**GOVERNMENT OF THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF FINANCE AND PLANNING**

**In conjunction with the**

**MINISTRY OF AGRICULTURE LIVESTOCK AND FISHERIES**

# GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAMME (GAFSP)

## REQUEST FOR FUNDING - PUBLIC SECTOR WINDOW

**Project Title: Tanzania Initiative for Preventing Aflatoxin Contamination (TANIPAC)**

**Submission: 06th January 2017**

## ACKNOWLEDGEMENT

The Tanzania Initiative for Preventing Aflatoxin Contamination (TANIPAC) project proposal under Global Agriculture and Food Security Program (GAFSP) made use of various reviews of the agriculture sector in Tanzania. These include the technical papers developed for the Tanzania Agriculture and Food Security Investment Plan (TAFSIP), and the Agricultural Sector Development Policy (2013) and the Agricultural Sector Development Program Second Phase. Various programs and projects documents of donor funded agriculture sector initiatives including Big Results Now (BRN) and Expanded Rice Production Project (ERPP). Others include African Development Bank (AfDB) and International Fund For Agricultural Development (IFAD) Marketing Infrastructure, Value Addition and Rural Financial Services Project and the Investment Blue Print of the Southern Agricultural Growth Corridor of Tanzania. We therefore acknowledge all the organizations and individuals responsible for those reports. We also thank members of the Agriculture Sector Working Group (AWG) for contributions made while formulating this proposal.

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**Fiscal Year July 1st – June 30th**

**Exchange Rate TSHs 2180.00 = 1 USD**

**Weight and Measurements**
**Metric System**

## LIST OF ABBREVIATIONS

| | |
|---|---|
| AfDB | African Development Bank |
| ASDPII | Agricultural Sector Development Programme phase two |
| ASDS | Agricultural Sector Development Strategy |
| ASLMs | Agricultural Sector Lead Ministries |
| ASP | Agricultural Sector Strategic Plan (Zanzibar) |
| AUC | Africa Union Commission |
| AWG | Agricultural Working Group |
| BRN | Big Results Now |
| CAADP | Comprehensive Africa Agriculture Development Program |
| COWABAMA | Collective Warehouses Based Market |
| COPRA | Cereals and Other Produce Regulatory Authority |
| DADP | District Agricultural Development Plan |
| DALY | disability Adjusted Life Years |
| DNFS | Directorate of National Food security |
| EAAPP | East Africa Agricultural Productivity Project |
| FAO | Food and Agriculture Organization |
| FBOs | Famers Based Organizations |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GoT | Government of Tanzania |
| LGA | Local Government Authority |
| M&E | Monitoring and Evaluation |
| MALF | Ministry of Agriculture, Livestock and Fisheries |
| MOHGCD | Ministry of Health Gender and Community Development |
| MOFP | Ministry of Finance and Planning |
| MDGs | Millennium Development Goals |
| MDU | Ministerial Delivery Unit |
| NFRA | National Food Reserve Agency |
| MIVARF | Marketing, Infrastructure, Value Addition and Rural Finance Programme |
| MTEF | Medium Term Expenditure Framework |
| PACA | Partnership of Aflatoxin Control in Africa |
| PO-RALG | President's Office – Regional Administration and Local Government |
| RRCE | Regional Rice Centre of Excellence |
| TADB | Tanzania Agriculture Development Bank |
| TAFSIP | Tanzania Agricultural and Food Security Investment Plan |
| TBS | Tanzania Bureau of Standard |
| TFD | Tanzania Food and Drugs Authority |
| TFNC | Tanzania Food and Nutrition Centre |

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## EXECUTIVE SUMMARY

Tanzania is a leading producer of maize and groundnuts in East Africa region with the annual maize production exceeding 6 million metric tons while groundnut annual production stands at 1.8 million metric tons as of 2014/2015, making it the 10th producer in the world with 2% of world production. Maize and groundnuts are the major staple food for Tanzanian population and accounts for 41% and 3 % of dietary energy requirements, respectively. It is estimated that the annual per capita consumption of maize is around 128 kg, and nearly 400 grams of maize are consumed per day per person; thus contributing about 34-36% of the average daily calorie intake. However, these crops are highly susceptible to fungal infestation and aflatoxin contamination which affects the health of consumers and reduce country's export earning potential.

Various studies carried out in the country have indicated that 25-45 % of maize is contaminated by aflatoxin. On the other hand groundnuts were reported to be contaminated by high aflatoxin level exceeding the set limits (5 and 10ppb for B1 and Total aflatoxin) in 18 % of all samples tested. Among the risks associated with consumption of contaminated maize and groundnuts include immune suppression, malnutrition, liver cancer and death with acute exposure. Furthermore, chronic exposure is common since majority of households consume home-grown maize which does not undergo any quality assessment through the regulatory system.

Of recent, an aflatoxicosis outbrea reported in Central zone of Tanzania (Dodoma and Manyara regions) affecting 65 people resulting into 19 deaths. Laboratory analyses indicated heavy contamination with aflatoxin occurrence as high as 362.2 ppb, more than 30 times than the recommended safe limit. Sparked by the outbreak, a systematic review of the links between aflatoxin in Tanzania's food supply and public health was conducted and now estimates that annually about 3334 cases and 3167 deaths of hepatocellular carcinoma (HCC) result from aflatoxin exposures leading to a loss of 96,686 disability adjusted life years (DALYs), annually. The annual financial impact resulting from such illness and loss of estimated to be as high as $ 264 million. With such magnitude of the problem, a country situational assessment on the aflatoxin challenge conducted with the support from Partnership for Aflatoxin Control in Africa (PACA) confirmed low level of awareness on aflatoxin issues, limited access to guidelines for good agricultural practices and poor storage were behind the prevalence of aflatoxin in maize and groundnuts grown and consumed in Tanzania. As a policy response, an aflatoxin control action plan was developed charting the way to prevent aflatoxin occurrence in the food system and reduce exposures. This action plan is now mainstreamed into the Agriculture Sector Development Plan (ASDP II) that is implemented through the TAFSIP.

