices established	Number technologies established.	0	100 Technologies	Reports.	Quarterly	Lead: MoA; Supporting: Research Institution, LGAs	July 2026 -June 2031
2.1.3.1										
2.1.3.2	To train farmers and extension officers on climate-smart technologies maintenance and sustainability.	Enhanced technical skills on climate-smart technologies.	Training sessions conducted.	Number of famers trained.	192664 Farmers trained	4,816,600 farmers	Training reports, attendance lists.	Quarterly	Lead: Ministry of Agriculture; Supporting: LGAs	July 2026 -June 2031
2.1.3.3	To strengthen research, innovation, and knowledge-sharing platforms to support adoption and scaling up of climate-smart technologies.	Enhanced innovation and scaling of technologies.	Research and innovation platforms strengthened.	Number of innovations	0	1000 Innovations	Research reports, platform records.	Annually	Lead: Research Institutes; Supporting: Universities, MOA, VETA, SIDO, MIT	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
3	THEMATIC PILLAR 3 – WATER SECURITY AND WEF NEXUS GOVERNANCE									
3.1	Component 3 - Strengthen Integrated Water Resources and WEF Nexus Governance									
3.1.1	Activity 1 - Operationalize integrated Water-Energy-Food (WEF) Nexus governance frameworks and coordination mechanisms									
3.1.1.1	To Conduct Training workshop of multi-sectoral coordination committees and technical officers for Water Energy Food Nexus governance.	Improved institutional capacity and multi-sectoral coordination committee for WEF Nexus governance	Stakeholders trained on WEF Nexus governance	Number of stakeholders trained.	0	Training 1500 stakeholders	Training reports	Annually	Lead: Ministry of Water; Supporting: Agriculture, Energy, NGOs, CSOs	July 2026 -June 2031
3.1.1.2	To conduct stakeholder consultation meetings, and coordination forums on WEF Nexus implementation and decision making	Improved stakeholder participation on WEF Nexus implementation and decision making	Consultation meetings conducted.	Percentage of WEF Nexus basin-forum decisions with recorded community representative attendance (Min 40% women, 30% youth) WEF Nexus implementation and decision making	0	10,000	Meeting Reports.	Quarterly	Lead: Ministry of Water; Supporting: Agriculture, Energy, NGOs, CSOs	July 2026 -June 2031
3.1.2	Activity 2 - Promote sustainable water management technologies, including water harvesting, efficient irrigation, and climate-resilient infrastructure									
3.1.2.1	To establish rainwater harvesting systems for agricultural, livestock, and domestic water use.	Improved water availability	Rainwater harvesting systems installed.	Number of Rainwater harvesting system in place.	0	280 rainwater harvesting infrastructures	project reports, field records.	Annually	Lead: MoA; Supporting: MoW, PMO-RALG and NIRC	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
3.1.2.2	To rehabilitate damaged / non-functional climate-resilient water infrastructure, including water reservoirs, dams, canals, and storage facilities.	Improved availability, reliability, and resilience of water resources for communities and productive use.	Climate-resilient water infrastructure rehabilitated and restored to operational condition	Area under irrigation	983,466.6 Ha under irrigation	1,200,000 Ha under irrigation	Functioning irrigation schemes	Annually	Lead: MoA; Supporting: MoW, PMO-RALG and NIRC	July 2026 -June 2031
3.1.2.3	To drill and develop deep boreholes to ensure a reliable and sustainable water supply for agricultural production, thereby reducing dependence on rainfall for farming activities.	Improved year-round access to water for agricultural production	Boreholes constructed and equipped to provide reliable water supply for agricultural use.	Number of stakeholders trained.	346 deep boreholes	5,000 deep boreholes	Functioning boreholes in place	Annually	Lead: MoA; Supporting: MoW and NIRC	July 2026 -June 2031
4	THEMATIC PILLAR 4 – AGROCHEMICAL AND AGRO-INDUSTRIAL POLLUTION CONTROL									
4.1	Component 4 - Integrated Agrochemical and Agro-waste Pollution Management									
4.1.1	To conduct regular monitoring, inspection, and enforcement of agrochemical use and agro-waste management									
4.1.1.1	To coordinate routine inspections of farms, agro-dealers, and agro-industrial facilities to assess compliance with agrochemical use and waste management regulations.	Improved compliance with agrochemical regulations.	Inspections routine conducted.	Number of inspections conducted.	0	Conducting 300 routine inspections.	Inspection reports, compliance checklists.	Quarterly	Lead: MoA; Supporting: NEMC, PMO-RALG, MIT	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
4.1.1.2	To monitor storage, transportation, handling, and disposal practices of agrochemicals and agro-industrial waste.	Improved safe handling and disposal practices.	Monitoring activities conducted.	Number of monitoring exercises conducted.	0	200 monitoring visits	Monitoring reports,	Annually	Lead: NEMC; Supporting: LGAs, MOA	July 2026 -June 2031
4.1.1.3	To organize compliance and enforcement training programs for agro-chemical dealers and inspectors	Improved awareness on compliance and enforcement.	Training programs conducted.	Number of stakeholders trained.	0	1500 stakeholders conducting training	Training reports	Annually	Lead: MoA; Supporting: NEMC, Agro dealers, MIT, LGAs	July 2026 -June 2031
4.1.2	Activity 3: Promote sustainable agricultural practices and environmentally friendly farm waste management systems to reduce pollution and protect natural resources.									
4.1.2.1	To construct and operate well-ventilated storage shelters for the safe collection, segregation, temporary storage, and eventual disposal or recycling of empty pesticide and agrochemical containers.	Improved agro-waste management and reduced environmental and health risks	Empty pesticide and agrochemical containers are safely collected, segregated, and stored.	Number of storage shelters constructed and operational.	TBD	200 Ventilated storage shelter	Storage shelter in place	Annually	Lead: MoA; Supporting: NEMC, PMO-RALG, NGOs, TPHPA	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
4.1.2.2	To conduct awareness-raising sessions for farmers and other stakeholders on the safe handling, use, cleaning, collection, storage, transportation, and environmentally sound disposal or recycling of empty pesticide and agrochemical containers.	Reduced environmental pollution caused by improper disposal of pesticide containers.	Farmers linked to designated container collection and disposal systems.	Number of farmers trained (disaggregated by sex and age)	0	100,000 stakeholders	Training report	Annually	Lead: MOA; Supporting: PMO- RALG, TPHPA and NEMC	July 2026 -June 2031
5	ENABLING COMPONENT I (PILLAR 5) – MONITORING, EVALUATION AND REPORTING SYSTEM									
5.1	Activity: To Establish a Digital Monitoring and evaluation system									
5.1.1	Conduct assessment for the Digital M & E Systems	Digital M&E system designed based on user needs and institutional requirements	Needs assessment conducted for system requirements documentation	Needs assessment report for system requirements developed	0	1	Assessment report	Annually	Lead: MoA; Supporting: e-GA	July 2026 -June 2026
5.1.2	Develop, customize and deploy the Digital M&E System	Improved data collection, analysis, reporting and information accessibility	Digital M&E system developed and operational	Digital M&E system operational; number of modules/ dashboards developed	0	1	Digital M&E system	Annually	Lead: MoA and System developer; Supporting: eGA, LGAs	July 2026 -June 2026

