Government of Malawi

THE NATIONAL RESILIENCE PLAN:

Breaking the cycle of food insecurity in Malawi

Office of the Vice President

Department of Disaster Management Affairs

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ABBREVIATIONS AND ACROYNMS

ASWAp	Agriculture Sector Wide Approach
BoQs	Bill of Quantities
CA	Conservation Agriculture
CBFEWS	Community Based Flood Early Warning Systems
COMESA	Common Market for Eastern Southern Africa
COMSIP	Community Mobilisation of Savings and Investment Program
CSA	Climate Smart Agriculture
DAES	Department of Agriculture Extension Services
DCCMS	Department of Climate Change and Meteorological Services
DoDMA	Department of Disaster Management Affairs
DoEP&D	Department of Economic Planning and Development
DoI	Department of Irrigation
DPs	Development Partners
DWR	Department of Water Resources
EAD	Environmental Affairs Department
EU	European Union
FISP	Farm Input Subsidy Programme
GBI	Green Belt Initiative
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GoM	Government of Malawi
LDF	Local Development Fund
MASAF	Malawi Social Action Fund
MDA	Ministries Departments and Agencies

MFERP	Malawi Flood Emergency Recovery Project
MGCDSW	Ministry of Gender, Children, Disability and Social Welfare
MGDS	Malawi Growth and Development Strategies
MNSSP	Malawi National Social Support Programme
MoAIWD	Ministry of Agriculture Irrigation and Water Development
MoEST	Ministry of Education Science and Technology
MT	Metric Ton
MVAC	Malawi Vulnerability Assessment Committee
NAP	National Agriculture Policy
NES	National Export Strategy
NGOs	Non-Governmental Organisations
NSSP	National Social Support Programme
PDNA	Post Disaster Needs Assessments
PIU	Project Implementing Unit
PPP	Public Private Partnerships
PWP	Public Works Programme
SADC	Southern Africa Development Community
SCT	Social Cash Transfer
SDGs	Sustainable Development Goals
SGR	Strategic Grain Reserve
SMP	School Meals Programme
SRBMP	Shire River Basin Management Programme
UNDP	United Nations Development Programme
VSL	Village Savings and Loans
WFP	World Food Programme

Foreword

I wish to express profound gratitude to His Excellency the President, Professor Arthur Peter Mutharika, for approving the concept paper on which this Plan is premised. Climate change related effects have become a serious threat to life, livelihoods, economy and development. Development policy thus has to consider how to deal with vulnerability and shocks that are influenced by climate change. In the recent past years, Malawi has experienced severe disasters, common of them floods and drought and consequently food insecurity has worsened over the same period. Some of the previous policies were capable to the extent of breaking the cycle but failed to build resilience. For example, Farm Input Subsidy Program (FISP) broke the cycle of food insecurity in the early years of implementation but only when weather conditions were favourable. Building resilience will ultimately break the cycle of dependence on short term and unplanned interventions.

The National Resilience Plan is a five year agenda aimed at addressing the causes of climate change, on one hand, and minimizing the effects of climate change to food insecurity, on the other hand. Most interventions in the Plan are not new per se rather what is new is the approach. Through the Plan, government brings a multi-dimensional approach to control floods, reduce food insecurity and grow exports, protect and manage the environment and catchments, enhance early warning system and provide social support interventions using a single monitoring and evaluation framework, enhanced coordination, pooling of resources and prioritization. For the first year of implementation (2016-17), the resource requirement is **MK120, 017,375,115.10.** Of this budget, **MK13, 363,760,172.98 is** already available leaving a gap of **MK106, 653,614,942.12.**

From the conviction that any further investment without addressing the environmental factors is a risk, there is reason to believe that development partners, the corporate sector, civil society, non-governmental organizations and government will play a role to ensure successful implementation of the Plan. His Excellency the President, Professor Arthur Peter Mutharika, has said time and again that he wants a Malawi that is economically independent. As the past disasters have taught us, economic independence hinges largely on how we develop resilience to natural disasters. This Plan, therefore, is a direct contribution towards His Excellency's vision. Further, the Plan is consistent with

Sustainable Development Goals which place great emphasis on addressing climate change and its effects.

It is my expectation that when the Plan is well implemented, there will be a Malawi that is not only food secure but also a food exporter, a Malawi with increased foreign exchange, strong agro-processing, more jobs, as well as strong and sustainable economic growth and development. This ideal state will unlock economic activity and spur further growth as the investment environment will become more predictable and hence offer security and comfort to existing and potential investors. When that obtains, we will have great sense of pride as a people.

I, therefore, call on everyone and the respective implementing ministries and departments, in particular, to support the President's vision of an economically independent Malawi by, among other things, delivering on this Plan.

Saulos Klaus Chilima, PhD

VICE PRESIDENT AND MINISTER FOR DISASTER MANAGEMENT AFFAIRS

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The National Resilience Plan to break the cycle of food insecurity is a product of various actors in government, Non-Governmental Organizations (NGOs) and development partners. I would like to thank senior management in the following ministries: Agriculture, Irrigation and Water Development; Finance, Economic Planning and Development; Gender, Disability and Social Welfare; Education, Science and Technology and the following departments: Environmental Affairs, Irrigation, Climate Change and Meteorological Services, Fisheries, Forestry and Green Belt Authority for making available key staff members who worked tirelessly to produce this document. I would also like to commend all stakeholders who made comments on the document, including the academia. I am also indebted to the United Nations in Malawi, particularly through the United Nations Development Program (UNDP) for always being available to work with government and NGOs. A number of NGOs directly participated and these included Catholic Development Commission, Centre for Environmental Policy and Advocacy, World Vision Malawi and Civil Society Network on Climate Change. Special thanks go to officers at the Department of Disaster Management Affairs for coordinating the process.

The success of this Plan will be a function of collective effort by implementing ministries and departments. This Plan is premised on the principles of division of labour and doing business unusual. It is motivated by the conviction that the usual way of responding to effects of disasters is expensive. The division of labour is in such a way that DoDMA shall enhance its coordination role while implementing ministries and departments execute their respective sections of the Plan.

I am optimistic that this Plan will make Malawi a disaster resilient nation.

B.A. Botolo

SECRETARY TO THE VICE PRESIDENT AND COMMISSIONER FOR DISASTER MANAGEMENT AFFAIRS

1.0 INTRODUCTION

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, economic and environmental losses that exceed the community's or society's ability to cope using its own resources[1].

The potential benefits of being resilient to disasters make a lot of sense taking into account that no person or place is immune from disasters or disaster related losses. With recent events of drought and flooding in the country, few would oppose taking action to reduce the loss of either life or property damage. It is worth noting that increasing resilience of a community requires large scale investments of money, human resources, and time.

As stewards of community assets, the potential benefits of being resilient to disasters are attractive from economic, social and environmental points of view. Government is faced with limited resources to be allocated among competing programmes such as health, education and other social services. In the case of Malawi, the country has other challenges in economic sectors such as agriculture that will require public expenditure as well. Even though consensus emerges of building resilient communities to disasters, hard choices have to be made in financing programmes that will deal with breaking the cycle of disasters.

It has been observed that disasters in Malawi have three main impacts: food insecurity, stagnant development[2] and unhappy population. Existing interventions are scattered, accountability is weak and synergies are weak. While some interventions broke the cycle of food insecurity[3], they did not build resilience. This National Resilience Plan aims at achieving two key outcomes namely: to have the cycle of disasters, especially food insecurity broken and to have national resilience to disasters built. It should be indicated that the majority of the interventions in the plan are not new, what is new is that the plan packages various interventions by different players into one package. Through the plan, irrigation, catchment protection and management, construction of dykes, dams and river training, social support programmes and early warning systems are viewed in totality and monitored using a single monitoring and

[1] International Federation of Red Cross and Red Crescent

[2] Through slowed economic growth, disrupted business activities and damage to infrastructure, amongst others

[3] For example, Farm Input Subsidy Programme

evaluation framework. Through the Plan, the Department of Disaster Management Affairs (DoDMA) postures itself proactively address risk rather than waiting to respond to disasters. It is worth mentioning that the Plan is premised on the following hard realities:

i. That it is extremely expensive to respond to disasters;
ii. That it is demeaning to always ask for humanitarian support from development partners and other well-wishers; and
iii. That sustainable development cannot be achieved in the wake of perennial occurrence of disasters.

2.0 BACKGROUND

The economy of Malawi is predominantly agro-based with majority of the population directly and indirectly employed in the agriculture sector. Performance in the agriculture sector has a big impact on the economic environment including inflation and to some extent interest rates and exchange rate. Good performance in agriculture contributes to national happiness, reduces panic and frees the mind and energy for other high level actions. On the contrary, poor performance has adverse effects on the economy. Common disasters in Malawi are climate change related. Floods, stormy rains and drought or prolonged dry spells are common disasters that affect Malawi[4]. Thus, climate change in Malawi is an economic issue, a matter of life and death and a matter of development and poverty.

It is reported that the recent previous 4 occurrences of disasters (2002, 2005, 2008 and 2015) have cost the country close to US$1 billion[5]. Floods in 2015 and subsequent dry spell left 2.86 million people in need of food aid. The floods alone affected 1.1 million people, displaced 230,000, killed 106 people with 172 people reported missing. The economy lost US$335 million and it would require US$494 million for recovery and reconstruction[6]. Drought and floods in 2016 have left 6.5 million people in need of food aid at an estimated cost of US$395.1 million.

[4] GoM, MVAC reports, various issues
[5] Ministry of Agriculture, Irrigation and Water Development, Intensive Food Production Program, Concept Note, 2016
[6] GoM, World Bank, UNDP (2015), Post Disaster Needs Assessment Report

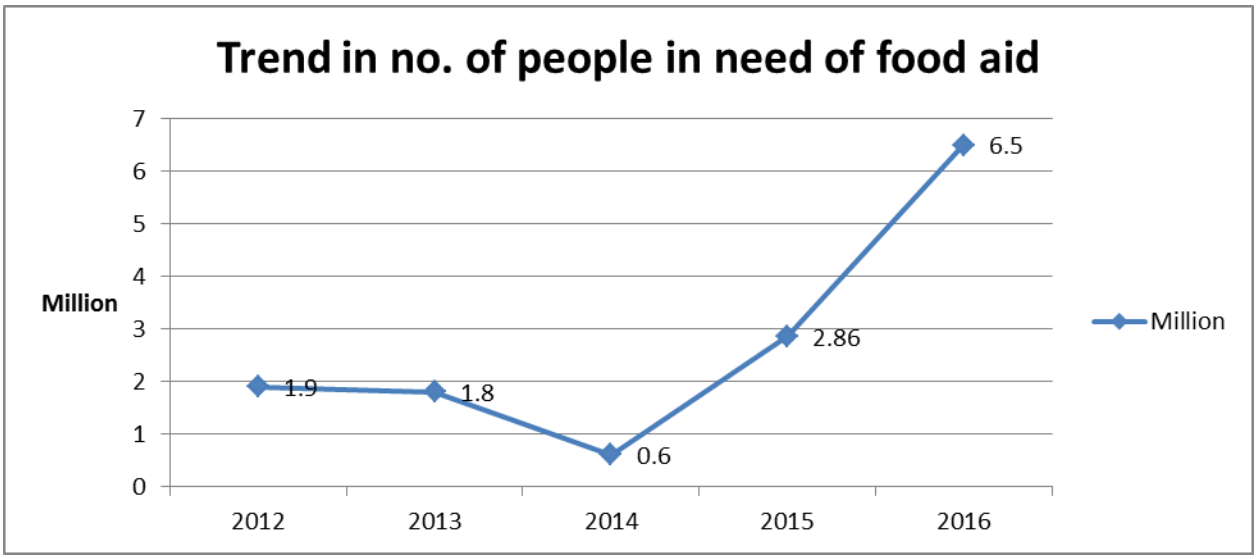

Figure 1: Trend in number of people in need of food aid

Source: GoM, Malawi Vulnerability Assessment Committee, various reports

3.0 PROBLEM STATEMENT

Climate change effects are having enormous negative impact on the economy and lives. The 2015 floods and 2016 drought are good cases for illustration. Some people lost life and property, business organizations lost productivity due to increased power and water shortages, telecommunication disruption and mobility problems as roads and bridges were cut off. Trade sales during disasters are affected as such; government loses revenue especially from consumption based taxes while business entities lose sales revenue and may post less profit than the case would be without disasters[7]. Government, private sector and development partners as well as individuals get into unplanned expenditure as part of the responsibility for caring for its people on side of government, as corporate social responsibility on side of the private sector and as humanitarian support on side of development partners. For the 2015 floods and dry spell for example, government needed US$146 million for humanitarian food aid and recovery[8]. For the 2016 drought, government needs US$395.1 million to respond to food insecurity.

[7] Magalasi and Tobias (2015), Interviews with selected companies on assessment of effects of 2014/15 floods on the economy

[8] GoM (2015), MVAC

Bad weather conditions reduce productivity. In 2014/15 growing season, maize yield declined to as low as 1.7 tons per hectare compared to average yield of 2.3 tons per hectare[9]. Climate change negatively affects economic growth and with increasing population growth, it erodes per capita income. Following floods in 2014/15, GDP growth for Malawi was revised from projected 5% to 2.8%[10]. A significant proportion of funds that were invested in Farm Input Subsidy Program (FISP) were lost and government had to look for extra funds to feed the starving population. These funds would have been put to productive use for the development of the country if the nation had a robust resilience program.

While climate change effects present such serious challenges, Malawi is naturally blessed with fresh water bodies. One of such natural endowment is Lake Malawi which stretches nearly the entire length of the country and climatic conditions are favourable to various crops both for local consumption and exports. This presents an opportunity for irrigation farming. In essence, Malawi has potential to mitigate food insecurity and nutrition as well as turning climate change effects in the region (SADC, COMESA) into an opportunity. Available reports show that with irrigation, smallholder productivity can increase by 1.1 tons per hectare while medium and large scale productivity can increase by 2.0 tons. Thus under irrigation, smallholder productivity is 3.4 tons per hectare while medium and large scale productivity is 4.3 tons per hectare.

3.1 Policy Linkages

This Plan has benefited from the National Agriculture Policy, National Disaster Risk Management Policy, Malawi Growth and Development Strategy II and various sectoral policies. Malawi has been experiencing food crises since the early 2000s and this trend has continued for a number of years down the line. Several factors have contributed to the development of these crises, including relatively poor crop production, a reduction in national grain stocks, a weakening in the national currency, moderately high inflation rates, the high cost of inputs, and rising transport costs that led to increased costs for imported foodstuffs. Malawi faces multiple natural hazards in both rural and urban areas, including floods, drought or prolonged dry spells and stormy rains. The nature and pattern of weather related hazards is changing, becoming more frequent, intense and unpredictable as a result of climate change, rapid urbanization,

[9] Ministry of Agriculture (2016), Irrigation and Water Development, Intensive Food Production Program, Concept Note

[10] IMF (2015)

population growth and environmental degradation. Widespread poverty compounds crop failures into crises that sometimes require expensive humanitarian interventions.