A country situational assessment on the aflatoxin problem conducted with the support from Partnership for Aflatoxin Control in Africa (PACA) confirmed low level of awareness on aflatoxin issues among key actors along the food value chain, limited access to guidelines for

good agricultural practices and poor storage were behind the prevalence of aflatoxin in maize and groundnuts grown and consumed in Tanzania. Thus, the proposed TANIPAC project will intervene on key areas that contribute significantly to the spread of the problem. The main objective of this project is to minimize aflatoxin occurrence in the food system attained through an integrated approach in maize and groundnuts food chain with the overall impact of improving food safety and food security, hence improving the health of our communities, agricultural productivity and trade.

TANIPAC project will focus on three major objectives, namely (i) to improve pre- and post-harvest technology and management practices; (ii) to increase public knowledge and awareness; and (iii) to strengthen institutional capacity and innovative marketing incentives. To achieve these objectives, the project will have four components: i) Pre- and postharvest technology and management; (ii) capacity building and institutional strengthening; (iii) creating awareness and public education; and (iv) project coordination, monitoring and evaluation. To successfully implement the proposed components and achieve objectives of this project a funding of 41.27 Million US dollars is requested from GAFSP for a period of five years. The project is expected to directly benefit about 60,000 households and millions of other actors and consumers along the value chain.

TANIPAC project is proposed to run for 5-years and will be implemented in 18 districts in six regions of Tanzania mainland and 2 districts of Tanzania - Zanzibar, with maize and groundnut as targeted crops. The main technologies proposed include bio-control and improved varieties resistant to pests and drought; drying and improved storage technologies (warehouses and hermetic) for postharvest measures; and education and awareness among farmers and other stakeholders in the maize and groundnut supply chain, and improved institutional capacity for regulating food safety and quality control of maize and groundnut and derived products. Private sector participation will be part and parcel of this project to ensure they commercialize the proposed technologies for sustainability purposes. The project will be implemented through the existing project management structures and the leading agency will be the Ministry of Agriculture, Livestock and Fisheries and partner institutions.

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# PART I: SUMMARY OF TANZANIA AGRICULTURE AND FOOD SECURITY STRATEGY AND INVESTMENT PLAN

## 1.1 OVERALL SECTOR STRATEGY AND INVESTMENT PLAN AND PAST PERFORMANCE

### 1.1.1 Agriculture and Food Security Strategy

The goal of the Government of Tanzania is to ensure food and nutrition security, reduce income poverty and increase climate change adaptation and mitigation. To achieve this goal the following operational targets have been set; (i) assurance of food security at household, district, regional and national levels ensured through food crop production and access to food; (ii) maintenance of national grain reserve for at least 4 months; (iii) crop and livestock varieties suited to adverse conditions caused by climate change introduced; and (iv) early warning and natural disaster response, coordination framework strengthened.

A food systems approach to reducing aflatoxin contamination in maize and groundnuts in Tanzania concentrates investments on the 5$^{th}$ TAFSIP thematic program area for investment (food and nutrition security), by reducing a contaminant in the food system that affects the nutrition, health, income and food security of poor people, particularly farmers. Aflatoxins are naturally occurring toxins produced by certain fungi: especially *Aspergillus flavus* and *Aspergillus parasiticus*. Crops commonly affected by aflatoxin include cereals such as maize and groundnuts and oilseeds such as cottonseed. Food and feed products made from these crops are also at risk. For Tanzania, agricultural data indicates that of the susceptible crops, maize and groundnuts are the most important agricultural crops.

Aflatoxin is known carcinogens and the leading cause of liver disease and liver cancer in Tanzania. In a recent health impact assessment it was shown that in Tanzania, aflatoxin related cases of liver cancer can be as high as 3,333 per year of which, 95% (3,166 persons) die from the disease, annually. Chronic exposure to aflatoxins has been linked to malnutrition and stunted growth in children in Togo and Benin (Gong et al, 2004; Khlangwiset et al., 2011) and in Tanzania (Shirima el al. 2015 and Magoha et al, 2014). Currently, in Tanzania, stunting affects 42% of children under 5 years, and is only 2% points lower than what it was 5 years ago. The burden of stunting in Tanzania ranks third in Sub-Saharan Africa, after Ethiopia and the Democratic Republic of Congo. Aflatoxins are linked to suppression of the immune system, which lowers the body's defences against human immunodeficiency virus (HIV), malaria, and possibly other communicable diseases such as tuberculosis. They interact in an adverse way with hepatitis B virus (HBV).

High levels (up to 4,400ppb) of aflatoxins have been implicated in outbreaks of acute poisoning in Kenya (Probst et al, 2007) and recently (June – September 2016) in Tanzania (up to 362.2ppb) which claimed the lives of 19 citizens. Due to these health risks, aflatoxin have therefore proven to be a major barrier in linking African farmers to markets as they prevent commodities from meeting international, regional and local regulations and standards governing agricultural trade and food safety. Generally, aflatoxin contamination can reduce the volume and value of the agricultural sector's output and impacts the availability, access and use of Tanzania's largest staple food.

More than half of Tanzanians live in the rural areas and depend on subsistence agriculture for their livelihoods. Of all staple and cash crops cultivated, maize is the major and most preferred staple crop, with around 45% (or over 4.9 million hectares) used for maize production. More than 85% of maize production is by smallholder farmers, mostly for their own consumption, with some surplus traded in

local markets. Maize and groundnuts together account for almost 44%of the calorie intake, and on average Tanzanians eat 521 grams of maize and groundnuts per person per day. It is estimated that the annual per capita consumption of maize is around 128 kg, and nearly 400 grams of maize are consumed per day per person; thus contributing about 34-36% of the average daily calorie intake.

Therefore, aflatoxin contamination being one of the leading challenges in maize and groundnuts staples need to be addressed in order to achieve the global developmental aspirations such as the Sustainable Development Goals (SDGs) and continental goals and targets contained in the 2014 African Union Heads of State Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods.