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
5.1.3	Train digital M&E system users to operationalize the system	Enhanced capacity of staff to use digital tools for monitoring and evaluation	Staff trained	Number of staff trained; percentage of system users actively utilizing the system	0	3,000	Training reports	Annually	Lead: MoA; Supporting: ICT Unit, Training Institutions	July 2026 -June 2031
5.2	To monitor the implementation of environmental and social safeguards									
5.2.1	Monitor compliance with environmental and social safeguard requirements	Improved adherence to safeguards requirements	Compliance status tracked	Number of monitoring visits conducted	10 visits conducted	45 visits	Monitoring reports	Quarterly	Lead: MoA; Supporting: PMO- RALG	July 2026 -June 2031
5.2.2	Conduct field inspections and compliance audits of targeted institutions, projects, and facilities	Improved compliance with environmental laws, regulations, and guidelines	Compliance inspections and audits conducted	Number of inspections/ audits conducted; percentage of facilities inspected	0	45 inspections / audits	Inspection reports, audit reports, field visit reports	Quarterly	Lead: EMU; Supporting: Technical Departments	July 2026 -June 2031
5.3	Data Collection and Management									
5.3.1	Collect and upload implementation data from all districts, regions and implementing units across the four thematic pillars	Timely and evidence-based decision making supported by reliable, centralized data	Centralized database populated with implementation data from all pillars and regions	% of implementing entities submitting data on time; number of datasets uploaded per quarter	0	100% of implementing entities submitting data on time; at least 4 datasets uploaded per quarter	Database upload logs, submission records, monitoring visit reports	Monthly	Lead: M&E Unit; Supporting: Implementing Departments/ Units	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
5.3.2	Conduct routine data collection and compilation from all implementing units across the four thematic pillars	Availability of timely and reliable data for monitoring progress across all pillars	Comprehensive datasets collected, compiled and organized by thematic pillar	% of implementing units submitting complete reports on time; number of compilations completed	0	4 quarterly data compilations/year	Compiled datasets, data quality reports, validation checklists	Quarterly	Lead: M&E Unit; Supporting: Implementing Departments/Units	July 2026 -June 2031
5.4	Monitor Action Plan Implementation									
5.4.1	To conduct Stakeholders Mapping for the Private Sectors, (NGOs, CBOs, Development Partners etc.) Institutions and Individuals working on Environmental Protection in the Agricultural Sector	Improved coordination, Engagement and collaboration with stakeholders involved in Environmental Protection in the Agricultural Sector	Stakeholders database of Private Sectors, (NGOs, CBOs, Development Partners etc.), Institutions and Individuals engaging in Environmental Protection in the Agricultural Sector	Number of stakeholders identified and registered	0	To establish a database of the stakeholders categorized according to the specified Pillars of the ASEAP	Stakeholders Mapping Reports and the Register of the identified stakeholders	Annually	Lead: MoA; Supporting: Private Sectors, NGOs, LGAs	July 2026-June 2027
5.4.2	Conduct periodic monitoring of Action Plan implementation activities across all four thematic pillars	Improved tracking of overall Action Plan implementation progress	Monitoring missions conducted and implementation progress tracked across all pillars	Number of monitoring reports produced; % of planned activities implemented on schedule	0	Annual monitoring reports; 4 field missions/year	Monitoring reports, field visit reports, mission reports	Monthly/Quarterly	Lead: MoA	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
5.4.3	Collect, analyze and consolidate implementation data from all responsible institutions across the four thematic pillars	Enhanced availability of consolidated information for decision-making at all levels	Implementation data collected, analyzed and consolidated into comprehensive progress reports	Number of consolidated progress reports compiled and analyzed; number of institutions contributing data	0	4 consolidated progress reports/year covering all four pillars	Progress reports, monitoring database, data analysis reports	Quarterly	Lead: MoA; Supporting: M&E Unit, Implementing Institutions	July 2026 -June 2031
5.4.4	Prepare and disseminate Action Plan implementation progress reports to all relevant stakeholders	Improved accountability, transparency and informed decision-making	Progress reports prepared, approved and disseminated to all relevant stakeholders	Number of progress reports prepared and disseminated; number of stakeholders receiving reports	0	4 quarterly + 1 annual implementation report/year	Quarterly/Annual reports, meeting minutes, dissemination records	Quarterly/Annually	Lead: MoA; Supporting: M&E Unit	July 2026 -June 2031
5.5	To conduct periodic evaluations of the Action Plan implementation									
5.5.1	Conduct annual performance reviews and mid-term evaluation of Action Plan implementation	Annual and mid-term evaluation reports produced to inform adaptive management decisions	Improved tracking of implementation progress and performance against targets at mid-point	Number of annual review reports; 1 mid-term evaluation report produced	0	5 annual review reports + 1 mid-term evaluation report over the plan period (10 reviews in total, reconciled with Annex 5)	Annual review reports, mid-term evaluation report, stakeholder validation records	Annually	Lead: MoA; Supporting: LGAs, MDAs, NBS	July 2026 -June 2031