In order to reduce food insecurity and poverty, and to halt the trend of increased vulnerability, there is an urgent need to understand and address both the underlying and acute facets of food insecurity. A debate over a fundamental policy question of how to maintain national food security and guarantee household food security for all Malawians in the short, medium and long-term is underway. A thorough review of the food security discourse in Malawi has identified three broad positions held by the key players - government, development partners (DPs) and the non-governmental organisations (NGOs). The national self-sufficiency approach concentrates on raising maize production for national food security; market liberalization approach introduces market incentives to increase smallholder cash incomes through diversification into high-value crops while a concern with household food security requires targeted resource transfers (of inputs, food and income) to the vulnerable members of the community. Each approach has its own champions. The Malawi Government has long been committed to food self-sufficiency; major development partners are in favour of full market liberation of the agricultural sector; while local and international NGOs seem to be most directly concerned about the welfare of the poorest of the poor.

It is against this background that an urgent debate is taking place among key players through the Development Cooperation Group and the High Level Forum on Development Effectiveness on possible actions to break the cycle of food insecurity for achieving greater development outcomes for Malawi. The discussion has led to the development of the National Resilience Plan focusing on breaking the cycle of food insecurity in the country.

3.2 Rationale

The rationale for developing the National Resilience Plan to break the cycle of food insecurity is as follows:

i. Increasing occurrence and impact of disasters. This is resulting in more people being food insecure, loss of lives and damage to property and infrastructure.
ii. Increased cost of disaster response. As a result of frequent disasters, government, development partners and other stakeholders have been

spending a lot of resources to provide assistance to affected people. These resources could have made a difference if they were invested in development projects.

iii. Frequent disasters are derailing development efforts.

The plan is being developed to:

i. Strengthen coordination amongst stakeholders in order to create synergies, linkages and ensure maximum impact of interventions being implemented (avoid working in silos);
ii. Ensure pooling of resources;
iii. Prioritize environmental management; and
iv. Enhance monitoring and learning.

3.3 Objectives

The broad objective of the plan is to help make Malawi resilient to disasters and break the cycle of food insecurity. To achieve this, the following specific objectives will be pursued:

i. To promote irrigation for food security, nutrition and export drive;
ii. To promote catchment protection and management;
iii. To reduce effects of floods and occurrence of drought;
iv. To enhance effective early warning systems; and
v. To ensure proper coordination and linkages of social support programmes.

4.0 CONTEXT

Various policies have been implemented aimed at achieving food security, increasing people's incomes and restoring the natural environment. These policies have, however, been implemented in silos without deliberate plan to build linkages and synergies. Some of the major policies are discussed as follows:

Farm Input Subsidy Program (FISP): The program broke the cycle of food insecurity by improving agricultural productivity (especially maize) but failed to build resilience. This was on account of a number of reasons, chief among them being the fact that selection of beneficiaries is random with different beneficiaries being targeted every year; that while the program is designed in such a way that a beneficiary receives two bags of fertilizer, the reality, in many cases, is that beneficiaries are directed by their village head leaders to share so that everyone in the village benefits. The intervention did not take into account the cultural perspective nor did it consider ways of dealing with cultural aspects like this. The sharing compromises productivity and threatens impetus for building resilience. In some cases, it has been reported that these beneficiaries resort to selling the fertilizer in order to address immediate need for food. Not surprising, graduating farmers from FISP has been a challenge.

Irrigation: Overall, the 104,000 hectares developed for irrigation is small to help Malawi produce enough food to cover deficit. Despite the small hectarage, much of it is for small scale farmers whose productivity hinges around 2.5 tons per hectare compared to medium and large scale farmers who can produce 4 tons per hectare. Appropriate balance of small and large scale irrigation farmers has been lacking. Small scale farmers have proved to be challenged in managing irrigation schemes, produce with commercial orientation and build resilience. On the other hand, large scale farmers have capacity to be resilient, capable of adhering to husbandry practices and sustain irrigation infrastructure. However, major constraints have been huge sunk costs in irrigation infrastructure such as bulk water conveyance and energy and unpredictable trading environment due to export bans. The National Resilience Plan seeks to address these constraints.

Catchment Protection and Management: There has been wanton cutting down of trees for charcoal burning, fuel wood, land clearing for cultivation, timber and other purposes. Although trees are planted yearly, the number and survival rate are too low to match with the rate of deforestation. Reserve areas have been

equally been affected. The net effect has been continued loss of forest cover. It is also noted that despite the various forestry needs (timber, planks, fruits, amongst others), the general mindset has skewed towards planting trees per se without appropriate balance of types of trees to sustain the various human needs. The Plan intends to scale up the number of trees planted, improve monitoring and coordination of trees planted by other players besides government, improve survival rate and ensure balanced combination of types of trees. The Plan also engages the communities further in managing their forests and attaches economic prospects as trees will soon be a tradable commodity for communities. This is to enhance their ownership.

Social support program: Various interventions under social support have had own registry which allowed room for multiple benefiting. This constrained coverage of such interventions. Additionally, many different NGOs involved in social support programs don't talk to each other in terms of modalities, complementarity, coverage and impacts. Through the Plan, social support program will have unified registry, beneficiaries will be followed over a period to build resilience and consider for graduation. There will also be improved coordination of all stakeholders involved in implementing social support programs.

All in all, the Plan brings together pieces of interventions that individually have had minimal capacity to build resilience but in totality can build resilience. Resilience is viewed at community and national levels. The Plan improves the design of existing programs and provides a complete cycle that includes mitigating impacts of floods and drought when they occur through dykes, dams and river training for floods and irrigation for drought. Additionally, the Plan sees resilience beyond food security and nutrition but also on overall economy through improved production of export produce.

The strategies indicated in this Plan are drawn from, linked to and built on various policy frameworks existing in the respective sectors of the components. Such policy frameworks include the Malawi Growth and Development Strategy II (MGDS II); National Disaster Risk Management Policy; National Agriculture Policy; Agriculture Sector Wide Approach; Malawi National Social Support Programme; Post Disaster Needs Assessment Report; and the National Water Policy. The Plan adopts and promotes provisions and priority areas of these

policies, singling out those that would result in building the resilience of communities at risk of food insecurity. For instance, the plan promotes diversification of agriculture production, production and utilization of diverse nutritious food, large scale irrigation development through the Green Belt Initiative and creates special grain processing facility in order to break the cycle of food insecurity. Similarly, the Plan will promote social support programs such as Social Cash Transfers, Microfinance, Public Works, School Meals and Village Savings and Loans which form the bedrock of the National Social Support Policy. The Plan, will therefore, form a vessel through which various policies will be synergized and operationalised.

5.0 COMPONENTS AND LEAD AGENCIES

Table 1 below shows the components of the plan:

Table 1: Components of the plan

	Component	**Lead Organisation**
1	Agriculture and food security	Ministry of Agriculture, Irrigation and Water Development
2	Catchment Protection and Management	Department of Forestry
3	Control of floods through dams, dykes and river training	Department of Water Resources
4	Early warning systems	Department of Climate Change and Meteorological Services
5	Social support programmes	Department of Economic Planning and Development

6.0 STRATEGIES AND ACTIVITIES

The strategies and activities to be implemented under the different components are highlighted below:

6.1 Agriculture and Food Security

The agriculture sector has been implementing the Agriculture Sector Wide Approach (ASWAp) which is currently being reviewed. Under the ASWAp, there are three focus areas of Food Security and Risk Management, Sustainable Land

and Water Management and Commercial Agriculture, Agro-processing and Market Development.

Lessons have been learnt on building resilience of farming communities during the implementation of the ASWAp. For example, some technologies that are being advanced to farmers such as sustainable land and water management significantly enhance the resilience of farming communities to climatic shocks. However, adoption of these technologies among farmers is still very low. This suggests that these technologies may not be well adapted to farmer conditions and as such, there in need to intensify interventions in adaptive research. Secondly, with the ever changing climatic conditions, it has been learnt that some of the crop varieties and livestock breeds that were bred to withstand adverse weather conditions are not suitable for the current climatic conditions hence the need for research and development.

In terms of diversification, the level of agriculture diversification in Malawi is still very low; most of the farmers rely on maize as their food crop and tobacco as their cash crop. This undermines the resilience of the farming system against natural disasters. Some of the major constraints cited to limit diversification of agricultural production are inadequate access to extension services, poor seed and marketing systems, lack of access to affordable agricultural loans by farmers, incidences of crops and animal diseases, parasites and pests and high post-harvest losses. Malawian diets have also remained undiversified coupled with poor food utilization among households resulting into high prevalence of malnutrition. On irrigation, the level of irrigation development is still very low. It is in view of the above situational context that the following strategies are being suggested to be implemented in order to break the cycle of food insecurity.

To address the challenges facing the agriculture sector, as well as to have a clear direction for the sector, the National Agriculture Policy (NAP) is in the process of being developed. The draft NAP recognizes the negative impacts of natural disasters on the resilience of the food producing system at both national and household level. In line with this, some of the priority areas in the draft National Agriculture Policy address issues of enhancing resilience. The agriculture interventions being proposed in the National Resilience Plan are consistent with the strategies in the draft National Agriculture Policy. The following strategies will be implemented:

6.1.1 Promote Large Scale Irrigation Development through the Green Belt Initiative

Irrigation development is a major strategy for increasing crop production and mitigating against negative effects of climate change related disasters (floods, drought/dry spells) that are responsible for food insecurity. Over the years, there has been slow growth in the area under irrigation due to several bottlenecks including: huge investment requirements; sustainable management of schemes; and land tenure security challenges. Currently, only about 104,000 hectares of irrigable land is developed whilst the net potential irrigation area is estimated at 385,000 hectares.

Government established the Green Belt Initiative with the objective of accelerating sustainable irrigation development. Despite this noble mandate of increasing area under sustainable irrigation, the Initiative has failed to make significant impact due to low funding levels and inadequate human capacity. Land tenure security issues and the initial huge investments required for energy and water conveyance for irrigation development has made it unattractive, especially for the private sector to invest in irrigation.

To address the above challenges, there is need for qualified and dedicated human personnel as well as adequate financial resources. Once these issues are tackled, crops (for both food and cash needs) will be sustainably produced and, therefore, the vicious cycle of hunger would have been broken. Government will, therefore, continue to promote irrigation development through allocation of reasonably substantial resources to the reformed Green Belt Initiative (Green Belt Irrigation Authority). Specifically, Government will:

i) Improve institutional capacity (financial and human resources)

More financial as well as human resources will be required to strengthen the institutional capability to carry out the mandate. Within the framework of Public Sector Reforms, the Green Belt Initiative (GBI) will be transformed into Green Belt Irrigation Authority. This requires the drafting and passing of the necessary legislation for the establishment of an Irrigation Authority. However, in the interim, Government will create Green Belt Public Trust and GBI Holdings Limited Company. The GBI Holdings Limited Company has been registered and what is remaining is its operationalization. Positions on the new establishment will be filled with people who have relevant skills and experience. Staff will be provided with requisite job facilitating equipment and transport. Staff will be trained in

areas of their specialty. Government will endeavor not only to allocate sufficient resources in the budget but also fund the same for irrigation development.

ii) Promote Public Private Partnerships (PPPs)

Building of large-scale irrigated schemes (as core to the GBI mandate) through the attraction/inclusion of private sector participation will ensure that the developed schemes are used efficiently and productively, with less dependence on government and donor subvention to perpetuate their existence (the current situation in irrigation schemes is that farmers largely depend on government and donors to sustain their irrigation scheme activities because they are mostly subsistent in nature). Government and donor investment should be treated as initial capital investment which will be sustained by profit making production systems.

An important element in the development of irrigation schemes is that GBI wishes to separate the "public good" expense from the "private good" expense of the development of irrigated schemes. For example, public financing (donor and government money) should be limited to financing only those activities that make a scheme attractive to private sector investment. For instance, bulk water conveyance to a particular scheme can be treated as a "public good" investment; facilitation of change of land tenure to a tenure that is secure for private sector investment to spur confidence for the private sector participation is another example of a public good. Facilitation of institutional arrangements allowing large-scale private sector to work together in a coordinated and symbiotic, non-exploitive manner with the smallholders is another element of public good. Once such public good investment is properly done, it is easy for the private sector to invest in such schemes thereby ensuring efficient and productive enterprises. Private sector investment will be easily attractive, especially on issues like the infield irrigation network infrastructure, and storage/warehousing as well as processing facilities and marketing strategies.

Specifically, the activities will include: identifying and acquisition of large parcel of land for irrigation development; constructing the bulk water irrigation systems and bringing energy (electricity) to the sites; entering into Land Management Contracts with private investors (this is where private sector investors are allowed to use GBI land for irrigation investment and pay for using the land for a specified period and bulk water and energy charges). The private investor will be responsible for the development of the infield irrigation system; and public

private partnerships through creation of joint venture companies between GBI Holdings Limited and private investors. About 26,000 hectares will be targeted under these arrangements. Already 8,000 hectares has been secured of which 3,000 hectares will be developed by Malawi Mangoes under Land Management Contract and 5,000 hectares will be developed by Salima Sugar Company under joint venture arrangement. An additional 8,000 hectares has been identified in the Bwanje Valley formerly owned by Spearhead Company.

6.1.2 Develop new irrigation schemes

New irrigation schemes with a total hectarage of 6,500 hectares will be developed. Specifically, the following irrigation schemes will be developed: Nthola-Ilola-Ngosi (1,000 hectares) in Karonga district; Malombe scheme (500 hectares) in Mangochi district; Chikwawa scheme (1,000 hectares) in Salima district; and other sites (5,000 hectares) to be identified. The activities shall also include securing the land tenure and actual irrigation construction.

6.1.3 Diversification of agricultural production

There is minimal agricultural diversification at both household and national level. This reduces the ability of both households and the nation to cope with natural disasters. The Government will, therefore, promote agriculture diversification to enhance resilience to natural disasters through spreading the risk among agricultural enterprises.

In the short to medium term, the Government will:

i) Intensify the dissemination of technologies and practices on crop, livestock and fish that withstand adverse weather conditions

One of the challenges in the agriculture sector is the low adoption level of agricultural technologies and practices partly due to lack of awareness on the technologies and practices that are available. As such, deliberate efforts will be undertaken to disseminate resilience enhancing agricultural technologies and practices that have been released by researchers and approved by the technology clearing committee in the Ministry of Agriculture, Irrigation and Water Development. This is anticipated to widen farmers' choice options of agricultural technologies and practices that can be adopted to enhance resilience to climate related shocks. This will in turn enhance resilience of the food and non-food producing systems.

The ministry will employ a number of innovative methods and approaches to technology dissemination to promote adoption by more farming households. These will include:

- Conducting agricultural extension weeks at community levels;
- Utilizing multi-media approaches;
- Increasing number of lead farmers;
- Utilizing major agricultural events, such as National and District Agriculture Fairs and World Food Day, amongst others; and
- Targeting community gatherings like churches, community meetings.