### 1.1.2 Investment Plan to Achieve Objectives

Tanzania has developed the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) as a way to achieve the goal of the national economic growth, household income and food security. TAFSIP has identified seven thematic program areas for investment with specific strategic objectives, namely (1) irrigation development and sustainable use of land and water resources (2) agricultural productivity and commercialization (3) rural infrastructure and market access (4) private sector development (5) food and nutrition security (6) disaster management and risk mitigation (7) policy and institutional reform and support that will create a conducive environment for development of private sector led growth in the agriculture sector. All these investment priorities are in line with the Comprehensive African Agriculture Development (CAADP) Pillars and will require investments amounting to US$ 5.3 billion over the five-year period to be financed by the Government, Development Partners, Private Sector and Other players. The share per investment area is as shown in Table1.

**Table 1: Summary of TAFSIP Cost Estimates by Programmes**

| PROGRAMME | YEAR 1 "000,000" | YEAR 2 "000,000" | YEAR 3 "000,000" | YEAR 4 "000,000" | YEAR 5 "000,000" | TOTAL "000,000" |
|---|---|---|---|---|---|---|
| Irrigation Development | 187,002.46 | 214,165.22 | 235,929.46 | 264,612.54 | 298,401.49 | 1,200,111.18 |
| Production and Commercialization | 957,651.29 | 1,147,609.35 | 1,254,195.09 | 1,360,785.94 | 1,500,358.58 | 6,220,600.25 |
| Rural Infrastructure, Market Access & Trade | 66,208.44 | 76,474.19 | 79,051.34 | 72,285.29 | 63,236.34 | 357,255.60 |
| Private Sector Development | 3,500.52 | 2,835.72 | 2,997.02 | 2,999.02 | 3,229.52 | 15,561.78 |
| Food and Nutrition Security | 22,972.61 | 49,303.33 | 49,020.92 | 44,316.62 | 45,819.52 | 211,433.01 |
| Disaster Management and Climate Change Mitigation | 9,453.63 | 10,931.33 | 18,661.21 | 15,696.41 | 11,570.41 | 66,312.99 |
| Policy and Institutional Reforms and Support | 103,868.80 | 170,392.50 | 130,520.92 | 144,980.76 | 131,367.27 | 681,130.25 |
| **TOTAL** | **1,350,657.74** | **1,671,711.64** | **1,770,375.96** | **1,905,676.58** | **2,053,983.12** | **8,752,405.05** |
| **USD ( in millions)** | **818.58** | **1,013.16** | **1,072.96** | **1,154.96** | **1,244.84** | **5,304.49** |

**Source: TAFSIP 2011**

### 1.1.3 Indicators for TAFSIP Monitoring

The indicators for monitoring results for expected outcomes for each of the thematic areas of focus are clearly outlined in the TAFSIP document. The indicators for monitoring results include: Strategic Objective 1: Assured Water resources and sustainable Land Use - Quantity and quality of land and water Resources for Irrigation Strategic Objective 2: Accelerated Productivity Rate of Growth and Commercialization–Agricultural GDP Growth Rate and Productivity Growth Rates. Strategic Objective 3: Improved and Expanded Rural Marketing Infrastructure - Growth in Volume and Value of Agricultural Traded Products. Strategic Objective 4: A thriving Competitive diverse private Sector – Structure of Market Share in Agriculture Sub Sectors. Strategic Objective 5: Universal Household and National Food and Nutrition Security - Level of Food Self Sufficiency and Number of Vulnerable Households to Food and Nutrition Security. Strategic Objective 6: Improved adaptive and mitigation capacity against disaster - Response Rates to disasters. Strategic Objectives 7: Improved Policy and Institutional Framework– Structure of market share in agricultural sub sectors.

### 1.1.4 Agriculture Sector Programs Performance

The Agriculture Sector Development Programme (ASDP) is one of the key instruments that the government uses to meet TDV 2025 goals and implement the ASDS. ASDP was conceived to have a 15-year horizon and a first phase of 7 years 2006/2007 to 2012/2013 with the following major objectives (i) to enable farmers to have better access to, and use of, agricultural knowledge, technologies, marketing systems and infrastructure, all of which contribute to higher productivity, profitability, and farm incomes; and (ii) to promote private investment based on an improved regulatory and policy environment. The ASDP was implemented as a bottom up approach delivered nationally, with 75% of development funds from a multi-donor Basket Fund allocated to local level support through a performance-based block grant mechanism. The total amount spent during this program was US$ 9,652.20 million and the preparation of the phase two of this program is to be completed early 2017.

ASDP-1 implementation succeeded in introducing the concept of a sector-wide approach in the agriculture sector. The ASDP process is now widely understood from national down to village level. It has created a mode of operation which has streamlined planning, financial management, monitoring and reporting systems, all of which have shown improvement. It has facilitated significant development of human and physical capacity, particularly at the Local Government Authorities (LGAs) level; a capacity which can now support ASDP-2 activities, and which can also provide an environment for new initiatives to use and contribute to the higher level sector goals.

Besides, ASDPI other major projects implemented in the agricultural sector include District Agricultural Sector Investment Project (USD 58.3 million) financed by the African Development Bank from 2006 to 2013 was implemented in parallel to ASDP-1 in 28 rural districts of Kagera, Kigoma, Mwanza, Mara and Shinyanga regions. The project objective was to increase productivity and incomes of rural households through: (i) farmers capacity building; (ii) community planning and investment in agriculture, especially in infrastructures; and (iii) support to rural microfinance and marketing. The project succeeded to increase crop production from 4.89- 5.28 million tons and crop productivity increased from 3.10 ton/ha to 3.70 tons/ha; 252, 836 farmers were trained on various issues (50%women), 1,400 infrastructures 1,418 agricultural technologies supported.