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
5.5.2	Conduct final independent evaluation of the Action Plan upon completion	Final evaluation report produced with evidence on achievement of all Action Plan objectives and outcomes	Evidence documented on the extent to which all objectives, outcomes and targets have been achieved	Final evaluation completed and report submitted to relevant authorities within agreed timeline	0	2 evaluation reports (draft and final) produced and disseminated	Final evaluation report, stakeholder validation records, dissemination records	Annually	MLead: MoA	December -June 2031
6	ENABLING COMPONENT 2 (PILLAR 6) – RISK MANAGEMENT									
6.1	Conduct Risk Identification and Assessment									
6.1.1	Conduct risk assessments in all agro-ecological zones	Risks identified and documented	Risk assessment reports developed	Number of risk assessments conducted	0	14 Assessments	Risk assessment reports	Quarterly	Lead: MoA; Supporting: LGA	July 2026 -June 2027
6.1.2	Develop and update risk register	Improved risk tracking	Dynamic risk register established	Number of risk registers updated	0	2 updates per year	Risk register database	Quarterly	Lead: MoA	July 2026 -June 2027
6.1.3	Develop, maintain and regularly update a dynamic risk register capturing all identified risks across the four thematic pillars, with mitigation measures and responsible parties	Improved systematic risk tracking and adaptive management across all pillars	Dynamic and up-to-date risk register established and actively maintained	Number of risks developed	0	Risk register updated quarterly; all risks have mitigation measures assigned	Risk register database, update records	Quarterly	Lead: MoA	July 2026 -June 2027