6.1.4 Promote production and utilization of diverse nutritious foods.

Over the years, there has been emphasis on increasing maize production to achieve food security in Malawi. This approach has resulted in increases in maize available for consumption in the country. However, these efforts have not resulted in improved nutrition, as diets have remained undiversified and people have tended to take maize only as food when they have access to other types of food apart from maize. Of particular concern, child malnutrition has remained particularly high. In this plan, the Government will:

i) promote extension education and behavioral change communication for improved nutrition;
ii) improve the knowledge, attitudes, and skills of farm households in dietary diversification;
iii) re-engage the services and strengthen the capacity of Farm Home Assistants/Assistant Food and Nutrition Officers and Lead Farmers on dietary issues; and
iv) promote the utilization of indigenous fruits, vegetables, small stock, edible insects, and small wild animals.

Given that dietary diversification is more of an attitude change issue and that it is somewhat difficult for the older generation to change their eating habits, this plan will also employ strategies that target the younger generation. This will in the long-run ensure that there is a shift in the mindset from viewing *nsima* as the only food despite having other food stuffs available. Specifically, this plan will:

- introduce issues of dietary diversification in the curriculum at primary and secondary school levels; and
- incorporate dietary diversification in the school feeding program.

6.1.5 Enhance livestock breeding programs especially for small stocks

Government farms will be restocked with breeding stock for various kinds of small stock. This will ensure that there are increased volumes of livestock which could be injected into the system. This would then lead to increased small stock population in the country, thereby enhancing resilience, especially through increased livestock ownership.

6.1.6 Enhance animal disease control programs

Controlling animal diseases is critical in sustaining the livestock population in the country as well as increasing the tradability of animals and animal products both internally and externally. If in a country there is an outbreak of animal diseases, then it cannot export animals and animal products based on international animal trade regulations. Under the existing animal disease control programs, there are limited resources which in turn reduce the effectiveness of the animal disease control program. Therefore, enhancement of animal disease control programs would enhance resilience through reducing incidences of animal disease outbreaks.

6.1.7 Promote small scale agro-processing

There are high post-harvest losses among farmers. In order to reduce this trend, Government will promote small-scale agro-processing among farmers. This would enhance resilience by reducing post-harvest losses. In addition, agro-processing will ensure that farmers sell processed products other than raw products, thereby ensuring that farmers earn higher incomes from processed products than from raw products.

6.1.8 Fast track establishment of the agriculture cooperative bank

Lack of affordable loans is one of the constraints for farmers to adopt modern agricultural technologies as well as to engage in more lucrative investment opportunities in agriculture. As such, as part of this plan, Government will fast track the establishment of the agriculture cooperative bank to finance agricultural activities.

6.1.9 Promote integration of smallholder farmers into agriculture value chains

There is weak participation of smallholder farmers in agricultural value chains. This negatively impacts income levels of smallholder farmers thereby making farmers unable to cope up with shocks. Through this plan, Government will ensure that there is increased participation of smallholder farmers in various

agricultural value chains in order to enhance resilience. In the medium to long term, the Government will:

i) Promote agricultural research in the development of varieties for selected crops as well as livestock and fish breeds

Research will focus on developing crop varieties that are drought, disease and pest tolerant as well as improving the genetic make-up of livestock and fish so that they can withstand adverse weather conditions, diseases and parasites. With changes in climatic conditions on a yearly basis, there are also changes in abiotic and biotic stresses in the farming systems. As such, crop varieties that are grown by framers as well as livestock and fish kept by farmers need to adapt to the ever changing climatic conditions. This will in turn enhance resilience of farming systems to different kinds of climatic shocks by ensuring that farmers have crop varieties as well as livestock and fish breeds that are suitably adapted.

ii) Develop a robust seed and market system for selected crops that can be grown in the country

Apart from the maize seed and market system, the seed and market systems for the rest of the crops that are grown in Malawi is still under developed. This is a big constraint to agricultural diversification in Malawi. As such, under the Plan, the focus will be to develop the seed and market system for selected crops especially those under the National Export Strategy (NES). This will in turn ensure increased seed availability that responds to market needs.

iii) Promote Climate Smart Agriculture Programme

Climate change is projected to negatively affect agricultural productivity, largely resulting from deterioration of the production environment. As such, promotion of Climate Smart Agriculture (CSA) would help to restore degraded agro-ecosystems and increase agricultural productivity. This would in turn ensure increased food security and provide opportunities for farmers to increase their household incomes. Despite the benefits that CSA has in relation to enhancing resilience, there exists a big misunderstanding on CSA world over including in Malawi.

In this regard, the Government will in the short and medium term, develop a comprehensive programme on CSA to enhance understanding of the various concepts of CSA. In this Plan, Government will focus on:

- Promotion of manure making and use to maintain or improve soil health;
- Promotion of agro-forestry technologies among farmers;
- Promotion of conservation agriculture (CA), that is, (i) zero/minimum tillage; (ii) maximum ground cover; and (iii) crop rotation or association of cereal and legume crops; and
- Promotion of in-situ rainwater harvesting technologies likes swales and planting pits.

iv) Strategic Grain Reserve Management

Management of Strategic Grain Reserves (SGR) is critical to enhancing the nation's resilience to disasters including food insecurity. However, the existing concrete silos in the country were constructed in the 1970's and as such; they are currently not in good condition for maize storage purposes. Furthermore, the Malawian population has over the past years increased significantly implying that there is need for an increase in the size of the SGR. In this regard, the Government will:

- Construct additional new concrete silos at Kanengo silos complex;
- Rehabilitate 34 concrete silos at Kanengo silos complex; and
- Rehabilitate 15 metallic maize storage silos in Mzuzu, Luchenza and Mangochi. It is anticipated that rehabilitation of the metallic silos will ensure that the silos are in good condition for maize storage thereby reduce the cost of transporting maize to areas affected by natural disasters.
- Rehabilitate warehouses at Limbe depot. This will ensure that there is increased capacity for grain storage as well as reduce logistics costs involved in purchasing maize from suppliers.

6.1.10 Irrigation Development

The Government will intensify production of dry season crop under conventional irrigation and residual moisture so as to reduce negative effects of prolonged dry spells. To achieve this, Government will in the long run implement the following activities under the irrigation:

i) Develop new irrigation schemes using energy efficient technologies, especially energy from solar and wind power; and

ii) Promote sustainable irrigation management which focuses on the rehabilitation of both new and existing irrigation schemes to ensure that land and water resources are efficiently and sustainably utilized.

6.1.11 Improving Access to Farm Inputs through Subsidies

As a landlocked country, the cost of imports in Malawi is high emanating from high transport cost. Evidence show that 56%[11] of import value is from transportation only. Although there are opportunities to do trade within the region, imports of food crops especially maize within the region in bad seasons is challenging because of similarities in agro-ecological zones across the border. Apart from general food imports, in Malawi maize is a staple crop that is held synonymous with food security. Considering that maize is also a staple food within the region, when the country production levels are low from weather related shocks, it is difficult to source maize within the region. For example in the 2004/2005 season, the country was affected by drought coupled with challenges of importing the maize; this resulted in severe food insecurity. Thus, government made a policy decision to introduce Farm Input Subsidy Program in 2005/2006. The objective is to achieve food self-sufficiency and increased income of resource poor households through increased maize and legume production.

With the introduction of FISP, the country has been producing enough maize with surplus production. Figure 2 below shows total metric tons (MT) produced since FISP started against national requirement.

[11] Sourced from a study by Simon Roberts who quoted Ministry of Transport and Public Works

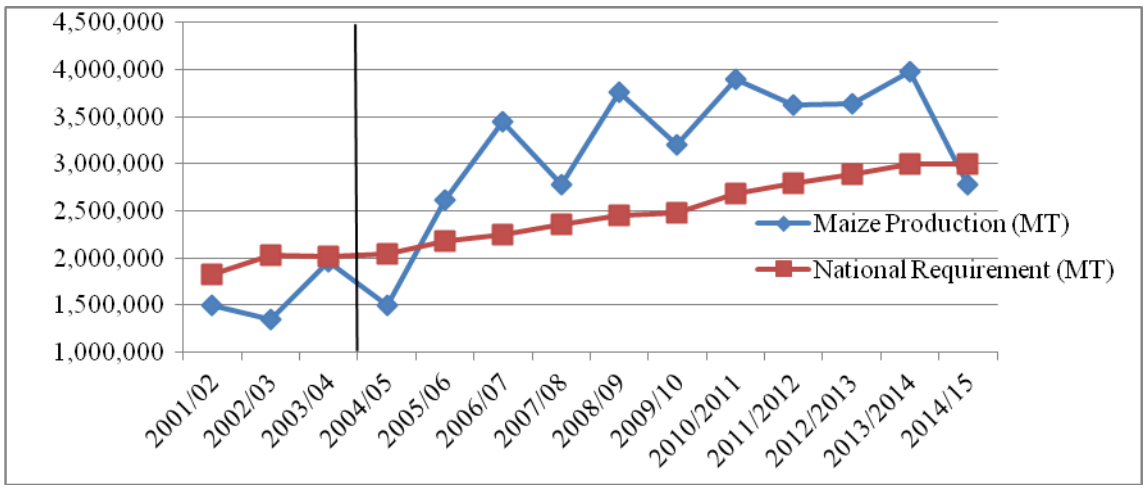

Figure 2: Total maize production against national requirement

Furthermore, the introduction of FISP resulted in low maize prices on the market; no more maize importation, i.e. Malawi was food self-sufficient and able to meet demands from maize agro-based industries; positive economic growth since 2007 of more than 5%; increased wage rate for rural households; and increased livestock production, an indicator that farmers were not selling most of their livestock as a coping strategy to perpetual hunger and food insecurity.

Despite achieving food self-sufficiency, with increased population and climate change effects, surplus maize production has been reducing over the years. In 2014/2015, the country experienced a maize deficit of 223,723 MT and a deficit of 768,687 MT in the 2015/16 agricultural season. Furthermore, implementation of FISP is costly with so many inefficiencies in targeting, farmer contribution and distribution of inputs. On average, 70 percent of agriculture budget is on FISP, hence limiting resource allocation to other key development programs. Therefore, in the medium to long term, Government will continue to implement FISP with reforms that improve efficiency and effectiveness of the program. Among others, the reforms will include a reduction of the Government budget on FISP to be reallocated to other resilience enhancing programs and allow the procurement, distribution and retailing of subsidized farm inputs (fertilizer and seeds) to be done by the private sector.

6.1.12 Create Special Grain Export Processing Zone Facility

Although Malawi has been achieving significant food self-sufficiency in some years, surplus production has been low to suffice local consumption through to

the next season. For example, in 2007/08 production season, surplus production was only 424,642 MT, while there was food deficit in 2014/2015 production season. Thus, government has often made a policy decision to ban exports so as to regulate the supply of maize. These bans are made to ensure maize produce suffice local consumption through local markets considering the investment government makes in FISP.

Therefore, in the medium term, government will continue to institute policies that are consistent and coherent on food security, food safety and trade, including export bans and licensing, pricing and import tariffs. The policies will be evidence-based through dialogue using existing structures and stakeholder forums. In order to promote further commercialization, in the long term, government will create Special Grain Export Processing Zone facility to offer large-scale commercial grain producers license to export large volumes of grain produced in the zone, including maize (processed and unprocessed).

6.1.13 Fisheries and Aquaculture

Climate change may affect fisheries and aquaculture directly by influencing the abundance and distribution of fish stocks and the global supply of fish for consumption, or indirectly by influencing fish prices or the cost of goods and services required by fishers and fish farmers. Changes in sea surface temperature can produce more frequent harmful algal blooms, less dissolved oxygen, increased incidence of disease and parasites, altered local ecosystems with changes in competitors, predators and invasive species, and changes in plankton composition. For aquaculture, changes can be expected in infrastructure and operating costs from increased infestations of fouling organisms, pests, nuisance species and/or predators. For capture fisheries, there are likely to be impacts on the abundance and species composition of fish stocks. There is, therefore, an urgent need to better understand where climate change is most likely to reduce livelihood options for fishers and where there is the greatest need to invest in alternative rural and urban enterprises.

Fish provides an important source of cash income for many poor households and is a widely traded food commodity. In addition to stimulating local market economies, fish can be an important source of foreign exchange. Fishing is frequently integral to mixed livelihood strategies, in which people take

advantage of seasonal stock availability or resort to fishing when other forms of food production and income generation fall short.

Fisheries and aquaculture also play an important role in food and nutrition security in disasters that affect communities where fishers and fish farmers are an important part of the community. Firstly, this is because such communities are likely to have fish and fisheries products as an important part of their pre-disaster diet and will, therefore, depend upon them in post-disaster situations. Second, fish and fisheries products have high levels of nutrients and essential oils, which can be particularly important to people in a post-disaster situation – especially young children, the elderly, pregnant women and HIV/AIDS affected people. Third, the fisheries sector is one where fish harvests can be resumed fairly quickly, thereby enhancing local food supplies at a time when food may be in limited supply. Fourth, preserved and locally stored fish can be a readily available source of food and nutrition immediately after a disaster.

As one way of adapting and improving resilience to climate change, the Government of Malawi has proposed using water harvesting technologies such as dams and dykes to combat and control floods and droughts. These proposed technologies, i.e. dams and reservoirs have the potential to contribute to food and nutrition security through fish production by using suitable fish production methods.

It is for reasons stated above that the following aquaculture strategies are proposed in order to break the cycle of food insecurity:

i. Support production of fingerlings in government farms;
ii. Support small-scale fingerling production;
iii. Stocking fish in existing small water bodies; and
iv. Promote integrated aquaculture agriculture to produce food.

6.2 Catchment Protection and Management

Food security has four elements, namely availability, accessibility, utilization and stabilization. Catchment contributes to the elements in different ways. The catchment ensures food availability through direct provision of goods (foodstuffs) such as mushrooms, fruits, game; provision of ecosystem services that are directly related to food production; water for food production, pollination, climate regulation (control and regulation of the hydrological cycle) and flood control – shields plants and/or crops. On access, catchments play a

critical role in food security through earnings from ecosystem goods and services. Examples of goods from the catchment include medicine, mushroom, honey, fibre and services include water, flood control. Catchment in this context is referred as areas covering forests, rivers, uplands and *dambos* or wetlands.

Malawi's catchments are, however, under threat which is contributing to perpetual episodes of food insecurity due to deforestation and environmental degradation. Despite the known benefits of forests, forest cover has been declining sharply over the years from about 45% of the land area in 1972 to about 28% currently (Forest Policy Review 2014). This forest cover is made up of national parks, game and wildlife reserves (9%), forest reserves and protected hillslopes (7%) and the remaining 12% being natural woodland on customary land. The leading causes of deforestation include expansion of agricultural activities into catchment areas and infrastructure development (settlements, schools and roads, amongst others). Deforestation also results in loss of genetic diversity. Most of the causes of forest degradation in Malawi is due to charcoal production, firewood, uncontrolled forest fires and unsustainable logging. In addition, catchment destruction is also exacerbated by inadequate soil protection and irrigation methods, overuse of mineral fertilizer and pollution of ground water sources.