Accelerated Food Security Project (AFSP): about US$ 245 million, co-financed in 2009– 2013 by the Government of Tanzania and the World Bank in parallel to ASDP). The objective was to contribute to higher food production and productivity in targeted high potential areas in Tanzania through improving maize and rice farmers 'access to the critical agricultural inputs (total number of beneficiaries are 1.75 million households). AFSP also provided additional financing for: (i) the ASDP-1 (USD 30 million), aimed at promoting sustainable agricultural productivity growth, including support to small-scale irrigation and water management, integrated soil fertility management by strengthening research and advisory capacities for soil nutrient management and conservation farming; and (ii) for the second Tanzania Social Action Fund (AF-TASAF-2, USD 30 million), to strengthen the rural safety nets for food insecure and vulnerable people. The project successfully increased rice production from 1,334799 in year 1 to 1,735,886 in year 3 and significantly increased use of fertilizers and improved seeds by farmers.

The Marketing Infrastructure, Value Addition and Rural Finance Support Programme (MIVARF): Co-financed by the International Fund for Agricultural Development [IFAD] and AfDB for a total of USD 170 million, of which 90.6 million was provided by IFAD; 62.9 million by AfDB , 6.9 US$ million by AGRA and the government contributed about 18.6 US$ million. The project is and coordinated by the Prime Minister's Office [PMO]) and is implemented in 26 regions of Tanzania, including the mainland (21 regions) and Zanzibar (5 regions) with a total of 141 rural districts benefiting close to 500,000 rural households. The development objective is to enhance the incomes and food security of the target group sustainably through increased access to financial services and markets.

The East Africa Agricultural Productivity Programme (EAAPP): The overall program cost was US$ 90 million (US$ 30 million each for participating countries). This programme supports the establishment of regional research centres of excellence (RCoE) to contribute to increased agricultural productivity and growth by strengthening and scaling up regional cooperation in technology development, training, and dissemination programmes for four priority commodities (wheat, Ethiopia; rice, Tanzania; cassava, Uganda; and dairy, Kenya). The main programme components are: (i) strengthening institutional capacities of RCoEs; (ii) technology generation, training, dissemination and scaling up, focused on regional priorities and using participatory strategies; (iii) improved availability of seeds and breeds, including strengthening the enabling environment for regional seed and breed exchange and trade; and (iv) programme coordination and management at national and regional levels.

For the regional coordination activities, each participating country contributes about 2.7% of its budget to Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). The project successfully established the regional rice centre of excellence (RRCE) for technology generation through upgrading, rehabilitation of infrastructure and human resource capacity building across rice research institutes in Tanzania. In addition, the support was provided for laboratory equipment on soil, seed and biotech processing equipment.

*Big Results Now (BRN):* The slow pace of implementing Vision 2025 prompted the Government of Tanzania to embark on a new model named Big Results Now (BRN) Initiative started with six sectors, namely agriculture, energy, education, resource mobilization, transport and water. The objective of the agriculture BRN is to address critical sector constraints and challenges in order to speed up agricultural GDP growth, improve smallholder incomes and ensure food security by 2015. This will be done mainly through smallholder aggregation models for main cereals (maize and paddy) and high potential crops (sugarcane) contributing to import substitution, farm income and food security. In order to achieve this, three initiatives were prioritized including (i) rehabilitation and equipping 275 warehouses for collective maize storage and trade; rehabilitating 78 professionally managed rice irrigation schemes; and supporting 25 commercial farming deals in SAGCOT area. The targets under the three initiatives were to have additional 150,000 tonnes of sugar; 290,000 tonnes of rice and 100,000 tonnes of maize by June 2015.

To ensure effective participation of private sector investment in the agriculture sector, through BRN, the Government has embarked on creating a conducive business environment. Among others, highlighted areas addressed as business environment challenges, especially for the micro-, small- and medium-scale enterprises for attaining TDV 2025 include (i) access to land and security of tenure; (ii) contract enforcement, law and order; (iii) curbing corruption; (iv) labour laws and skillset; (v) aligning regulations and institutions; and (vi) taxation, multiplicity of levies, fees and charges.

### 1.2 Share of Investment Plan being Financed by Source, and the Estimated Financing Gap

The funding gap is estimated to be US$ 2.876 billion over five years – the difference between the US$ 3.304 billion investment and US$ 2.42 billion agricultural sector development budgets. It is assumed that the Government, Development Partners and Private Sector would finance the required additional amount. The financial plan, available funds and funding gaps for Tanzania Mainland and Zanzibar are presented in Tables 2 and 3, respectively. Table 4 and 5 present the source of financing for Tanzania Mainland and Zanzibar.

**Table 2: Proposed Costs for TAFSIP Mainland**

| | Annual Budget - (Currency in Million TZS 000,000) | | | | | |
|---|---|---|---|---|---|---|
| ESTIMATE | Y1 | Y2 | Y3 | Y4 | Y5 | Total |
| Available Funds | 877,273.00 | 774,758.00 | 746,484.00 | 699,763.00 | 707,983.00 | 3,806,261.00 |
| Proposed Fund for TAFSIP | 1,263,467.79 | 1,516,615.35 | 1,644,032.37 | 1,765,611.26 | 1,919,110.08 | 8,108,836.86 |
| Financial Gap | (386,194.79) | (741,857.35) | (897,548.37) | (1,065,848.26) | (1,211,127.08) | (4,302,575.86) |
| % Gap | 8.98 | 17.24 | 20.86 | 24.77 | 28.15 | 100.00 |

**Table 3: Proposed Costs for TAFSIP Zanzibar**

| | Annual Budget - (Currency in Million TZS 000,000) | | | | | |
|---|---|---|---|---|---|---|
| **ESTIMATE** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Total** |
| Available Funds | 29,400.00 | 33,000.00 | 41,200.00 | 48,100.00 | 47,900.00 | 199,600.00 |
| Proposed Fund for TAFSIP | 87,189.95 | 155,096.29 | 126,343.59 | 140,065.32 | 134,873.04 | 643,354.53 |
| **Financial Gap** | **57,789.95** | **122,096.29** | **85,143.59** | **91,965.32** | **86,973.04** | **443,754.53** |
| **% Gap** | **13.02** | **27.51** | **19.19** | **20.72** | **19.60** | **100.00** |