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
6.2	Activity 2: Strengthen Financial and Procurement Risk Controls									
6.2.1	Conduct regular internal financial and procurement audits to ensure compliance with financial regulations and minimize fiduciary risk	Improved financial accountability and reduced fiduciary risk across the Action Plan	Internal audit and procurement review reports produced; corrective actions implemented	Number of internal audits conducted	0	2 audits/year; 80% of findings resolved within 3 months	Audit reports, procurement review records, corrective action logs	Quarterly	Lead: Internal Audit Unit; Supporting: MoA (Finance)	July 2026 -June 2027
6.2.2	Review and update procurement plans quarterly to minimize procurement delays and associated implementation risks across all thematic pillars	Reduced procurement-related implementation delays and risks	Updated procurement plans produced and procurement delays tracked and resolved	Number of procurement plan reviews; % of procurements completed on schedule	0	4 procurement plan reviews/year; 85% of procurements on schedule	Updated procurement plans, procurement status reports, contract registers	Quarterly	Lead: MoA	July 2026 -June 2031
6.3	To Build Institutional Capacity for Risk Management									
6.3.1	Develop risk management guidelines, standard operating procedures and operational manuals for implementation of the Action Plan	Standardized and institutionalized risk management practices across the Action Plan	Risk management guidelines, SOPs and operational manuals developed and disseminated	Number of guidelines/SOPs developed; % of implementing institutions using the guidelines	0	5 guidelines/manuals developed and disseminated	Published guidelines, SOPs, distribution records	Quarterly	Lead: MoA	July 2026 -June 2027

S/No	Strategic Objective	Outcome	Outputs	Indicators	Baseline	Target	Means of Verification	Frequency of Reporting	Responsible Institution	Timeline
6.3.2	Establish and operationalize a grievance redress mechanism (GRM) to capture and resolve complaints from stakeholders and communities affected by Action Plan implementation	Improved accountability and social risk management through accessible and functional grievance redress	Functional GRM established, publicized and operational across all implementing areas	Number of grievances received; % of grievances resolved within agreed timeframe; number of GRM awareness campaigns conducted	0	GRM operational by end of Year I ; 90% of grievances resolved within 30 days	GRM database records, grievance resolution reports, stakeholder feedback records	Quarterly	Lead: MoA; Supporting: LGAs, Implementing Departments	July 2026 -June 2027