In order to break the cycle of food insecurity in the country, there is an urgent need to restore and sustain the dwindling catchments. Some of the high impact strategies to address the problem include curbing deforestation and forest degradation. In this plan, the following strategies will be implemented:

i. Increase forest cover;
ii. Promote management systems and technologies that protect fragile land (river banks, *dambo* areas, steep slopes and hilly areas and water catchment areas);
iii. Integrate environmental management/resilience building standards in infrastructure development;
iv. Promote sustainable charcoal production;
v. Promote fire management programs; and
vi. Strengthening communication, education and public awareness.

6.3 Flood Control by Construction of Dykes, Dams and River Training

Floods contribute to food insecurity by reducing crop production through damage to crops in the fields, damage to crops in people's homes and

damage to irrigation infrastructure, amongst others. There is, therefore, need to put in place measures to control floods to address the problem of food insecurity in the country. Construction of dams, dykes and river training are some of the measures that will be implemented to control floods.

6.3.1 Reopening of Old Ruo River Channel

The January, 2015 floods caused Ruo River to change its course at Osiyana Village in Nsanje District. This resulted in cutting off of Makhanga area in Nsanje District due to the effects of the newly developed Ruo River channel on the Fatima to Makhanga road. Besides, the floods also washed away farm lands and houses, destroyed the railway line from Thyolo to Nsanje Districts, and a primary school. It is believed that if the Ruo River is not redirected to its old channel, the occurrences of these negative impacts will continue to happen including depriving communities in the area the opportunity to produce adequate food for sustenance.

In this regard, the Malawi Government intends to reopen the Old Ruo river channel through river training as a way to mitigate the negative impacts of floods. It is anticipated that by doing this will contribute to ensuring food security amongst communities in the area who have abandoned most of their gardens due to heavy siltation as a result of the change of course of the river.

6.3.2 Rehabilitation of Flood Protection Structures

Most flood prone areas in Malawi have been in past years earmarked to have flood protection structures through construction of small earth multipurpose dams and dykes. However, most of the structures have been rendered non-functional due to lack of structural integrity caused by lack of maintenance. In this view, government intends to rehabilitate the flood protection structures using building back better approach.

Under the Malawi Floods Emergency Recovery Project (MFERP), which is addressing the negative impacts of the January, 2015 floods, government intends to rehabilitate 17 structures as one way of improving the effectiveness of these structures to control floods. These will be done in the following districts: Salima (1 dyke), Nsanje (2 dykes), Phalombe (4 dykes), Ntcheu (1 earth dam), Karonga (2 dykes), Mulanje (1 dyke and 1 masonry retaining wall), Chikwawa (2 dykes), Machinga (1 dyke), and Rumphi (1 earth dam and 1 dyke).

By rehabilitating these structures, it is believed that people living in flood prone areas will be protected from the adverse impacts of floods. This intervention is planned to be implemented in the short to medium term.

6.3.3 Water Retention Structure Programme

It is obvious that the climate of Malawi is changing as evidenced by the shift in the onset of rainfall season as well as change in rainfall pattern and distribution. This has resulted in having the same annual amount of rainfall but with temporal and spatial variations as compared to previous years. Furthermore, with the occurrences of the La Nina and El Nino phenomena, it has caused most areas to experience floods and others prolonged dry spells. This has also resulted in having unstable and unreliable water balance, especially if population is factored into the climate change paradigm.

In this regard, the Government of Malawi started the Water Retention Structure Programme with the objective of retaining water from rainfall for use during the dry season. The structures earmarked for this activity are small to medium sized multipurpose earth dams (for water supply, irrigation, domestic use and fish farming) and excavated tanks (for irrigation usage). At least 31 structures are earmarked for construction in different districts in the next 5 years. These districts are as follows: Chiladzulu (1 dam), Nsanje (1 dam), Phalombe (1 dam), Nkhotakota (2 dams), Thyolo (2 dams), Rumphi (1 dam and 8 tanks), Mulanje (1 dam), Mwanza (1 dam), Chitipa (1 dam), Mchinji (1 dam and 4 excavated tanks), Ntchisi (1 dam), Nkhatabay (2 dams), and Lilongwe (4 tanks). It is anticipated that this activity will minimise the negative impacts of droughts and floods and contribute to food security by making available water for irrigation. It is envisaged that this activity will be undertaken in the medium to long term.

6.3.4 Flood Risk Management

Floods are one of the disasters that have cost lives, damaged properties, crops and infrastructure for a long period in Malawi. This has been the case due to lack of proper flood protection infrastructure, poor catchment management and lack of efficient early warning systems. In this regard, government intends to implement flood risk management interventions that will be based on the concept of integrated water resources management. This concept uses a participatory approach. This means views of different stakeholders regarding flood risk management will be incorporated in identifying, prioritizing and implementing activities that will assist in mitigating the negative flood impact at

community. Communities will be sensitized on the various flood mitigation measures for them to make informed decisions.

The interventions that are normally undertaken are Community Based Flood Early Warning Systems (CBFEWS) and construction of dykes and dams. Currently this activity is being done under Shire River Basin Management Project in Nsanje and Chikwawa Districts. However, it is planned to scale it up to other districts. The intention is to at least target each type of the interventions to be implemented in a district, i.e. 1 dam, 1 dyke, 1 community based flood early warning systems and artificial water channels, where necessary.

In this regard, 15 districts have been ear marked for implementation of at least 45 interventions (3 per district) under this activity. These districts are Chikwawa, Nsanje, Phalombe, Zomba, Blantyre, Chiradzulu, Thyolo, Mulanje, Balaka, Machinga, Mangochi, Ntcheu, Salima, Rumphi and Karonga. It is anticipated that this activity will be undertaken in the medium to long term.

6.3.5 Rain water harvesting structures

Rainwater harvesting continues to play a key role in contributing to the achievement of national as well as household food and water security in Malawi. The Malawi Government prioritizes rainwater harvesting technology because of its potential to insure against total crop failure in the event of droughts and dry spells. With the increasing evidence of climate change, investing in rainwater harvesting has become a necessity.

In reference to on 2016 Drought PDNA, small earth dams in all the districts in the southern and central Malawi have been mildly damaged. In the northern region, dams in Rumphi and Mzimba have been affected. In line with its general purpose of achieving sustainable and integrated water resources management and development, the Water Resources Department has proposed the following recovery strategies:

- Construction of 50 small earth dams and 50 excavated tanks;
- Rehabilitation of 35 mildly damaged dams;
- Campaigns for prioritization of critical water uses in 7 affected rivers;
- Adaptive watershed management and restoration programme;

- Setting up a drought monitoring system (Low flow monitoring in affected rivers); and
- Promote water harvesting at household level.

6.4 Enhance Early Warning Systems

The following strategies will be implemented to enhance early warning systems in the country:

6.4.1 Rehabilitation of Hydrological Stations with Automated Equipment

This activity seeks to rehabilitate and upgrade hydrological stations in Malawi from manual to automated systems. The automated systems will be able to collect river flow data and send using GSM communications to Tikwere House or data can be downloaded on site. A Global Environmental Facility (GEF) Early Warning Project is targeting this activity in seven districts[12] of the country. Through funding from the Green Climate Fund, the project will be up-scaled to other districts in Malawi.

6.4.2 Operation Decision Support System

The operation decision support system seeks to improve the hydrological and meteorological systems in Malawi with regard to flood forecasting and modeling. It is targeting districts in the Shire River Basin but will be extended to other disaster prone districts. It is believed that this activity will assist in issuing timely flood warnings to communities in the basin. This will contribute to reducing the impact of floods and assist in breaking the cycle of food insecurity in the country.

6.4.3 Upgrading of Hydromet Stations

This activity seeks to upgrade surface and ground water monitoring stations to assist in monitoring available water resources in the country. Alongside this, it will assist in improving the early warning systems of floods through understanding of rising water levels and flows in rivers and ground water.

6.5 Social Support Programmes

Social support in Malawi is firmly anchored in the county's medium term development framework, MGDS II, and is guided by the National Social Support Policy (NSSP) and the Malawi National Social Support Programme (MNSSP). The

[12] These are Phalombe, Dedza, Kasungu, Lilongwe, Salima, Nkhotakota, Karonga and Nkhata Bay

MNSSP is a set of social protection interventions coupled with a programming approach that emphasizes strategic linkages, coordination and harmonization with the aim of improving the socio-economic status of the poor and vulnerable. It was designed to provide a reference point for all stakeholders in the design, implementation and evaluation of cost-effective, predictable and sustainable social support interventions.

The MNSSP includes five priority areas namely Social Cash Transfers (SCT), Microfinance, Public Works, School Meals and Village Savings and Loans (VSL). The programmes were selected for their high poverty impact. Harmonization of the individual programmes would ensure that they fit into a coherent package of poverty interventions.

The end of the MNSSP provides an opportunity to reflect on the programme design as well as implementation to assess whether the assumptions made at inception still hold true and evaluate how execution of the programme has contributed towards the programme objectives. To this end, a thorough review of the MNSSP will be conducted. A successor programme to the MNSSP shall be developed, informed by the outcome of the review and shaped by the new medium term National Development Plan and the Sustainable Development Goals. The redesign of the MNSSP will also evaluate and explore how far synergies between the NSSP, the humanitarian response and disaster risk management could be exploited to mitigate the recurrent vulnerability of Malawians to the effects of climate change and natural disasters which result in perennial food insecurity. The following points reflect the current thinking around the NSSP:

6.5.1 Social Support Fund

A common and coordinated funding mechanism for social protection would enable a more harmonized implementation of the various instruments. The concept is called the Social Support Fund. The MNSSP will eventually be successful once the fund is established which directly transfers funds to councils for execution of the programmes. All development partners should then use this fund for effective programme delivery and increased impact. Synergies have to be built within the MNSSP and with other programmes for a greater impact. These linkages will be developed in 2016.

6.5.2 Unified Beneficiary Registry

Having a common database which all programmes could use to identify their beneficiaries would help in harmonizing programmes at national level, better targeting of intended households, and also enable efforts towards graduating households from ultra-poverty. The development of such a database, called the Unified Beneficiary Registry, is currently underway with support from various partners and is expected to be completed in the course of 2016.

6.5.3 Best Practice Guidelines

To enhance streamlining of approaches taken within the various instruments, the Ministry of Finance, Economic Planning and Development initiated discussions in the technical working groups of public works, school meals, VSL and microfinance to develop best practice guidelines for the implementation of the various programmes, which would serve implementers as a basis and common approach. The many implementation challenges, disagreements and other issues will be reduced once the guidelines have been agreed by stakeholders. A draft best practice guideline for VSL has already been developed and is currently being finalized. Work on the other guidelines is ongoing.

6.5.4 Promote Electronic payment on Social Cash Transfers

This is one of the interventions that government, with support from partners, is piloting in Mchinji, Balaka and Machinga. This will support strengthening of cash delivery in a secure, transparent and accountable manner. The EU Commission to Malawi provided Euro 3 million towards the e-Payment pilot which is expected to wind up in March, 2017. The Irish Government is also supporting a fully-fledged e-payment system in Balaka.

6.5.5 Economic Empowerment and Graduation

This programme is targeting social cash transfer beneficiaries. A pilot is currently underway in Mwanza exploring whether the combination of one-off business lump sums plus provision of business skills can enable SCT beneficiaries to develop new income sources, hence enhancing graduation out of poverty. The pilot is jointly being implemented by the Ministry of Gender, Children, Disability and Social Welfare (MGCDSW), COMSIP and Mwanza District Council, with support from German Cooperation/GIZ.

6.5.6 Public Works Programme

Public Works Programmme (PWP) is proving to be an effective instrument in reducing poverty among vulnerable and poor households across the country. PWP provides the poor and the vulnerable with a source of income when they need it the most, through creation of temporary employment and in so doing smoothen consumption at the household level. Further, PWP is designed to create beneficial community assets such as social infrastructure, various natural resources management and promotes agricultural productivity for the benefit of the entire community. The assets have opened access to markets, health facilities, and other social service centres, reduced deforestation, and dams have provided water reservoirs for fish farming and small scale irrigation. Under the current MASAF IV guidelines, focus is on watershed and catchment management and most of the programme's sub-projects are spread across afforestation, gully reclamation and river bank management, among other land resource management projects. To bolster resilience of the benefiting households and to ensure noticeable programme impact, MASAF IV follows repeater beneficiary guidelines where beneficiaries are targeted repeatedly for a period of up to 3 years.

Essentially, through PWP, Government:

- Reaches out to almost 15% of the country's poor and vulnerable households with labour through a provision of short-term employment, 3 cycles a year for a period of 3 years (each cycle varies between 12 – 24 days); and
- Through the MASAF IV, focus is on watershed and catchment management approaches where efforts are put on managing and conserving the country's natural resources and environment as the beneficiaries get money for their everyday basic needs. This is expected to have positive long term impacts on the country's environment and help to reduce the impacts of disasters.

6.5.7 Village Savings and Loans

Savings and Loans associations have become the strongest and reliable institutions that are providing financial services to majority of rural and peri-urban communities. VSL programmes have helped most of the communities to change their mindset and develop a saving culture particularly in remote areas. Improved access to small loans has in turn helped rural marginalized communities to start small businesses and improve their livelihood. Improved

food security and nutrition has been reported amongst VSL members through savings and profits earned from small income generating activities. Increased asset base at household level for rural poor communities through VSLs have also helped cushion them in times of need and emergencies.

6.5.8 School Meals Programme

The School Meals Programme (SMP) has become an instrumental crosscutting tool which fit in the development agenda. School meals programmes in Malawi were introduced as a pilot in 1999 by World Food Programme (WFP), with the objective of keeping children in school by addressing short term hunger. Over the years, a variety of models have emerged with the primary objective of increasing enrolment and retention and decreasing dropout rates. Promotion of SMP is premised on its contribution to education outcomes and the nutritional status of learners and has economic multiplier effects to the community at large.

6.5.9 Community Resilience, Livelihood and Nutrition

Community resilience, livelihood and nutrition is one of the comprehensive interventions that the MGCDSW champions. Besides the MNSSP priority areas, it is necessary to empower the community with skills in resilience, livelihood and nutrition. The core component of the community resilience, livelihood and nutrition is the home management and nutrition programme.

Some of the critical elements of home management and nutrition programme are as follows:

- foods locally available in Malawi and their nutritive value;
- nutrients and their functions;
- food processing, preservation and storage;
- food security and nutrition in Malawi;
- nutrition throughout the life cycle;
- assessment of nutritional status in the community;
- nutritional customs, beliefs and habits;
- meal management;
- mobilising communities towards community nutrition;
- kitchen garden;
- food safety;
- alternative sources of energy in the home;
- accessing high nutritive food value;
- child care and development;

- sexual and reproductive health;
- health, hygiene and sanitation promotion;
- management and utilization of family and community resources;
- psychosocial support and referral mechanism;
- emergency preparedness and response;
- mainstreaming cross cutting issues into home management and nutrition (gender, humanitarian response, climate change); and
- organising home management, nutrition education and demonstration.