**Source: TAFSIP 2011**

**Table 4: Proposed Financing for Plan for the gap- Tanzania Mainland (TShs million)**

| **Source** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Total** |
|---|---|---|---|---|---|---|
| Government (20%) | 77,239 | 148,371 | 179,510 | 213,170 | 242,225 | **860,515** |
| Development Partners (45%) | 173,788 | 333,836 | 403,897 | 479,632 | 545,007 | **1,936,159** |
| Private Sector (25%) | 96,549 | 185,464 | 224,387 | 266,462 | 302,782 | **1,075,644** |
| Others (NGOs, farmers etc) 10% | 38,620 | 74,186 | 89,755 | 106,585 | 121,113 | **430,258** |
| **Total** | **386,195** | **741,857** | **897,548** | **1,065,848** | **1,211,127** | **4,302,575** |
| **US$ (Million)** | **241** | **464** | **561** | **666** | **757** | **2,608** |

**Exchange Rate TSHs 1600.00 = 1 USD (As at the preparation of TAFSIP 2011)**

**Table 5: Proposed Financing Plan for the gap-Zanzibar (TShs million)**

| **Source** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Total** |
|---|---|---|---|---|---|---|
| Government (20%) | 11,558 | 24,419 | 17,029 | 18,393 | 17,395 | 88,794 |
| Development Partners (65%) | 37,564 | 79,362 | 55,344 | 59,777 | 56,532 | 288,579 |
| Private Sector (10%) | 5,779 | 12,210 | 8,514 | 9,197 | 8,697 | 44,397 |
| Others (NGOs, farmers etc.) 5% | 2,890 | 6,105 | 4,257 | 4,598 | 4,349 | 22,198 |
| **Total** | 57,790 | 122,096 | 85,144 | 91,965 | 86,973 | 443,968 |
| **US$ (Million)** | **36** | **76** | **53** | **57** | **54** | **277** |

**Exchange Rate TSHs 1600.00 = 1 USD (As at the preparation of TAFSIP 2011)**

## 1.3 KEY ELEMENTS OF THE POLICY ENVIRONMENT

The National Agriculture Policy 2013 (NAP 2013) outlines a number of constraints that are affecting effective control of pests and diseases in the country that include inadequate capacity for pest surveillance; inadequate pest risk analysis and bio-security measures; weak pest monitoring and control mechanisms; limited management options for pests and diseases; and weak sanitary and phytosanitary services. In order to address the constraints above, the following will be implemented (i) pest and disease

surveillance, system and control mechanisms shall be strengthened; (ii) The Government shall collaborate with neighbouring countries, international organizations and other institutions dealing with plant health services in combating pests and diseases outbreaks; (iii) Pest free areas shall be protected from introduction of pests of quarantine importance; and iv) The Government shall strengthen sanitary and phyto-sanitary, quarantine and plant inspectorate services. Furthermore, the Government has enacted the Plant Protection Act, 1997 and Regulation 4 (1) of Plant Protection Regulations (PPR) (1998) which has mandated the National Plant Protection Advisory Committee (NPPAC) to coordinate and monitor Plant Protection activities in Tanzania including the approval for registration of biological control agents. Procedures for importation registration and release of biological control agents are stipulated in Regulation 42 – 45 of the PPR 1998. In addition Tanzania is a member of the International Plant Protection Convention (IPPC) 1997 as the international standard setting body responsible for plant health standards. All these efforts indicate the Government commitment towards prevention of aflatoxin in the country.

## 1.4 GOVERNMENT COMMITMENT TO AGRICULTURE, FOOD AND NUTRITION SECURITY

### 1.4.1 Budget Allocation to Agriculture Sector

Financing for agricultural development in Tanzania, has been the Government's task supplemented by Development Partners through ASDP Basket Fund and stand-alone projects. Others supporting the sector include private sector and NGOs. Overall, financing for agriculture in the past five years has been growing on average of 5 percent demonstrating the Government's commitment to invest in the sector. The share of the budget allocated to the agricultural sector peaked in 2012/13 at 7.4 percent before falling to 5.3 percent in 2016/17. This has been attributed by agricultural sector ministries not receiving their full appropriation. Public expenditures for the agricultural sector 2012/13-2016/17 are as indicated in the Table 6.

**Table 6: Public Expenditure to Agricultural Sector**

| Year | Government Budget | Agric Sector Budget | % of the total budget |
|---|---|---|---|
| 2012/13 | 15,000.0 | 1,103.6 | 7.4 |
| 2013/14 | 18,249.0 | 908.1 | 5.0 |
| 2014/15 | 19,853.3 | 1,084.7 | 5.5 |
| 2015/16 | 22,495.5 | 1,001.4 | 4.5 |
| 2016/17 | 29,539.6 | 1,560.0 | 5.3 |

### 1.4.2 Poverty Reduction Focus of Agriculture Investment

Investment policy of Tanzania for the agriculture sector calls for mechanisms of fostering research and development that will encourage the adoption of new technologies and hence achieve higher agricultural productivity to reduce poverty among the majority rural poor communities. Investments in agriculture have had notable positive impacts on food security and poverty reduction in terms of improved production and productivity. The impact of agricultural investment on food security and poverty reduction can be

assessed through gains in agricultural productivity and production. For instance overall trend in food Self Sufficiency Ratio (SSR) for Tanzania for the past ten years has been between 100 and 120 percent.

The government has established the Tanzania Agricultural Development Bank (TADB) which will be providing agricultural credits to both small and large scale investors in agriculture. Prior to the establishment of TADB, the Government has been implementing various policies and initiatives to ensure adequate credits to productive sectors including agriculture. Some commercial banks have started to earmark agriculture sector activities and projects especially in rural areas. Recently the government of Tanzania has secured soft loan amounting to 93.5 million US Dollars from AfDB to finance agriculture through the TADB. This shows government commitment to improve agriculture and financial credit to farmers and agro-processors.