ANNEX 5: ESTIMATED BUDGET FOR THE IMPLEMENTATION OF ASEAP II 2026-2031

PILLAR I: LAND USE GOVERNANCE & SOIL HEALTH – DETAILED COST ANALYSIS										
S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
I.1.1	ACTIVITY: PARTICIPATORY LAND USE PLANS									
I.1.1.1	Village sensitization meetings	sessions	4,000	2,000,000	8,000,000,000	1,600,000,000	2,000,000,000	2,000,000,000	1,200,000,000	1,200,000,000
I.1.1.2	Land use surveys & mapping	surveys	4,000	5,000,000	20,000,000,000	4,000,000,000	5,000,000,000	5,000,000,000	3,000,000,000	3,000,000,000
I.1.1.3	Validate & approve VLUPs	VLUPs	4,000	350,000	1,400,000,000	280,000,000	350,000,000	350,000,000	210,000,000	210,000,000
Sub-Total – Participatory Land Use Plans					29,400,000,000	5,880,000,000	7,350,000,000	7,350,000,000	4,410,000,000	4,410,000,000
I.1.2	ACTIVITY: CLIMATE-SMART SOIL MANAGEMENT									
I.1.2.1	Training on soil management	workshops	1,000	4,200,000	4,200,000,000	840,000,000	1,050,000,000	1,050,000,000	630,000,000	630,000,000
I.1.2.2	Promote integrated soil fertility management	campaigns	1,000	3,500,000	3,500,000,000	700,000,000	875,000,000	875,000,000	525,000,000	525,000,000
Sub-Total – Climate-Smart Soil Management					7,700,000,000	1,540,000,000	1,925,000,000	1,925,000,000	1,155,000,000	1,155,000,000
I.1.3	ACTIVITY: SOIL MONITORING & TESTING SYSTEMS									
I.1.3.1	Procure soil testing equipment	labs	43	35,000,000	1,505,000,000	1,505,000,000	-	-	-	-
I.1.3.2	Train extension officers	sessions	43	6,000,000	258,000,000	258,000,000	-	-	-	-
I.1.3.3	Regular soil sampling & monitoring	cycles/yr	25	9,500,000	237,500,000	47,500,000	59,375,000	59,375,000	35,625,000	35,625,000
Sub-Total – Soil Monitoring & Testing Systems					2,000,500,000	1,810,500,000	59,375,000	59,375,000	35,625,000	35,625,000
I.1.4	ACTIVITY: COMMUNITY AWARENESS & CAPACITY BUILDING									
I.1.4.2	Develop & disseminate awareness materials	Lumpsum	5	1,000,000,000	5,000,000,000	1,000,000,000	1,250,000,000	1,250,000,000	750,000,000	750,000,000
I.1.4.3	Strengthen community environmental committees	LGAs	185	3,000,000	555,000,000	111,000,000	138,750,000	138,750,000	83,250,000	83,250,000
Sub-Total – Community Awareness & Capacity Building					5,555,000,000	1,111,000,000	1,388,750,000	1,388,750,000	833,250,000	833,250,000
PILLAR I: TOTAL LAND USE GOVERNANCE & SOIL HEALTH					44,655,500,000	10,341,500,000	10,723,125,000	10,723,125,000	6,433,875,000	6,433,875,000