The programme is designed to provide coping mechanism to households in time of threats, disasters and to manage the situation encountered.

The 2016 Drought PDNA report reveals the impact drought on human and social economic status of the affected. Increased vulnerability to food insecurity is because of decline in personal/household living conditions. Some of the impacts are breakdown of family unit and community support systems - men abandoning their households, leaving women as sole providers; increase vulnerability for women and girls to gender based and domestic violence; increased dropout and irregular attendance in schools due to pressure on children to contribute to family income. These impacts have contributed and forced women and girls to engage in commercial and transaction sex in exchange for food; parents marrying them off early; alternative livelihoods-migration, casual wage labour, charcoal burning, firewood collection, sand mining, particularly for men; reliance on food rationing and change in meal composition/frequency by families and communities as coping mechanisms (PDNA Report, 2016).

7.0 COORDINATION AND IMPLEMENTATION ARRANGEMENTS

Implementation of strategies of the Plan will be done by various line ministries, departments and agencies (MDAs). Efforts will be made to ensure synergy between the Plan and existing sectoral plans. Sector Working Groups for these components will meet regularly in order to check on the interventions being implemented. High level policy guidance will be provided by existing committees such as the National Disaster Preparedness and Relief Committee. The Office of the Vice President, through the Department of Disaster Management Affairs, will be the overall coordinator of the implementation of the Plan. Annex 1 contains a detailed Implementation Plan.

8.0 MONITORING AND EVALUATION

Monitoring implementation of the Plan will primarily be done by Monitoring and Evaluation Officers existing in Planning Units of the respective MDAs. Periodic monitoring will be done by the Department of Disaster Management Affairs and Department of Economic Planning and Development. Annex 2 contains a detailed Monitoring and Evaluation Plan.

9.0 BUDGET

The National Resilience Plan is a five (5) year plan. However, budgeting will be done annually. This section presents the budget for 2016/17 financial year as indicated in Annex 3. Table 2 below summarizes allocations per intervention. Some interventions are already budgeted for in 2016/17 either wholly or partially by the government or through projects, programmes and/or NGOs. For 2016/17, the resource requirement is **MK120, 017,375,115.10.** Of this budget, **MK13, 363,760,172.98** is already available leaving a gap of **MK106, 653,614,942.12.** The resource gap **(MK106, 653,614,942.12)** indicates the resources that are needed to undertake the interventions if results are to be realized in totality.

Table 2: Summary of Budget Allocation per Intervention

YEAR ONE BUDGET			
Intervention	**Calculated Amount (MK)**	**Allocation (MK) in 2016/17**	**Resource Gap (MK)**
Promote Large Scale Irrigation Development through the Green Belt Initiative	39,027,097,818.00	468,497,818.00	38,558,600,000.00
Diversification of Agricultural Production	6,073,409,915.00	1,042,327,900.00	5,031,082,015.00
Promote Climate Smart Agriculture Programme	812,780,000.00	496,181,349.98	316,598,650.02
Strategic Grain Reserves	10,122,430,000.00	-	10,122,430,000.00
Irrigation Development	13,612,810,000.00	-	13,612,810,000.00

Minimise fish post harvest loss and promote value addition in fish and fisheries related products	180,095,000.00	-	180,095,000.00
Intervention: Increase Forest Cover	26,440,680,000.00	9,583,008,000.00	16,857,672,000.00
Construct dykes, dams and river training	5,033,025,000.00	-	5,033,025,000.00
Rehabilitation of flood protection structures, e.g. dams, dykes	11,457,577,853.00	1,510,370,000.00	9,947,207,853.00
Early warning Systems	101,000,000.00	-	101,000,000.00
Improve coordination and implementation of social support programmes	7,094,825,827.00	263,375,105.00	6,831,450,722.00
Social Support- Community Resilience, Livelihood and nutrition	61,643,702.10	-	61,643,702.10
TOTAL BUDGET FOR YEAR ONE	**120,017,375,115.10**	**13,363,760,172.98**	**106,653,614,942.12**

ANNEX 1: IMPLEMENTATION PLAN

Component:Agriculture and Food Security					
Program/Strategy	**Activity**	**Start Date(Year and Month)**	**End Date (Year and Month)**	**Responsibility (MDAs and/or positions)**	**Risks**
Promote Large Scale Irrigation Development through the Green Belt Initiative	Improve institutional capacity	July, 2016	June, 2018	GBI/MoAIWD	High staff turnover
	Lobby for increased resource allocation	Dec, 2016	June, 2017	GBI/MoAIWD	Unfavorable macro-economic environment
	Establish Green Belt Public Trust	July, 2016	June, 2017	GBI/MoAIWD	
	Operationalise GBI Holdings Limited Company	July, 2016	June, 2017	GBI/MoAIWD	
	Establish Green Belt Irrigation Authority	July, 2016	June, 2018	GBI/MoAIWD	Parliament delay/ failure to pass enabling legislation
	Promote Public Private Partnerships	July, 2016	June, 2021	GBI/MoAIWD	Private sector not willing to participate
	Acquire land for irrigation development	July, 2016	June, 2019	GBI/MoAIWD	Land tenure issues
	Create public private partnerships through creation of joint ventures and land management contracts	Dec, 2016	June, 2021	GBI/MoAIWD	Non-committed and exploitative partners
	Develop bulk water system and energy conveyance infrastructure	July, 2017	June, 2018	GBI/MoAIWD	High inflation rate
	Develop Irrigation schemes under PPP arrangements	July, 2017	June, 2018	GBI/MoAIWD	Lack of willingness to participate
	Develop irrigation schemes	July, 2016	July, 2021	GBI/MoAIWD	Floods
	Acquire land for irrigation development	July,2016	July, 2019	GBI/MoAIWD	Land tenure issues
	Undertake irrigation designs and environmental and social impact studies	July, 2016	July, 2019	GBI/MoAIWD	
	Construct irrigation schemes	July, 2017	June, 2021	GBI/MoAIWD	High inflation rate

	Crop production and scheme management	July, 2016	June, 2021	GBI/MoAIWD	
Diversification of Agricultural Production	Intensify the dissemination of technologies and practices on crop, livestock and fish that withstand adverse weather conditions	July,2016	June, 2018	MoAIWD - Department of Agriculture Extension Services (DAES)	Lack of farmer willingness
	Promote production and utilization of diverse nutritious foods	July, 2016	June, 2018	MoAIWD - Department of Agriculture Extension Services (DAES)	Adverse weather conditions
	Enhance livestock breeding programs especially for small stocks	July, 2016	June, 2021	MoAIWD - Department of Animal Health and Livestock Development	
	Enhance animal disease control programs	July, 2016	June, 2021	MoAIWD - Department of Animal Health and Livestock Development	
	Promote small scale agro-processing	July, 2016	June,2021	MoAIWD	Macro-economic instability
	Promote integration of smallholder farmers into agriculture value chains	July, 2016	June, 2018	MoAIWD- Department of Agriculture Extension Services (DAES)	Limited willingness of farmers to participate
	Fast track establishment of the agriculture cooperative bank	July, 2016	June, 2021	MoFEDP/ MoAIWD	High credit default rates

	Promote agricultural research in the development of varieties for selected crops as well as livestock and fish breeds	July, 2016	June, 2021	MoAIWD-Department of Agricultural Research Services	
	Develop a robust seed and market system for selected crops that can be grown in the country	Aug, 2016	June, 2021	MoAIWD - Department of Crop Development	
Promote Climate Smart Agriculture Programme	Promotion of manure making and use to maintain or improve soil health	July, 2016	June, 2021	MoAIWD-Department of Land Resources and Conservation	Drought, willingness of farmers to participate
	Promotion of agro-forestry technologies among farmers	July, 2017	July, 2021	MoAIWD-Department of Land Resources and Conservation	Drought, willingness of farmers to participate
	Promotion of Conservation Agriculture, that is promoting all three components of CA namely (i) zero/minimum tillage; (ii) maximum ground cover; and (iii) crop rotation or association of cereal and legume crops	July, 2018	Aug, 2021	MoAIWD-Department of Land Resources and Conservation	Unwillingness of farmers to adopt technologies
	Promotion of in-situ rainwater harvesting technologies likes swales and planting pits	July, 2019	Sep, 2021	MoAIWD-Department of Land Resources and Conservation	
Strategic Grain Reserve Management	Rehabilitate 34 concrete silos at Kanengo silos complex	July, 2016	June, 2017	National Food Reserve Agency	
	Rehabilitate 15 metallic maize storage silos	July, 2016	June, 2017	National Food Reserve Agency	
	Rehabilitate 5 warehouses at Limbe depot	July, 2016	June, 2017	National Food Reserve Agency	
	Irrigation Development				

Irrigation Development	Consolidate existing pipeline of schemes within Irrigation Master Plan (IMP) framework	July, 2016	June, 2020	DoI	
	Feasibility studies	July, 2016	June, 2020	DoI	
	System design	July, 2016	June, 2020	DoI	
	Tendering and contracting for scheme construction	July,2016	June, 2020	DoI	Unpredictable macroeconomic environment resulting escalation of construction costs
	Scheme construction	July, 2016	June, 2020	DoI	Land tenure issues, High soil erosion rates and siltation of storage and distribution structures, Wash away by floods
	Rehabilitate irrigation schemes	July, 2016	June, 2020	DoI	Vandalism of infrastructure, Flood wash away
	Catchment management	July, 2016	June, 2020	DoI	Low farmer willingness and cooperation to participate in catchment management
Improving access to farm inputs through subsidies	Farm Input Subsidy Reforms	July, 2016	June, 2020	MoAIWD- FISP Coordination Unit	Unguaranteed political Will
Create special grain export processing zone facility	Develop a legislative framework for creation of special grain export processing zone	Dec, 2016	Dec, 2018	MoAIWD - Department of Agricultural Planning Services	System delays
Fisheries and Aquaculture					

Promote production and supply of quality fish seed (fingerlings) to improve and sustain fish production - medium term	Support production of fingerlings in Government Farms			MoAIWD-Fisheries Department	Severe weather conditions (Floods & Droughts), Theft, Negative change in Political will
	Identify potential Government fingerling production farms	Dec, 2016	Feb, 2017	MoAIWD-Fisheries Department	
	Undertake maintenance work on identified Government Fish farms	March, 2017	Aug, 2017	MoAIWD-Fisheries Department	
	Collect brood stock (Parent fish) from wild	Sep, 2017	Jan, 2018	MoAIWD-Fisheries Department	
	Support fish seed hatchery operations	Jan, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	Produce fingerlings from Government farms	Jan, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	Support- small-scale fingerling production			MoAIWD-Fisheries Department	Severe weather conditions (Floods & Droughts), Theft, Change in Political will
	Identify potential small holder fingerling production farmers for Catfish and Tilapia	Dec, 2016	Feb, 2017	MoAIWD-Fisheries Department	
	Train fish farmers in fish multiplication techniques	March, 2017	May, 2017	MoAIWD-Fisheries Department	
	Support maintenance works of ponds for identified fish multiplication farmers	May, 2017	Oct, 2017	MoAIWD-Fisheries Department	
	Supply Catfish and Tilapia brood stock to identified farmers	Sep, 2017	Jan, 2018	MoAIWD-Fisheries Department	
	Support identified farmers in fish seed hatchery operations	Jan, 2018	Dec, 2018	MoAIWD-Fisheries Department	
	Produce Tilapia & Catfish fingerlings from selected farmers	Jan, 2018	Jan, 2021	MoAIWD-Fisheries Department	

	Promote and strengthen linkage between fingerling producers and fish out growers	Jan, 2018	Feb, 2018	MoAIWD-Fisheries Department	
2. Promote Integrated Aquaculture Agriculture (IAA) to maximise agricultural productivity - short term	Introduce farmers to the concept of Integrated Aquaculture Agriculture				Severe weather conditions (Floods & Droughts), Theft, Change in Political will, Conflicts among water users
	Identify potential farmers for Promotion of Integrated Aquaculture Agriculture	Dec, 2016	Feb, 2017	MoAIWD-Fisheries Department	
	Train identified farmers in principles of Integrated Aquaculture Agriculture including integration of livestock, Poultry, Horticulture and Rice with fish farming systems	Feb,2017	April, 2017	MoAIWD-Fisheries Department	
	Train identified farmers in water harvesting and conservation technologies for Agricultural and domestic uses	Feb, 2017	April, 2017	MoAIWD-Fisheries Department	
	Conduct on farm demonstration trials on integration of fish farming with Horticulture, Livestock & Poultry	April, 2017	April, 2019	MoAIWD-Fisheries Department	
	Conduct on farm demonstration trials on integration of fish farming with rice	April, 2017	April, 2019	MoAIWD-Fisheries Department	
	Conduct open days to demonstrate Integrated Aquaculture Agriculture technologies	May, 2019	May, 2021	MoAIWD-Fisheries Department	
3. Create and Develop fisheries in dams & small water bodies - long term	Promote Stocking of fish in existing small water bodies including dams to rebuild local fisheries			MoAIWD-Fisheries Department	Change in Political will, Theft, Severe weather conditions (Droughts & Floods), Non-compliance to management

					regulations
	Identify dams and small water bodies with potential for creation and rebuilding of local fisheries	Dec, 2016	Jan, 2021	MoAIWD-Fisheries Department	
	Conduct awareness campaigns in areas surrounding identified dams and small water bodies on their importance as potential sources of income, employment and food through creation and development of fisheries	July, 2017	June, 2021	MoAIWD-Fisheries Department	
	Facilitate formation of local fisheries management and conservation committees to oversee management of the fisheries	August, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	Train surrounding communities in basic fisheries management and conservation	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	In collaboration with local communities identify potential fish species to stock in selected dams or small water bodies	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	Procure fingerlings for desired fish species	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	In collaboration with local communities stock selected water bodies with recommended fish species	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	
	Develop local fisheries management plans through participatory approaches	Aug,2018	Jan, 2021	MoAIWD-Fisheries Department	
	Train surrounding communities in recommended fishing harvesting methods and fishing gears for the stocked fish species	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	

	Develop and implement a fisheries monitoring system for the new fisheries to monitor production and progress of development	Aug, 2018	Jan, 2021	MoAIWD-Fisheries Department	
Promote Fish farming in existing small water bodies including dams to boost fish production - long term	Introduce fish farming in Dams and small water bodies			MoAIWD-Fisheries Department	Severe weather conditions (Floods & Droughts), Theft, Change in Political will, Conflicts among water users, Deterioration in water quality
	Identify dams and small water bodies with potential for introduction of fish farming	Dec, 2016	Jan, 2021	MoAIWD-Fisheries Department	
	Conduct awareness campaigns in areas surrounding identified dams and small water bodies on their importance as potential sources of income, employment and food through introduction of fish farming	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	Identify potential fish farmers from surrounding community members	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	In collaboration with local communities identify potential fish species to farm in the selected dams or small water bodies	Jan, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	Train identified farmers in principles of fish farming with focus on potential fish production technologies for dams and small water bodies	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	Construct fish cages and accessories	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	Procure fish feed for stocked dams	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	