## 1.5 PROCESS BY WHICH THE STRATEGY AND INVESTMENT PLAN WERE DEVELOPED AND, WHERE RELEVANT, UPDATED

### 1.5.1 TAFSIP Development Process

The TAFSIP is a product of a broad based consultative collaborative process that involved all key stakeholders based on the CAADP principles and CAADP Compact. First the composition of the CAADP task force team that was established to spearhead its development was very inclusive constituting members from Tanzania Mainland and Zanzibar. It also included other key stakeholders from the Private Sector, Civil Societies, Non State Actors and Development partners and Representatives from Regional Organizations- AU and Sub Regional Economic Groupings. It also included Regional Think Tanks, Research Institutions namely the Regional Strategic Analysis and Knowledge Support Network System. Second, the process was also intensively consultative. A composition of stakeholders similar to the composition of the CAADP task force met in July 2010 under the leadership of the President to endorse and make commitments to CAADP objectives and principles. The process to develop TAFSIP engaged key stakeholders and was facilitated through stakeholder workshops conducted both at the national and regional/zonal levels. These workshops analyzed the agricultural sector performance and identified key priority areas for investments that would address key sector constraints.

Government Ministries and Development Agencies, private sector organizations and industry associations including Tanganyika Farmers Associations (TFA**),** Agricultural Council of Tanzania (ACT), a Network of smallholder Farmers in Tanzania (MVIWATA), donor funded programs and projects, Tanzania National Business Council (TNBC), Agriculture sub-sector Associations such as Tanzania Milk Processors Association and the Tanzania Horticulture Association (TAHA) all participated in the stakeholder consultation workshops. The consultative process is well acknowledged in the post compact CAADP technical review report of TAFSIP and that the process was inclusive and generated consensus and ownership and agreements on key policy priorities. The TAFSIP developed has been reviewed by the CAADP technical review team and was endorsed by the business meeting held in November 2011 chaired by His Excellency the President of the United Republic of Tanzania Dr. Jakaya Mrisho Kikwete. The business meeting drew in the participation of all stakeholders who were part of the process to developing the plan.

### 1.5.2 TAFSIP Review to Incorporate Aflatoxin Control

In 2015, Tanzania took steps to strategically intervene in mitigating the threats of aflatoxins by embedding its national aflatoxin control plan into the TAFSIP, specifically through inclusion of aflatoxin mitigation along value chains under plant health services, post-harvest management and food safety component of the ASDP II. This was undertaken through an evidence-based consultative process. Situational analysis study conducted with the support of PACA revealed the economic impact of aflatoxins and identified options for mitigating the impact. The inputs were used to develop the national aflatoxin control plan. Stakeholders reviewed and validated the plan, and identified entry points for mainstreaming in the TAFSP. The aflatoxin control plan is thus included in the ASDP II (the implementation wing of the TAFSIP).

## 1.6 IMPLEMENTATION ARRANGEMENTS AND CAPACITY TO IMPLEMENT

### 1.6.1 Institutional Arrangement for TAFSIP Implementation

The TAFSIP process included a comprehensive review of policies, strategies and institutions, and identification of gaps and weaknesses. The Agricultural Sector Lead Ministries (ASLMs) in the Mainland and Zanzibar are the key ministries responsible for policy and strategy development. Directorates of Policy and Planning in the ASLMs are directly responsible for overseeing the implementation of the TAFSIP. In Zanzibar it is the central government that implements programs. Under the Government's decentralization policy, that has taken hold in the mainland the Local Government Authorities (LGAs) are responsible for the implementation of agricultural plans and policies. LGAs will implement their part of the project under the leadership of the District Executive Directors (DEDs) in accordance with the existing LGAs financial and other regulations and rules. Day-to-day activities implementation will be the responsibility of the District Agriculture, Irrigation and Cooperative Officer (DAICO). Regional Secretariats (RS) will assist LGAs on matters related to project including regular monitoring visits.

Institutions in the private sector in view of TAFSIP implementation include the Tanzania Private Sector Foundation (TPSF), the Confederation of Tanzania Industries (CTI), the Tanzania Chamber of Commerce Industry and Agriculture (TCCIA), and the Tanzania National Business Council (TNBC) which represent the private sector in various capacities and have influence on policy and budgeting decision-making processes. ACT and the National Network of Farmers Groups in Tanzania also known in Kiswahili as "Mtandao wa Vikundi vya Wakulima Tanzania" (MVIWATA) as well as the Agricultural Non-State Actors Forum (ANSAF) are the national bodies for advocacy in the agricultural sector and were engaged in the process.

### 1.6.2 Evidence of GAFSP Supported Project in Tanzania

Expanded Rice Production Project (ERPP) is a five year project aiming at increasing the productivity and production of rice among smallholders in targeted areas of Morogoro and Zanzibar and is financed by Global Agriculture Food Security Program (GAFSP) and the World Bank as a supervisory entity. The total project financing is US$ 27.34 million of which US$ 22.90 million come from GAFSP and has four major components; (i) Sustainable seed systems; (ii) Improving crop productivity through better irrigation and crop management; (iii) Innovative marketing strategies; and (iv) project management and coordination. The actual implementation of the project started in January 2016 and it is in the fourth

quarter of implementation according to the government fiscal year. So far the following has been done: for component one of the project, production of requisite quality and quantity of pre-basic seed have been done. Furthermore, the rehabilitation of Agricultural Seed Agency (ASA) seed laboratory infrastructure is in progress whereby design and BOQ is finalised. For the second component which focuses on improving rice productivity through enhancement of irrigation and crop management, the design and studies for rehabilitation is already done For the third component, preparation of training manuals, identification of farmers and training of Irrigators organisation (IOs) has been done. Additionally under this component, marketing study and profiling of actors along the value chain and designing of warehouses is done to allow next step of procurement of contractor. However, few challenges which include; delayed disbursement of fund and procurement logistics have been noted during implementation.

## 2.0 PART 2: SPECIFIC FUNDING PROPOSAL

The overall development objective of TANIPAC project is to contribute to the agricultural sector growth with a particular focus on preventing aflatoxin prevalence in Tanzania. The ultimate aim is to improve food safety and nutrition security of smallholder farmers in the identified project areas.