PILLAR 2: CLIMATE RESILIENCE & EARLY WARNING SYSTEMS – DETAILED COST ANALYSIS										
S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
ACTIVITY: STRENGTHEN EARLY WARNING SYSTEMS										
2.1.1										
2.1.1.1	Training on disaster preparedness	sessions	100	7,000,000	700,000,000	140,000,000	175,000,000	175,000,000	105,000,000	105,000,000
2.1.1.2	Develop & disseminate localized climate info	bulletins	165	2,000,000	330,000,000	66,000,000	82,500,000	82,500,000	49,500,000	49,500,000
Sub-Total – Early Warning Systems					1,030,000,000	206,000,000	257,500,000	257,500,000	154,500,000	154,500,000
ACTIVITY: CLIMATE INFORMATION DISSEMINATION										
2.1.2										
2.1.2.1	Climate risk & vulnerability assessments	Lumpsum	1	125,000,000	125,000,000	-	125,000,000	-	-	-
2.1.3.2	Develop climate risk guidelines & manuals	Guidelines	10,000	52,000	520,000,000	-	520,000,000	-	-	-
2.1.2.3	Train stakeholders on climate info use	sessions	250	2,200,000	550,000,000	110,000,000	137,500,000	137,500,000	82,500,000	82,500,000
Sub-Total – Climate Information Dissemination					1,195,000,000	110,000,000	782,500,000	137,500,000	82,500,000	82,500,000
ACTIVITY: ADOPTION OF CLIMATE-SMART TECHNOLOGIES										
2.1.4										
2.1.4.1	Promote CSA technologies to farmers	Lumpsum	112	100,000,000	11,200,000,000	2,240,000,000	2,800,000,000	2,800,000,000	1,680,000,000	1,680,000,000
2.1.4.3	Train farmers on CSA maintenance	sessions	2,000	2,500,000	5,000,000,000	1,000,000,000	1,250,000,000	1,250,000,000	750,000,000	750,000,000
2.1.4.5	Srngthen research & innovation platforms	platforms	1,000	9,500,000	9,500,000,000	1,900,000,000	2,375,000,000	2,375,000,000	1,425,000,000	1,425,000,000
Sub-Total – Adoption of Climate-Smart Technologies					25,700,000,000	5,140,000,000	6,425,000,000	6,425,000,000	3,855,000,000	3,855,000,000
PILLAR 2: TOTAL CLIMATE RESILIENCE & EARLY WARNING SYSTEMS					27,925,000,000	5,456,000,000	7,465,000,000	6,820,000,000	4,092,000,000	4,092,000,000

PILLAR 3: WATER SECURITY & WEF NEXUS GOVERNANCE – DETAILED COST ANALYSIS

S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
ACTIVITY: WEF NEXUS GOVERNANCE FRAMEWORKS										
3.1.1	Training on WEF Nexus governance	sessions	50	4,500,000	225,000,000	45,000,000	56,250,000	56,250,000	33,750,000	33,750,000
3.1.1.2	Stakeholder consultation & coordination forums	forums	200	1,800,000	360,000,000	72,000,000	90,000,000	90,000,000	54,000,000	54,000,000
Sub-Total – WEF Nexus Governance Frameworks					585,000,000	117,000,000	146,250,000	146,250,000	87,750,000	87,750,000
ACTIVITY: SUSTAINABLE WATER MANAGEMENT TECHNOLOGIES										
3.1.2	Establish rainwater harvesting systems	systems	280	18,500,000	5,180,000,000	1,036,000,000	1,295,000,000	1,295,000,000	777,000,000	777,000,000
3.1.2.2	Rehabilitate climate-resilient water infrastructure	systems	56	35,000,000	1,960,000,000	392,000,000	490,000,000	490,000,000	294,000,000	294,000,000
3.1.2.3	Drill boreholes	Number	5,000	14,000,000	70,000,000,000	14,000,000,000	17,500,000,000	17,500,000,000	10,500,000,000	10,500,000,000
Sub-Total – Sustainable Water Management Technologies					77,140,000,000	15,428,000,000	19,285,000,000	19,285,000,000	11,571,000,000	11,571,000,000
PILLAR 3: TOTAL WATER SECURITY & WEF NEXUS GOVERNANCE					77,725,000,000	15,545,000,000	19,431,250,000	19,431,250,000	11,658,750,000	11,658,750,000