	Procure & stock fingerlings for desired fish species	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
	Conduct open days to demonstrate potential of cage fish farming in small water bodies - (synchronized with harvesting dates)	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	
Minimise fish post-harvest loss and promote value addition in fish and fisheries related products	Promote use of solar tent fish dryers in fish processing	July, 2017	Jan, 2021	MoAIWD-Fisheries Department	Theft, Severe weather (storms), Change in political will, Vandalism
	Train fishing communities in basic fish post-harvest loss management with focus on use of solar energy or sun drying	July, 2016	Dec, 2016	MoAIWD-Fisheries Department	
	Construct solar tent dryers	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Train fishing communities in use of solar tent dryers	March, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Train communities in business management and marketing	March, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Promote use of energy efficient smoking kilns to improve quality of smoked fish products and minimise wastage of fuel wood				Theft, Severe weather (storms), Change in political will, Vandalism
	Train fishing communities in basic fish post-harvest loss management with focus on fish smoking technologies	July, 2016	Dec, 2016	MoAIWD-Fisheries Department	
	Construct energy efficient fish smoking kilns	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Train fishing communities in use of energy efficient smoking kilns	March, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Develop value added products from sun dried and smoked fish products.				Theft, Change in political will, Under-

					developed market
	Identify potential fish species and products for value addition	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Identify suitable packaging materials for both smoked and sun dried fish products	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Assess fish quality and shelf life of developed fish products	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
	Identify and link fish processors to potential markets	Jan, 2017	Dec, 2017	MoAIWD-Fisheries Department	
Component: Catchment Protection and Management					
Increase forest cover	Tree planting and management	July 2016	June 2021	Department of Forestry	Drought, floods, uncontrolled fires, pests and disease outbreaks, human-induced destruction
	Conserve forests through natural regeneration	July 2016	June 2021	Department of Forestry	Drought, floods, uncontrolled fires, pests and disease outbreaks, human-induced destruction
	Promote fire management programs	July 2017	+--	Department of Forestry	Drought, floods, uncontrolled fires, pests and disease outbreaks, human-induced destruction
Promote management systems and technologies that protect fragile land (river banks, *dambo* areas, steep slopes and hilly areas and water	Establish and/or strengthen catchment management institutions at various planning levels (Macro, micro)	July 2016	June 2021	Water Resources Department	Poor governance
	Develop and implement catchment management plans at various levels (Macro, Micro)	July 2016	June 2021	Water Resources Department	Poor governance

catchment areas)	Develop and/or enforce catchment management legislation including bylaws	July 2016	June 2021	Department of Forestry	Poor governance
	Develop and operationalise mechanisms for Payment for Ecosystem Services	July 2016	June 2021	Department of Environmental Affairs	Low cooperation from investors
Integrate environmental management/resilience building standards in infrastructure development	Conduct Environmental Assessments for infrastructure developments	July 2016	June 2021	Department of Environmental Affairs	Low prioritisation of environmental considerations over other development matters
	Develop and implement land-use plans	July 2016	June 2021	Ministry of Lands, Housing and Urban Development	Low prioritisation of environmental considerations over other development matters
	Promote sustainable charcoal production	July 2016	June 2021	Department of Energy Affairs	Scarcity of fast growing biomass for charcoal making
					Low prioritisation of environmental considerations over other development matters
Promote alternative and efficient sources of energy	Propagate use of efficient cook stoves	July 2016	June 2021	Department of Energy Affairs	Low adoption; Inadequate quality control
	Incentivize the use of solar power, electricity and gas	July 2016	June 2021	Department of Energy Affairs	Prohibitive tariffs
Communication, Education and Public Awareness (CEPA)	Develop and disseminate catchment management awareness messages	July 2016	June 2021	Department of Environmental Affairs	Unwillingness of communities to practice catchment management

	Integrate catchment management messages in learning cycles and school curriculum	July 2016	June 2021	Department of Environmental Affairs	
	Conduct research and disseminate results on the catchments status in the country	July 2016	June 2021	Research Institutions	
Component: 4.0 Flood Control by Construction of Dykes, Dams and River Training					
Dykes, dams and river training	Reopening of old Ruo River channel	July, 2016	Oct, 2019		Late response from Mozambique government
	Diplomatic notification to Mozambique	July, 2016	Oct, 2016	DWR, Surveys Dept, Foreign Affairs	
	Joint technical meetings (Moz and Mw)	Nov, 2016	Dec, 2016	DWR, Surveys Dept, Foreign Affairs	
	Procurement of a design consultant	Feb, 2017	July, 2017	DWR	
	Review of designs	June, 2017	July, 2017	DWR	
	Procurement of a contractor	Aug, 2017	Dec, 2017	DWR, PIU	
	River training	July, 2018	July, 2019	DWR	
	Supervision	Aug-18	Aug, 2019	DWR	
	Decommissioning	Sept, 2019	Oct, 2019	Contractor	
	Rehabilitation of flood protection structures, e.g. dams, dykes				
	Procurement of a design consultant	May, 2016	Sept, 2016		
	Review of designs	Jan, 2017	Feb, 2017		
	Procurement of contractors	Feb, 2017	Apr, 2017		
	Construction of dykes	May, 2017	Dec, 2017		
	Supervision	May, 2017	Dec, 2017		
	Decommission	Jan, 2018	Feb, 2018		
	Construction of water retention structures (50 dams 50 excavated tanks)	Aug, 2016	July, 2019		Problems in land acquistion

	Pre assessment of targets sites	Aug, 2016	Oct, 2016	DWR	
	Procurement of design consultant for dams	Nov, 2016	Apr, 2017	DWR	
	Prepare designs for dams	May, 2017	Dec, 2017	DWR	
	Detailed assessments (topographical, hydrological and soil surveys) for excavated tank	Aug, 2016	Dec, 2016	DWR	
	Preparation of designs and BoQs for excavated tanks	Jan, 2017	March, 2017	DWR	
	Environmental screening	March, 2017	Apr, 2017	EAD	
	Procurement of contractors	June, 2017	Aug, 2017	DWR	
	Community sensitizations	Sept, 2017	Nov, 2017	DWR	
	Construction	Nov, 2017	Jan, 2018	DWR	
	Supervision	Dec, 2017	July, 2018	DWR	
	Commissioning	Dec, 2017	July, 2018	DWR	
	Setting up drought monitoring systems	Aug, 2018	Dec, 2018		
	Building and setting up an interactive monitor (Web based)	Oct, 2016	Oct, 2018	DWR	
	Implementation of flood risk management interventions e.g. dykes, small to medium sized multi-purpose dams, EWS	Oct, 2016	Oct, 2018	DWR	
	Procurement of a consultant for integrated flood risk interventions	June, 2016	Dec, 2021	DWR	
	Review of flood risk management interventions	June, 2016	Sept, 2016	DWR, DoDMA	
	Preparation of detailed designs	Oct, 2016	Nov, 2016	DWR	
	Procurement of contractors	Jan, 2017	June, 2017	DWR	
	Implementation	July, 2017	Sept, 2017	DWR	
	Supervision	Nov, 2017	Dec, 2019	DWR	
	Decommissioning	Dec, 2017	Jan, 2020	DWR	

	Rehabilitation of 35 mildly damaged dams	March, 2020	Apr, 2020		Limited experience of local contractors in dam construction
	Detailed assessment of 35 targeted dams	Aug, 2016	Nov, 2017	DWR	
	Preparation of designs and BoQs	Aug, 2016	Oct, 2016	DWR	
	Procurement of a contractor	Oct, 2016	Nov, 2016	DWR	
	Rehabilitation of dams	Nov, 2016	Jan, 2017	DWR	
	Supervision of construction	March, 2017	Nov, 2017	DWR	
	Decommissioning			DWR	
	Campaigns' for prioritization of critical water uses in 7 affected rivers	Oct, 2016	Oct, 2018		Lack of monitoring mechanism to check if the communities adhere to the messages
	Prepare and produce IEC materials	Oct, 2016	Jan, 2017	DWR	
Rainwater Harvesting	Conduct meeting at district level	Jan, 2017	March, 2017	DWR,	
	Conduct meeting at community level	Apr, 2017	Oct, 2018	DWR,	
	Production of weekly, monthly, seasonal and annual hydrological bulletins				
	Adaptive Watershed Management and Restoration Programme	Nov, 2016	Nov, 2019		Responsiveness of management plans by local community might not be positive
	Identification of hot spot areas	Nov, 2016	Jan, 2017	DWR, Agriculture, Ministry of Lands	
	Preparation of watershed management plans	March, 2017	Sept, 2017	DWR	
	Implementation of watershed management plans	Oct, 2017	Nov, 2019	DWR, District councils	

	Promote water harvesting at household and institutional level	Nov, 2016	March, 2017		People might not have capacity to buy tanks for water harvesting at household level
	Sensitization on RWH technologies	Nov, 2016	March, 2017	DWR, Local councils	
Component: Early Warning System					
Early Warning System	Procure and install automatic and conventional weather and hydrological stations	July,2016	June,2017	Department of Climate Change and Meteorological Services and Department of Water Resources	delayed funding; delayed procurement process
	Rehabilitate and upgrade weather and hydrological stations	July,2016	June,2017	DCCMS and DWR	high equipment cost
	Establish an operation decision support system for an effective early warning system	July,2016	June,2019	DCCMS and DWR	lack of office space; DCCMS and DWR staff in different cities
	Devise cost effective and innovative platforms of disseminating early warning information.	July,2016	June,2019	DCCMS	some communities may not be willing to act or use the disseminated information
	Establish community based early warning systems	July,2016	June,2019	DWR	some communities may not be willing to adopt
	Upgrade surface and ground water monitoring stations	July,2016	July,2017	DWR	no or delayed funding; increase in inflation rate
Component: Social Support Programmes					
Improve coordination and implementation of	Review the National Social Support Programme	May, 2016	July, 2017	DoEP&D	Political will

social support programmes	Establish the Social Support Fund	July, 2016	June,2018	DoEP&D	Political will, Donor fatigue
	Develop a unified beneficiary registry	2015	Dec,2016	DoEP&D	Willingness of various implementers
	Public works programme reoriented to watershed management	July,2015	June,2018	LDF	Community Participation
	Public works programme adopts repeater beneficiaries	July,2015	July,2018	LDF	Community Participation
	Reprogram the SM program to provide grants so that schools/ ECD centres buy food locally	Sep,2016	ongoing	MoEST/MoGCDSW	Willingness of DPs to provide support
	Use school feeding to teach communities climate smart agricultural practices through school gardens	Sep,2016	ongoing	MoEST/MoGCDSW	Availability of extension workers
	Promote use of school/ community woodlots to teach communities fuel efficient practices/technologies	Sep,2016	ongoing	MoEST/MoGCDSW	Availability of land
	Introducing e-payments and third party agencies to ensure timely and efficient payments to beneficiaries	2015	ongoing	MoGCDSW	unreliable service providers
	Link social cash transfers to watershed management public works programme	July,2016	ongoing	MoGCDSW/ DoEP&D	Donor Fatigue
Social Support-Community Resilience, Livelihood and nutrition	Scale up home management and nutrition programme.	July,2016	ongoing	MoGCDSW	Low Community Participation
	Integrate Home Management and Nutrition programme into VSL groups, mother groups and community club.	July,2016	ongoing	MoGCDSW	Inadequate willingness of the groups
	Strengthen protection clusters and GBV sub clusters at district and area levels.	July,2016	ongoing	MoGCDSW	Low community Participation
	Train community psychosocial support providers to provide PSS to drought affected communities	Aug,2016	ongoing	MoGCDSW	Limited availability of the trainers

	Scale up protection messaging on the rights of beneficiaries in accessing humanitarian food and cash	March,2016	ongoing	MoGCDSW	Low willingness of other stakeholders to provide support
	Strengthen reporting and referral mechanisms for abuse and exploitation by duty bearers including community mechanisms and contact information on referral focal point, including PSEA	April,2016	ongoing	MoGCDSW	Low willingness to report and make referrals

ANNEX 2: MONITORING AND EVALUATION FRAMEWORK

Component: Agriculture and Food Security									
Program/ Strategy	**Output**	**Output Indicator**	**2016 baseline**	**2017**	**2018**	**2019**	**2020**	**2021**	**Data Source**
				Target	***Target***	***Target***	***Target***	***Target***	
Promote large scale irrigation development through the Green Belt Initiative	GBI Public Trust/ Irrigation Authority established	No of Trust Deeds/Act		1	1				Reports
	Land for irrigation development acquired	Area of land acquired for irrigation development (ha)	6593	18593	33593				Reports
	Increased area under Irrigation	Area under irrigation -GBI (ha)	500	1500	2000	4000	5500	7000	Reports
		Area under under irrigation-PPP (ha)	300	5300	13300	18300	22300	26300	Reports
	Public Private Partnerships created and enhanced	No of PPPs established	2		3	4	5	6	Reports
	Water conveyance(Bulk water system) and energy conveyance infrastructure constructed	No of infrastructure	0		1				Reports
Diversification of Agricultural	Technologies and practices on crop, livestock and fish that	percentage of farm households reached with technologies	30%	60%	80%				Reports

Production	withstand adverse weather conditions disseminated	and practices							
		Percentage of farm households adopting technologies and practices	20%	30%	40%	50%			Reports
	Utilization of diverse nutritious foods promoted	Number of households with diversified food production	20%	60%	80%				Reports
		Percentage growth in households diversifying their meals from maize based diets	TBD by end 2016					30%	Integrated Household Surveys
		Curriculum with dietary diversification covered	TBD			1			Reports
		Percentage of schools implementing a diversified school feeding program	0	10%	20%	30%	40%	50%	Reports
		Number of households achieving minimum dietary requirements	40%	60%	80%				Reports APES

	Livestock breeding programs for small stocks enhanced	Number of goats/ sheep procured for stud breeding	TBD by Nov, 2016	440	440	440			Reports
		Number of goat/sheep stud breeders	TBD by Nov, 2016	44	88	132			
		Number of chickens procured for stud breeding	TBD by Nov, 2016	880	880	880			Reports
		Number of chicken stud breeders	TBD by Nov, 2016	44	88	132			
		Number of guineafowls procured for stud breeding	TBD by Nov, 2016	880	880	880			Reports
		Number of guineafowl stud breeders	TBD by Nov, 2016	44	88	132			
		Number of pigeons (doves) procured for stud breeding	TBD by Nov, 2016	880	880	880			Reports
		Number of pigeon (dove) stud breeders	TBD by Nov, 2016	44	88	132			
		Number of ducks procured for stud breeding	TBD by Nov, 2016	880	880	880			Reports
		Number of duck stud breeders	TBD by Nov, 2016	44	88	132			