### 2.1 Specific Objectives, Results and beneficiaries

TANIPAC project will support maize and groundnuts small scale farmers on aflatoxin abatement. The project will be implemented in five regions of Tanzania main land and two districts in Zanzibar. The project is envisaged to ultimately support about 60,000 households producing groundnuts and maize. TANIPAC is designed to reduce aflatoxin contamination in maize and groundnuts through; (i) improved pre- and post-harvest technology and management practice; (ii) Increased public knowledge and awareness; and (iii) strengthening government institutional capacity and innovative marketing incentives and (iv) monitoring and evaluation. Thus, specific objectives and results for the project are grouped under four components as described below.

#### 2.1.1 COMPONENT 1: PRE AND POST HARVEST TECHNOLOGY AND MANAGEMENT

**SUB-COMPONENT 1: PRE-HARVEST TECHNOLOGIES**

Aflatoxin contamination of maize and groundnuts originates from the field while the crops are still maturing. Aspergillus spp., the causative agents are found in soil and many other places (Bhat *et al*, 2010). Poor agricultural practices are known to contribute significantly to field fungal infestation under favourable conditions. Despite high incidence of toxigenic fungi, the role of atoxigenic strains of *A. flavus* that could competitively exclude aflatoxin producers have been found effective in controlling the spread and toxin production in grains. This has led to successful use of biological control through isolation, testing and mass production as bio-control products, which have shown high efficacy (70-95%) in controlling aflatoxin occurrence in field and storage. Biocontrol has proven effective under local conditions using indigenous isolates, offering a new tool for abating the toxin in the food chain. The use of GAPs which include drought and pest resistant varieties coupled with the use of innovative technologies such as biological control could be the best approaches in field control of aflatoxins and reduction of contamination incidences during storage. Survey conducted in 2012 revealed low level of awareness among the public on aflatoxin and control measures, which need to be improved for effective containment of the problem.

**Specific objective 1.1: Adoption of aflatoxin smart GAPs**. This will be achieved though (i) developing baseline data in 20 districts to establish status of toxigenic and atoxigenic *A. flavus* and other production constraints as well as extent of application of GAPs; (ii) developing and disseminating GAP guideline manuals for maize and groundnuts that incorporate aflatoxin prevention measures; (iii) conducting 40 on-farm farmer participatory demonstration of GAPs to enhance adoption; (iv) distributing 5,000 copies of GAP manuals to stakeholders (farmers, Extension Officers and agricultural training Institutions); (iv) conducting TOT to at least 500 Agricultural Extension Officers and Agricultural Produce Inspectors to facilitate dissemination of GAPs; (iv) conducting follow up in selected farmers in 20 districts to assess awareness and adoption of GAPs; ;and (vi) equipping a quarantine and phyto-sanitary laboratory with aflatoxin testing facilities

**Specific objective 1.2: Validate and scale up bio control technologies.** The project will support utilization of bio-control technology for sustainable aflatoxin prevention and control through (i) conducting on farm demonstration trials to demonstrate the efficacy of Tanzanian-specific aflatoxin biocontrol products in more than 500 farmer fields across project test sites; (ii) raising awareness of aflatoxin biocontrol products and operational procedures among stakeholders along the maize and groundnut value chains; (iii) building bio-control capacity of key government institutions for biocontrol product manufacturing, distribution and use by target groups in the crop value chain; (iv) enhancing government capacity (technical and facilities) for evaluation and registration of bio control products; (v) developing and supporting bio control product distribution channels for wider reach for maize and groundnut farmers; (vi) developing, producing and disseminating of bio control guidelines in local languages; and (vii) monitoring quality and performance of the bio control product.

**Specific objective 1.3 Specific objective 1.3: Develop a decision support system for crop and weather monitoring and early warning.** Under this sub-component, capacity for collection of weather and aflatoxin prevalence data will be enhanced through (i) training of 20 technical personnel at national level on sampling for aflatoxins (which is so far as known the most critical step to get reliably aflatoxin prevalence data) ;(ii) identifying partner agencies such as Tanzania Meteorology Authority (TMA) and strengthen their capacity for analysing samples for aflatoxin content; (iii) training of Local Government Authorities (TOTs)/partner labs technical team on how to monitor, collect and fill data of aflatoxin test results and accompanying data into a data base; (iv) creating a robust system of weather data collection (including the provision of portable weather stations); (v) collaborating with PACA and its partner institutions to carry out mathematical modelling and developing an early warning decision support system to forecast risks of contamination and/or exposure; vi) supporting the development of a technical manual (user friendly interface) for assessing early warning signals for heavy aflatoxin contamination. The decision support system will be coordinated with extension messages aflatoxin prevalence at farm level; and (v) procuring and installing of rainfall and will inform the deployment of biocontrol and save human lives from acute outbreaks.

**SUB-COMPONENT 2: POST-HARVEST TECHNOLOGIES AND MANAGEMENT**

Available data show that 77% of maize produced by small holder farmers is kept for household consumption and 17% is traded locally for domestic consumption as well (Abt Associate, 2013). However, postharvest study has indicated that 14-45% of maize and 20 % of groundnuts are known to be contaminated with aflatoxin above allowable levels, let alone the fact that 82% of maize is co-contaminated with aflatoxin and fumonisins (Kamala, et al., 2016; Kimanya et al., 2010; Abt associate, 2013).

Moreover, Bhat et al. (2010) have reported significance of *Aspergillus* spp. and aflatoxin accumulation during postharvest storage of maize and other crops, despite the fact that its formation starts in the field. Improving postharvest drying, proper storage and control of pests during storage have been associated with lower occurrence of mycotoxin contamination in Tanzania (Kamala et al., 2016), which indicate the importance of addressing postharvest issues and technologies in order to contain the problem.