PILLAR 4:AGROCHEMICAL & AGRO-INDUSTRIAL POLLUTION CONTROL – DETAILED COST ANALYSIS										
S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
ACTIVITY: MONITORING, INSPECTION & ENFORCEMENT										
4.1.1										
4.1.1.1	Routine inspections of farms & agro-dealers	inspections	300	1,200,000	360,000,000	72,000,000	90,000,000	90,000,000	54,000,000	54,000,000
4.1.1.2	Monitor agrochemical storage & disposal	visits	200	1,800,000	360,000,000	72,000,000	90,000,000	90,000,000	54,000,000	54,000,000
4.1.1.3	Awareness & enforcement training	sessions	210	3,500,000	735,000,000	147,000,000	183,750,000	183,750,000	110,250,000	110,250,000
Sub-Total – Monitoring, Inspection & Enforcement					1,455,000,000	291,000,000	363,750,000	363,750,000	218,250,000	218,250,000
ACTIVITY: POLLUTION CONTROL & WASTE MANAGEMENT										
4.1.2										
4.1.2.1	Storage shelters construction	assessments	200	5,000,000	1,000,000,000	110,000,000	110,000,000	100,000,000	100,000,000	80,000,000
4.1.2.2	Training on pollution prevention & waste management	sessions	500	3,200,000	1,600,000,000	70,400,000	70,400,000	64,000,000	64,000,000	51,200,000
Sub-Total – Pollution Control & Waste Treatment					2,600,000,000	180,400,000	180,400,000	164,000,000	164,000,000	131,200,000
PILLAR 4:TOTAL AGROCHEMICAL & AGRO-INDUSTRIAL POLLUTION CONTROL					4,055,000,000	471,400,000	544,150,000	527,750,000	382,250,000	349,450,000

PILLAR 5: MONITORING, EVALUATION & REPORTING SYSTEM – DETAILED COST ANALYSIS

S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
5.1 ACTIVITY: DIGITAL M&E SYSTEM										
5.1.1	Needs assessment for digital M&E system	assessment	1	100,000,000	100,000,000	100,000,000	-	-	-	-
5.1.2	Develop, customize & deploy digital M&E system	lump sum	1	250,000,000	250,000,000	250,000,000	-	-	-	-
5.1.3	Train digital M&E system users	users	3,000	100,000	300,000,000	300,000,000	-	-	-	-
Sub-Total – Digital M&E System					650,000,000	650,000,000	-	-	-	-
5.2 ACTIVITY: ENVIRONMENTAL & SOCIAL SAFEGUARDS MONITORING										
5.2.1	Monitor compliance across all pillars	visits/yr	45	3,500,000	157,500,000	31,500,000	39,375,000	39,375,000	23,625,000	23,625,000
5.2.2	Field inspections & compliance audits	audits/yr	45	1,800,000	81,000,000	16,200,000	20,250,000	20,250,000	12,150,000	12,150,000
5.2.3	Agricultural GHG inventory updates	studies	2	175,000,000	350,000,000	-	175,000,000	-	175,000,000	-
5.2.4	Carbon market monitoring & MRV oversight	years	5	56,000,000	280,000,000	56,000,000	56,000,000	56,000,000	56,000,000	56,000,000
Sub-Total – Environmental & Social Safeguards Monitoring					868,500,000	103,700,000	290,625,000	115,625,000	266,775,000	91,775,000
5.3 ACTIVITY: DATA COLLECTION & MANAGEMENT										
5.3.1	Collect & upload implementation data	cycles/yr	100	850,000	85,000,000	17,000,000	21,250,000	21,250,000	12,750,000	12,750,000
5.3.2	Routine data compilation	cycles/yr	45	2,200,000	99,000,000	19,800,000	24,750,000	24,750,000	14,850,000	14,850,000
5.3.3	Knowledge management & case studies	years	4	55,000,000	220,000,000	-	55,000,000	55,000,000	55,000,000	55,000,000
Sub-Total – Data Collection & Management					404,000,000	36,800,000	101,000,000	101,000,000	82,600,000	82,600,000
Sub-Total – Action Plan Implementation Monitoring					355,000,000	58,000,000	72,500,000	72,500,000	43,500,000	43,500,000