		Number of goats procured for multiplication in government farms	217	500	500	500			Reports
		Number of chickens procured for multiplication in government farms	2950	4000	3000	5000			Reports
		Number of guinea fowls procured for multiplication in government farms	0	1100	2200	3300			Reports
		Number of goats/sheep procured and distributed on pass on programs	TBD by Nov, 2016	24750	24750	24750			Reports
		Number of chickens procured and distributed on pass on programs	TBD by Nov, 2016	49500	49500	49500			Reports
		Number of guinea fowls procured and distributed on pass on programs	0	49500	49500	49500			Reports
		Number of pigeons (doves) procured and distributed on pass on programs	0	49500	49500	49500			Reports

		Number of ducks procured and distributed on pass on programs	0	49500	49500	49500			Reports
		Number of hectares under pastures and fodder trees establishment	TBD	440	660	880			Reports
	Animal Disease Control Programs enhanced	Number of cattle vaccinated against foot and mouth disease	21,229	30,000	30,000	30,000			Reports
		Number of chickens vaccinated against new castle	10,222,078	34,000,000	37,400,000	41,140,000			Reports
	Small scale agro-processing promoted	Number of farmer agro-processing clubs established	TBD	12	13	16			Reports
	Fast track establishment of the agriculture cooperative bank	Number of agriculture cooperative banks	0			1			
	Smallholder farmers integrated into agriculture value chains	Number of farmer organizations linked to other value chain players	80	150	300				Reports
		Number of Agricultural cooperative unions that are operational	5	15	28				Reports

		Percentage of produce used in value addition	30%	60%	80%				Reports
	Agricultural Research in the development of varieties for selected crops as well as livestock and fish breeds promoted	Number of technologies (crop varieties and improved management practices) that are drought, disease and pest tolerant	203	17	23	26	20	27	(a) DARS' Quarterly and Annual Reports (b) Agricultural Technology Clearing Committee Reports (c) Publications, Newsletters and Bronchures
	A robust seed and market system for selected crops developed	Number of meetings on seed and market system development	TBD	10	10	10	10	10	Reports
Promote Climate Smart Agriculture Programme	Manure making and use promoted	Area applied with manure (ha)	105,040	115,500	121,200	126,000	126,000	138,600	Reports
		No of heaps made	2,626,000	2,888,600	3,033	3,151,2	3,151,20	3,466,30	Reports

					,030	00	0	0	
		No of farmers making and utilising manure	262,600	288,860	303,300	315,100	315,100	346,600	Reports
	Agro-forestry technologies promoted among farmers	Area under AF (ha)	128,500	141,350	148,400	154,200	154,200	169,600	Reports
		No of farmers	200,500	220,550	231,500	240,600	240,600	264,700	Reports
	Conservation Agriculture Promoted	Area under CA (ha)	26,000	28,600	30,030	31,200	31,200	34,300	Reports
		No of farmers	104,000	114,400	120,120	124,800	124,800	137,200	Reports
	In-situ rainwater harvesting technologies promoted	Number of RWH technologies	10	10	10	12	12	12	Reports
		Number of farmers	160,000	176,000	184,800	192,000	192,000	211,200	Reports
Strategic Grain Reserve Management	Concrete silos at Kanengo silos complex rehabilitated	Number of concrete silos rehabilitated	-	34	0	0	0	0	Reports
	Metallic Silos at Mzuzu, Luchenza and Mangochi rehabilitated	Number of metallic silos rehabilitates	-	15	0	0	0	0	Reports

	Warehouses at Limbe depot rehabilitated	Number of warehouses rehabilitated	-	5	0	0	0	0	Reports
Irrigation Development	New Irrigation Development	Area of land under Irrigation (ha)	104,602		20000 (20% of civil works complete)	20000 (50%of civil works complete)	20000 (75%of civil works complete)	20000 (100%of civil works complete)	Reports
	Sustainable Irrigation management	No of schemes Rehabilitated or upgraded		2	3	8	10	10	Reports
	Improved catchment management to reduce siltation	Percentage land in catchments cultivated using good agricultural practices	30%	35%	40%	45%	50%	55%	Reports
Improving access to farm inputs	Farm Input Subsidy Reformed	Number of program beneficiaries reduced	1,500,000	900,000					Reports
		Percent reduction in the FISP budget		30%					Reports
		Private sector procure, distribute and retail fertilizer		Yes					Reports

Create special grain export processing zone facility	Legislative framework for creation of special grain export processing zone developed	Number of legislative frameworks on creation of special grain export processing zones			1				Reports
Promote production and supply of quality fish seed (fingerlings) to improve and sustain fish production - medium term	Potential farms identified	No of potential farms	2	7					Reports & Expert knowledge
	Farms maintained	No of farms	0	7					Reports & Expert knowledge
	Brood stock collected	No. of Brood stock	1000	3000	7000				Reports & Expert knowledge
	Hatcheries supported	No. of Hatcheries	2	2	4	7	7	7	Reports & Expert knowledge
	Fingerlings produced	No. of Fingerlings	1 million	1.5 million	2 million	3 million	3.5 million	4 million	Reports & Expert knowledge
	Farmers identified	No of male & female farmers (70% male & 30 female)		130 (100 males & 30					Reports & Expert knowledg

				females)					e
	Farmers trained	No of male & female farmers (70% male & 30 female)		130 (100 males & 30 females)					Reports & Expert knowledge
	Ponds maintained	No. of Ponds		130					Reports & Expert knowledge
	Tilapia & Catfish broodstock supplied	No of broodstock		1300	2600				Reports & Expert knowledge
	Hatchery operators supported	No of hatchery operators		15	130				Reports & Expert knowledge
	Tilapia & Catfish fingerlings produced	No. of fingerlings			8 million	16 million	24 million	32 million	Reports & Expert knowledge
	Producers linked to markets	No. of producers			130				Reports & Expert knowledge
Promote Integrated Aquaculture Agriculture	Farmers identified	No of male & female farmers (70% & 30%)	300	3000					Reports & Expert knowledge

(IAA) to maximise agricultural productivity - short term	Farmers trained	No of male & female farmers (70% & 30%)		3000					Reports & Expert knowledge
	Farmers trained	No of male & female farmers trained (70% & 30%)		3000					Reports & Expert knowledge
	Trials conducted	No of trials	0	26	26	26			Reports & Expert knowledge
	Trials conducted	No of trials	0	26	26	26			Reports & Expert knowledge
	Open days conducted	No of open days	0	26	26	26	26	26	Reports & Expert knowledge
Promote Stocking of fish in existing small water bodies including dams to rebuild local fisheries - long term	Dams/small water bodies identified	No of Dams/small water bodies	0	5	15	30	40	50	Reports & Expert knowledge
	Campaigns conducted	No of campaigns	0	5	15	30	40	50	Reports & Expert knowledge
	Committees formed	No of committees	0	5	15	30	40	50	Reports & Expert

									knowledge
	Communities trained	No of communities	0	5	15	30	40	50	Reports & Expert knowledge
	Species identified	No of species	0	4	4	4	4	4	Reports & Expert knowledge
	Fingerlings procured	No of fingerlings	0	3000000	9000000	18000000	24000000	30000000	Reports & Expert knowledge
	Water bodies stocked	No of water bodies	0	5	15	30	40	50	Reports & Expert knowledge
	Plans developed	No of plans	0	5	15	30	40	50	Reports & Expert knowledge
	Communities trained	No of communities	0	5	15	30	40	50	Reports & Expert knowledge
	Monitoring systems developed	No of monitoring systems		1	1	1	1	1	Reports & Expert knowledge

	Fish (Kg) harvested	Quantity of fish (Kg)	0	1500	4500	9000	12000	15000	Reports & Expert knowledge
Promote Fish farming in existing small water bodies including dams to boost fish production - long term	Water bodies/bodies identified	No of water bodies/bodies	0	5	15	30	40	50	Reports & Expert knowledge
	Campaigns conducted	No of campaigns	0	5	15	30	40	50	Reports & Expert knowledge
	Farmers identified	No of farmers	0	50 (70% men & 30% women)	150	300	400	500	Reports & Expert knowledge
	Species identified	No of species	2	4	4	4	4	4	Reports & Expert knowledge
	Farmers trained	No of farmers	0	50 (70% men & 30% women)	150	300	400	500	Reports & Expert knowledge
	Cages of constructed	No of cages	0	25	75	150	200	250	Reports & Expert knowledge
	Feed procured	Quantity of feed (tons)	0	787.5	2362.5	4725	6300	7875	Reports & Expert

									knowledge
	Fingerlings procured & stocked	No of fingerlings	0	87500	262500	525000	700000	875000	Reports & Expert knowledge
	Open days conducted	No of open days	0	3	8	15	20	25	Reports & Expert knowledge
	Fish harvested	Quantity of fish (Kg)	0	12250	36750	73500	98000	122500	Reports & Expert knowledge
Promote use of solar tent fish dryers in fish processing in central and northern Lake Malawi	Communities trained in solar tent fish dryers post harvest loss management technology	No. of communities trained in tent fish dryers post harvest loss management	10%	250					Reports & Expert knowledge
	Solar tent dryers constructed	No. of solar tent dryers constructed	0	25					Reports & Expert knowledge
	Communities trained in use of solar tent dryers	No. of communities trained in use of solar tent dryers	0	250					Reports & Expert knowledge
	Communities trained in business management and marketing	No. of communities trained in business management and	0	2500					Reports & Expert knowledg

		marketing (Communities define at Group village level)							e
Promote use of energy efficient smoking kilns to improve quality of smoked fish products and minimise wastage of fuel wood in central and northern Lake Malawi	Communities trained in smoking kilns fish post harvest loss technologies	No. of communities trained in smoking kilns fish post harvest loss technologies (Communities define at Group village level)	0	2500					Reports & Expert knowledg e
	Energy efficient fish smoking kilns constructed	No. of energy efficient smoking kilns constructed	0	2500					Reports & Expert knowledg e
	Communities trained in use of efficient smoking kilns	No. of communities trained in use of efficient smoking kilns	0	250					Reports & Expert knowledg e
Develop value added products from sun dried and smoked fish products.	Potential fish species and products for value addition	No. of species & products identified for value addition	1	5					Reports & Expert knowledg e
	Suitable packaging materials for both smoked and sun dried fish products identified	No. of suitable packaging materials identified	0	3					Reports & Expert knowledg e
	Fish quality and shelf life of developed fish products assessed	No. of fish products assessed	0	5					Reports & Expert knowledg

									e
	Fish processors identified and linked potential markets	No. of processors linked	0	250					Reports & Expert knowledge
Component: Catchment Protection and Management									
Increase forest cover	Forest cover increased	Area planted with trees (ha)	24,000	50,000	50,000	50,000	50,000	50,000	NFP 2016
		Area under natural regeneration (ha)	3,839,786	3,839,786	3,839,786	3,839,786	3,839,786	3,839,786	FAO 2001
	Survival rate increased	% survival rate	60%	95%	95%	95%	95%	95%	FAO 2001
Promote management systems and technologies that protect fragile land (river banks, *dambo* areas, steep slopes and hilly areas and water catchment areas)	Management of protected and fragile areas improved	Area of river banks under protected management regime (ha)	0	20%	30%	40%	50%	60%	
		Area of steep slopes under protected management regime (ha)	0	20%	30%	40%	50%	60%	
		Areas of dambos under protected management regime (ha)		20%	30%	40%	50%	60%	

	Existing customary forests protected	New area demarcated for forest area conservation (ha)_Village Forest Areas	491	591	691	791	891	991	DoF 2016 baseline report (1 VFA/district /year)
Integrate environmental management/resilience building standards in infrastructure development	Environmental management/resilience building standards in infrastructure development enforced	Proportion of infrastructure developments incorporating Environmental management standards	30%	33%	36%	39%	42%	45%	Confirm with EAD
		Proportion of infrastructure developments incorporating resilient building standards	0	3%	6%	9%	12%	15%	
Promote alternative (from biomass) and efficient sources of energy	Use of alternative and efficient sources of energy increased	Proportion of households using alternative and efficient energy sources	11%	13%	15%	25%	35%	50%	GoM 2016 (AA)
Communication, Education and Public Awareness (CEPA)	Awareness and knowledge of catchment management increased	Proportion of HH adopting recommended catchment management practices	30%	40%	45%	50%	60%	80%	

Component: Flood Control by Construction of Dykes, Dams and River Training									
Reopening of old Ruo River channel	River Channel reopened	Length of channel trained (Km)	0	10	50%	80%	100%		PDNA 2015
Rehabilitation of flood protection structures, e.g. dams, dykes	Dykes constructed	No. of dykes constructed	5	15	100%				PDNA 2015
Construction of water retention structures (50 dams 50 excavated tanks)	Dams constructed, excavated tanks constructed	No. of Dams constructed, No. of excavated tanks constructed	8	100	25%	60%	90%	100%	PDNA 2015
Implementation of flood risk management interventions e.g. dykes, small to medium sized multi-purpose dams, EWS	Flood protection structures constructed	No of flood protection structures constructed	5	35	40	55			PDNA 2015
Rehabilitation of 35 midly damaged dams	Dams rehabilitated	No. of dams rehabilitated	0	35	40	45			PDNA 2016
Setting up drought monitoring	Drought prediction Model set	A model in place	0	1	80%	100%			WRD Reports

systems									
Adaptive Watershed Management and Restoration Programme	Programme implemented	No. of programme reports	0	24	40	80	100%		PDNA 2016
Promote water harvesting at household & institutional level	Households & institutions adopting water harvesting	No of households & institutions adopting water harvesting	0	100,000	400,000	1,000,000	1,500,000	1,700,000	PDNA 2016
Component: Early Warning Systems									
Enhance early warning system	Automatic weather stations procured and installed	No of automatic weather stations procured and installed	53	55	57	59	61	63	
	Automatic hydrological stations procured and installed	No of automatic hydrological stations procured and installed	5	15	25	35	45	55	
	Conventional weather stations procured and installed	No of conventional weather stations procured and installed	21	24	27	30	33	36	
	Conventional hydrological stations procured and installed	No of conventional hydrological stations procured	158	159	160	161	162	163	

		and installed							
	Weather stations rehabilitated and upgraded.	No of weather stations rehabilitated and upgraded.	50	10	20	30	40	50	
	Hydrological stations rehabilitated and upgraded.	No of hydrological stations rehabilitated and upgraded.							
	An operation decision support system for an effective early warning system established	% of people accessing early warning information	13%	30%	40%	50%	60%	70%	
	Cost effective and innovative platforms of disseminating early warning information developed	No of dissemination platforms developed	3	2	3	3	1	1	
		% of people accessing early warning information through the developed platforms	0	15%	20%	35%	50%	60%	
	Community based early warning units established	No of community based early warning units established;	5	10	15	20	25	30	

		No. of people receiving community based early warning information	60,000	84,000	108,000	132,000	156,000	180,000	
		Reduction in number of people affected by disasters	3,500,000	2,500,000	2,000,000	1,500,000	1,000,000	500,000	
	Surface and ground water monitoring stations upgraded	No of monitoring stations established	30	35	39	42	45	47	
Component: Social Support Programmes									
Improve coordination and implementation of social support programmes	Malawi National Social Support Programme reviewed	Successor MNSSP document in place	0	MNSSP Document					DoEP&D reports
	Social Support Fund established	Social support fund functional	0	0	1				DoEP&D reports
	Unified beneficiary registry developed	UBR in place and functional	0	1					DoEP&D reports
	Public works programme reoriented to watershed management	50% of PWP using watershed management approach	10%	20%	30%	40%	50%	50%	LDF
	Repeater beneficiaries	50 % repeater beneficiaries in	0	10%	20%	30%	40%	50%	LDF

	to PW adopted	PWP							
	SM program reprogrammed and grants provided	100 % schools reprogrammed SM and grants provided	770	1540	2310	3080	3850	4620	MoEST/ MoGCDSW
	Climate smart agricultural practices taught through primary school and ECD gardens in SMP	100 % of School & ECD center programs using climate smart agriculture	770	1540	2310	3080	3850	4620	MoEST/ MoGCDSW
	Use of school/ community woodlots promoted	Number of school and communities with woodlots	770	1540	2310	3080	3850	4620	MoEST/ MoGCDSW
	E-payments and third party agencies introduced	Number of beneficiaries on E-payment	8%	10%	20%	30%	40%	50%	MoGCDSW
	Social cash transfers linked to watershed management public works programme	Number of beneficiaries on social cash transfer linked to watershed management public programme works	0	5%	10%	15%	20%	25%	DoEP&D/ LDF

Social Support-Community Resilience, Livelihood and nutrition	Home management and nutrition programme scaled up.	Number of districts implementing HM&N programme.	2	7	12	17	23	28	MoGCDSW
	Home Management and Nutrition programme integrated into VSL groups.	Number of VSL groups implementing HM&N	20	70	120	170	230	280	MoGCDSW
	Home Management and Nutrition programme integrated into mother groups.	Number of mother groups implementing HM&N	20	70	120	170	230	280	
	Home Management and Nutrition programme integrated into community clubs.	Number of VSL community groups implementing HM&N	20	70	120	170	230	280	
	Protection clusters and GBV sub clusters at district and area levels strengthened.	Number of active protection and GBV sub clusters	10	90	135	180	225	275	MoGCDSW
	Community psychosocial support providers trained to provide PSS to drought affected communities	Number of service providers providing psychosocial services	400	800	1200	1600	2000	2400	MoGCDSW

	Protection messaging on the rights of beneficiaries in accessing humanitarian food and cash scaled up	Number of Information campaigns have been carried by each district	15	19	23	27	31	35	MoGCDSW
	reporting and referral mechanisms for abuse and exploitation by duty bearers strengthened	Number of reports and referral cases of food related abuse and exploitation by beneficiaries	15	19	23	27	31	35	MoGCDSW

ANNEX 3 ONE YEAR BUDGET

YEAR ONE BUDGET				
Activity	**Calculated Amount (MK)**	**Allocation (MK) in 2016/17**	**Resource Gap (MK) B-C**	**Funding source**
Intervention: Promote Large Scale Irrigation Development through the Green Belt Initiative				
Improve institutional capacity	125,554,818.00	125,554,818.00	-	GoM
Establish GBI Public Trust	3,454,000.00	3,454,000.00	-	GoM
Operationalise GBI Holdings Ltd co.	5,268,000.00	5,268,000.00	-	GoM
Establish Green Belt Irrigation Authority	10,440,000.00	10,440,000.00	-	GoM
Promote Public Private Partnerships	5,300,000.00	-	5,300,000.00	GoM
Develop bulk water system and energy conveyance infrastructure	54,624,000.00	34,624,000.00	20,000,000.00	GoM
Acquire land for irrigation development (under PPP)	7,345,000.00	7,345,000.00	-	GoM
Develop Irrigation schemes under PPP arrangements	37,500,000,000.00	-	37,500,000,000.00	Private Sector
Develop irrigation schemes (GBI)	1,090,000,000.00	166,670,000.00	923,330,000.00	GoM
Acquire land for irrigation development	182,612,000.00	72,642,000.00	109,970,000.00	GoM
Crop production and scheme management	42,500,000.00	42,500,000.00	-	GoM

Total Cost for intervention	**39,027,097,818.00**	**468,497,818.00**	**38,558,600,000.00**	
Intervention: Diversification of Agricultural Production				
Intensify the dissemination of technologies and practices on crop, livestock and fish that withstand adverse weather conditions	325,200,600.00	200,000,000.00	125,200,600.00	
Promote production and utilization of diverse nutritious foods	217,690,000.00	162,148,000.00	55,542,000.00	
Enhance livestock breeding programs especially for small stocks	2,854,895,480.00	611,179,900.00	2,243,715,580.00	GoM , SAPP and ASWAp
Enhance animal disease control programs	467,180,000.00	69,000,000.00	398,180,000.00	
Promote small scale agro-processing	418,621,343.00		418,621,343.00	
Promote agricultural research in the development of varieties for selected crops as well as livestock and fish breeds	997,124,898.00		997,124,898.00	
Develop a robust seed and market system for selected crops that can be grown in the country	792,697,594.00		792,697,594.00	
Total Cost for intervention	**6,073,409,915.00**	**1,042,327,900.00**	**5,031,082,015.00**	
Intervention: Promote Climate Smart Agriculture Programme				

Promotion of manure making and use to maintain or improve soil health	174,400,000.00	114,212,316.66	60,187,683.34	
Promotion of agro-forestry technologies among farmers	56,000,000.00	109,461,316.66	- 53,461,316.66	
Promotion of Conservation Agriculture, that is promoting all three components of CA namely (i) zero/minimum tillage; (ii) maximum ground cover; and (iii) crop rotation or association of cereal and legume crops	326,480,000.00	172,067,650.00	154,412,350.00	
Promotion of in-situ rainwater harvesting technologies likes swales and planting pits	255,900,000.00	100,440,066.66	155,459,933.34	
Total Cost for intervention	**812,780,000.00**	**496,181,349.98**	**316,598,650.02**	
Intervention: Strategic Grain Reserves				
Rehabilitate 34 concrete silos at Kanengo silos complex	6,884,950,000.00	-	6,884,950,000.00	
Rehabilitate 15 metallic maize storage silos	3,037,480,000.00	-	3,037,480,000.00	
Rehabilitate 5 warehouses at Limbe depot	200,000,000.00	-	200,000,000.00	
Total Cost for intervention	**10,122,430,000.00**	-	**10,122,430,000.00**	
Intervention: Irrigation Development				

Consolidate existing pipeline of schemes within Irrigation Master Plan (IMP) framework	23,560,000.00	-	23,560,000.00	
Feasibility studies (18119ha - 7 schemes)	6,794,625,000.00	-	6,794,625,000.00	
System design (18119ha - 7 schemes)	6,794,625,000.00	-	6,794,625,000.00	
Total Cost for intervention	**13,612,810,000.00**	-	**13,612,810,000.00**	
Intervention: Minimise fish post harvest loss and promote value addition in fish and fisheries related products				
Train fishing communities in basic fish post harvest loss management with focus on use of solar energy or sun drying	26,340,000.00	-	26,340,000.00	
Construct solar tent dryers	15,675,000.00	-	15,675,000.00	
Train fishing communities in use of solar tent dryers	26,670,000.00	-	26,670,000.00	
Train communities in business management and marketing	7,965,000.00	-	7,965,000.00	
Train fishing communities in basic fish post harvest loss management with focus on fish smoking technologies	18,375,000.00	-	18,375,000.00	
Construct energy efficient fish smoking kilns	32,350,000.00	-	32,350,000.00	

Train fishing communities in use of energy efficient smoking kilns	18,525,000.00	-	18,525,000.00	
Identify potential fish species and products for value addition	6,600,000.00	-	6,600,000.00	
Identify suitable packaging materials for both smoked and sun dried fish products	10,625,000.00	-	10,625,000.00	
Assess fish quality and shelf life of developed fish products	9,005,000.00	-	9,005,000.00	
Identify and link fish processors to potential markets	7,965,000.00	-	7,965,000.00	
Total Cost for intervention	**180,095,000.00**	-	**180,095,000.00**	
Intervention: Increase Forest Cover				
Tree planting and management	14,600,000,000.00	7,008,000,000.00	7,592,000,000.00	GoM & Partners
Conserve forests through natural regeneration	1,572,000,000.00	162,000,000.00	1,410,000,000.00	GoM & Partners
Promote fire management programs	139,600,000.00	55,500,000.00	84,100,000.00	GoM & Partners
Intervention: Promote management systems and technologies that protect fragile land (river banks, dambo areas, steep slopes and hilly areas and water catchment areas)	126,000,000.00	25,200,000.00	100,800,000.00	GoM & Partners

Establish and/or strengthen catchment management institutions at various planning levels (Macro, micro)	2,100,000,000.00	350,000,000.00	1,750,000,000.00	GoM, SRBMP and partners
Develop and implement catchment management plans at various levels (Macro, Micro)	6,200,000,000.00	1,500,000,000.00	4,700,000,000.00	MASAF IV; SRBMP &FD
Develop and/or enforce catchment management legislation including bylaws	1,560,000,000.00	468,000,000.00	1,092,000,000.00	GoM, Water boards and partners
Develop and operationalise mechanisms for Payment for Ecosystem Services	143,080,000.00	14,308,000.00	128,772,000.00	GoM, UNDP & partners
Total Cost for intervention	**26,440,680,000.00**	**9,583,008,000.00**	**16,857,672,000.00**	
Intervention: Construct dykes, dams and river training				
Diplomatic notification to Mozambique	10,400,000.00	-	10,400,000.00	
Diplomatic notification to Mozambique	40,750,000.00	-	40,750,000.00	
Joint technical meetings (Moz and Mw)	14,475,000.00	-	14,475,000.00	
Procurement of a design consultant	750,000,000.00	-	750,000,000.00	GoM /DONORS
Detailed designs by consultant	10,625,000.00	-	10,625,000.00	
Review of designs	12,075,000.00	-	12,075,000.00	

Procurement of a contractor	4,125,000,000.00	-	4,125,000,000.00	
River training	62,400,000.00	-	62,400,000.00	
Supervision	7,300,000.00	-	7,300,000.00	
Total Cost for intervention	**5,033,025,000.00**	-	**5,033,025,000.00**	
Intervention: Rehabilitation of flood protection structures, e.g. dams, dykes				
Procurement of a design consultant	300,000,000.00	4,650,000.00	295,350,000.00	MFERP
Detailed designs by consultant	19,800,000.00	300,000,000.00	- 280,200,000.00	MFERP
Review of designs	21,825,000.00	19,800,000.00	2,025,000.00	MFERP
Procurement of contractors	1,125,000,000.00	21,825,000.00	1,103,175,000.00	MFERP
Construction of dykes	22,500,000.00	750,000,000.00	- 727,500,000.00	MFERP
Supervision	8,400,000.00	19,950,000.00	- 11,550,000.00	MFERP
Decommission	-	2,800,000.00	- 2,800,000.00	MFERP
Pre assessment of targets sites	10,440,000.00	-	10,440,000.00	
Procurement of design consultant for dams	383,700,000.00	-	383,700,000.00	
Prepare designs for dams	52,345,509.00	-	52,345,509.00	
Detailed designs for excavated tanks	19,432,000.00	1,345,000.00	18,087,000.00	Alliance One
Environmental screening	13,960,000.00	-	13,960,000.00	
Procurement of contractors	37,308,000.00	-	37,308,000.00	

Community sensitizations	7,358,650,000.00	-	7,358,650,000.00	
Construction	28,547,000.00	165,000,000.00	- 136,453,000.00	Alliance One
Supervision	2,095,000.00		2,095,000.00	
Procurement of a consultant for integrated flood risk interventions	-	225,000,000.00	- 225,000,000.00	MFERP
Preassessment of targeted sites	65,345,000.00	-	65,345,000.00	GoM /DONORS
Detailed assessment of 35 targeted dams	20,958,000.00	-	20,958,000.00	
Procurement of a contractor	1,548,955,000.00	-	1,548,955,000.00	
Rehabilitation of dams	5,689,344.00	-	5,689,344.00	
Supervision of construction	10,671,000.00	-	10,671,000.00	
Prepare and produce IEC materials	18,560,000.00	-	18,560,000.00	
Conduct meeting at district level	17,976,000.00	-	17,976,000.00	
Conduct meeting at community level	10,568,000.00	-	10,568,000.00	
Identification of hot spot areas	120,865,000.00	-	120,865,000.00	
Preparation of watershed management plans	233,988,000.00	-	233,988,000.00	
Total Cost for intervention	**11,457,577,853.00**	**1,510,370,000.00**	**9,947,207,853.00**	
Intervention: Early Warning Systems				

Procurement of 2 automacti weather stations	17,000,000.00	-	17,000,000.00	
Rehabilitation of thre weather stations (Bolero, NkhataBay and Salima)	24,000,000.00	-	24,000,000.00	
Procure 100 standard rain gauges and measuring cylinders	60,000,000.00	-	60,000,000.00	
Total Cost for intervention	**101,000,000.00**	**-**	**101,000,000.00**	
Intervention: Improve coordination and implementation of social support programmes				
Review the National Social Support Programme	36,196,652.00	-	36,196,652.00	Not known
Establish the Social Support Fund	10,700,000.00	10,700,000.00	-	GIZ
Develop a unified beneficiary registry	142,228,000.00	138,628,000.00	3,600,000.00	LDF,GIZ,FAO/UNICEF
Public works programme reoriented to watershed management	170,523,100.00	-	170,523,100.00	Not known
Reprogram the SM program to provide grants so that schools/ ECD centres buy food locally	68,000,000.00	34,000,000.00	34,000,000.00	
Use school feeding to teach communities climate smart agricultural practices through school gardens	26,000,000.00	8,000,000.00	18,000,000.00	

Promote use of school/ community woodlots to teach communities fuel efficient practices/technologies	57,000,000.00	31,000,000.00	26,000,000.00	
Introducing e-payments and third party agencies to ensure timely and efficient payments to beneficiaries	6,584,178,075.00	41,047,105.00	6,543,130,970.00	KfW, World Bank, IrishAid, EU, MG
Total Cost for intervention	**7,094,825,827.00**	**263,375,105.00**	**6,831,450,722.00**	
Intervention: Social Support- Community Resilience, Livelihood and nutrition				
Integrate Home Management and Nutrition programme into VSL groups, mother groups and community club	4,663,090.00	-	4,663,090.00	Not Known
Strengthen protection clusters and GBV sub clusters at district and area levels.	270,000.00	-	270,000.00	
Train community psychosocial support providers to provide PSS to drought affected communities	700,000.00	-	700,000.00	
Scale up protection messaging on the rights of beneficiaries in accessing humanitarian food and cash	1,386,012.80	-	1,386,012.80	

Strengthen reporting and referral mechanisms for abuse and exploitation by duty bearers including community mechanisms and contact information on referral focal point, including PSEA	54,624,599.30	-	54,624,599.30	
Total Cost for intervention	**61,643,702.10**		**61,643,702.10**	
TOTAL BUDGET FOR YEAR ONE	**120,017,375,115.10**	**13,363,760,172.98**	**106,653,614,942.12**	