Pillar 5: Monitoring, Evaluation & Reporting System – Detailed Cost Analysis										
S/No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
5.4	Activity: Monitor Action Plan Implementation									
5.4.1	To conduct Stakeholders Mapping for the NGOs, Institutions and Individuals working on Environmental Protection in the Agricultural Sector	yr	1	65,000,000	65,000,000					
5.4.2	Periodic monitoring missions – all pillars	missions/yr	20	8,500,000	170,000,000	34,000,000	42,500,000	42,500,000	25,500,000	25,500,000
5.4.3	Consolidate implementation data	reports/yr	20	3,200,000	64,000,000	12,800,000	16,000,000	16,000,000	9,600,000	9,600,000
5.4.4	Prepare & disseminate progress reports	reports/yr	20	2,800,000	56,000,000	11,200,000	14,000,000	14,000,000	8,400,000	8,400,000
Sub-Total – Monitor Action Plan Implementation						123,000,000	72,500,000	72,500,000	43,500,000	43,500,000
5.5	Activity: Evaluation									
5.5.1	Annual reviews & mid-term evaluation	reports	10	18,000,000	180,000,000	36,000,000	45,000,000	45,000,000	27,000,000	27,000,000
5.5.2	Final independent evaluation	report	2	60,000,000	120,000,000	-	-	-	-	120,000,000
Sub-Total – Evaluation						36,000,000	45,000,000	45,000,000	27,000,000	147,000,000
Pillar 5: Total Monitoring, Evaluation & Reporting System						949,500,000	509,125,000	334,125,000	419,875,000	364,875,000

PILLAR 6: RISK MANAGEMENT – DETAILED COST ANALYSIS										
S/ No	Component / Activity / Sub-Activity	Unit	Quantity	Unit Cost (TZS)	Total Cost (TZS)	FY 2026/27	FY 2027/28	FY 2028/29	FY 2029/30	FY 2030/31
6.1 ACTIVITY: RISK IDENTIFICATION & ASSESSMENT										
6.1.1	Risk assessments – all agro-ecological zones	assessments	14	8,500,000	119,000,000	119,000,000	-	-	-	-
6.1.2	Develop & update dynamic risk register	updates/yr	4	2,200,000	8,800,000	8,800,000	-	-	-	-
Sub-Total – Risk Identification & Assessment					127,800,000	127,800,000	-	-	-	-
6.2 ACTIVITY: FINANCIAL & PROCUREMENT RISK CONTROLS										
6.2.1	Internal financial & procurement audits	audits/yr	2	9,500,000	19,000,000	3,800,000	4,750,000	4,750,000	2,850,000	2,850,000
6.2.2	Budget utilization monitoring reports	reports/yr	4	1,500,000	6,000,000	1,200,000	1,500,000	1,500,000	900,000	900,000
6.2.3	Quarterly procurement plan reviews	reviews/yr	4	1,200,000	4,800,000	960,000	1,200,000	1,200,000	720,000	720,000
Sub-Total – Financial & Procurement Risk Controls					29,800,000	5,960,000	7,450,000	7,450,000	4,470,000	4,470,000
6.3 ACTIVITY: INSTITUTIONAL RISK CAPACITY BUILDING										
6.3.1	Risk management guidelines, SOPs & manuals	manuals	5	6,500,000	32,500,000	32,500,000	-	-	-	-
6.3.2	Establish grievance redress mechanism (GRM)	mechanism	1	28,000,000	28,000,000	28,000,000	-	-	-	-
Sub-Total – Institutional Risk Capacity Building					60,500,000	60,500,000	-	-	-	-
ENABLING COMPONENT 2 (PILLAR 6): TOTAL RISK MANAGEMENT					218,100,000	194,260,000	7,450,000	7,450,000	4,470,000	4,470,000
TOTAL BUDGET FOR ALL PILLARS					157,156,100,000	33,357,660,000	39,080,100,000	38,193,700,000	23,341,220,000	23,183,420,000



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