Despite the evidence of good technologies recommended for appropriate postharvest handling, 68% of maize and 78% of groundnuts at household level are stored using inadequate technology whereas use of improved and modern storage is 1-4 % only (Abt Associate, 2013). Investing in appropriate postharvest technologies and improving handling practices and management, supplemented with knowledge enhancement on the effect of aflatoxin contamination and its control measures, will lead to significant reduction in the contamination as well as exposure of aflatoxin. The use of hermetic storage and platform drying have shown good results in various countries including Uganda, Rwanda and Kenya which could be applied in Tanzania. This project will validate and promote these technologies in high risk areas for preventing food supply contamination.

**Specific objective 2.1: Promote adoption of improved storage technology including hermetic and collective warehouses:** This will be implemented through; (i) procurement and distribution of 10,000 hermetic silos to 10,000 medium scale farmers in 20 project districts; (iii) promoting and distributing 300,000 PICs bags to small scale farmers 300,000 PICS bags with 100kg maize and groundnuts carrying capacity for grain protection from fungal infestation and aflatoxin contamination while maintaining grain quality; (iv) establishing marketing linkages through construction and equipping 20 warehouses for collective storage of maize grains and marketing; (v) providing training of warehouse operators with best practice postharvest management and warehouse management; (vi) preparing of training tools for capacity building of supply chain actors on appropriate storage technologies and management to increase their knowledge and skills in addressing aflatoxin issues; (vii) monitoring the postharvest losses associated with aflatoxin contamination and impact of proposed technologies in loss reduction; (viii) promoting positive practices such as sorting, grading and packaging for control of aflatoxin during storage, transportation and processing; and (viii) mobilizing and strengthening of farmer based organizations and capacitating them on aflatoxin control.

**Specific Objective 2.2: validate and scale-up drying technologies in high humidity areas for fast and proper drying of maize and groundnuts after harvest through implementing the following activities;** (i) Assessment of current use of drying technologies applicable in project areas for maize and groundnuts (ii) Validate and scale-up drying technologies proved effective in facilitating fast and proper drying of maize and groundnuts, particularly in high humid areas; (iii) Promote use of drying sheer and construct 2,000 platforms for grain drying to reduce contamination from ground drying as practiced by many farmers

**Specific Objective 2.3: develop and establish postharvest losses database, routine data collection system, review and disseminate guidelines and manual for proper postharvest management and operations.** This will be done through; (i) assessing the current practices on postharvest practices for handling maize and groundnuts in project areas; (ii) collecting relevant information and preparing guidelines and manual with aflatoxin control perspective (iii) disseminating the draft guidelines and manuals to key stakeholders and holding validation meetings for the proposed manuals and guidelines; (iii) Publication of manual and guidelines and disseminating them to various users; (iv) Conducting training of extension staff and farmer organizations on the use of the manual for abatement of aflatoxin contamination in maize and groundnuts to improve service delivery; and (v) engaging a consultancy for the establishment of a postharvest losses database and routine data collection mechanism with special indicators to capture any loss associated with aflatoxin contamination.

**Specific Objective 2.4: strengthen the maize and groundnuts supply chain capacity to prevent aflatoxin occurrence.** This will be done through; (i) identifying the potential role of market system in sustaining aflatoxin control in the supply chain; (ii) improving the capacity of local market distribution systems by addressing factors aggravating the problem in the marketing system; (iii) assessing postharvest losses attributed to fungal contamination and the contribution of improved storage technologies in addressing contamination and loss reductions; (iii) training of key actors in the supply chain (extension officers, national technical staff, storage facility operators and transporters) to improve their knowledge and capacity on prevention of contamination; (iv) procuring and providing aflatoxin screening kits to enable early detection of contamination at critical points in the value chain to reduce risk of exposure; (v) Introducing and promoting the use of mobile phones to enable actors to access information related to aflatoxin prevention strategies at various points of the maize and groundnut supply chain; and (v) strengthening the capacity of LGAs and the National Food Security Department by providing working tools (computers and printers and transport facilities).

## 2.2 COMPONENT 2: CAPACITY BUILDING AND INSTITUTIONAL STRENGTHENING

The objective of this component is to rebuild the national capacity through strengthening relevant key institutions relevant in controlling and mitigating the aflatoxin problem in the country. Under this component, TANIPAC will ensure availability of human capacity to spearhead the initiative during and post-project phase in order to fight the aflatoxin problem sustainably.

**Specific objective 1: Strengthening regulatory authorities** Maize and groundnuts production and marketing involve various institutions with enabling and regulatory roles along the value and supply chains. Capacity development of these key institutions is pivotal to the success, scale up and sustainability of the aflatoxin mitigation measures. The project will capitalise on the existing Government institutions and strengthening them to improve regulations, research and innovation, technology transfer; and setting policy and conducive environments for private sector participation. These institutions include but are not limited to: TBS, TFDA, COPRA, SIDO, VETA, MALF and LGAs. The project will strengthen key institutions by (i) Enabling regulatory framework to fully function (ii) Mainstreaming of aflatoxin control into national policies (iii) establishment of four (three Tanzania mainland and one in Zanzibar) centres of excellence for maize and groundnut testing laboratories (Purchase of testing equipment, training analyst and accreditation (iv) Harmonizing the Standards for mycotoxins (vi) Well informed system for post-harvest loss indicators established; and (vii) Formulation of an aflatoxin risk assessment protocol for Tanzania.

**Specific Objective 2: Innovative market incentives for aflatoxin safe products**: Additional costs are unavoidable when famers, traders and processors need to ensure the availability of aflatoxin safe products. However, many markets in Tanzania do not offer incentives or premium for the production and sale of aflatoxin safe food, hence farmers and traders are not motivated to produce or market aflatoxin safe food. Though standards for maximum aflatoxin concentrations in grains and products are set and laboratory aflatoxin testing is well established, it does so mostly for packaged foods and foods bound for the formal export market. Nevertheless, as a large percentage of susceptible foods are consumed in unpackaged form, thus, the current national food safety system does not address a large share of food consumed by its population. Consequently, aflatoxin-contaminated grain can enter the domestic markets and the informal international markets exposing large population to health effect. This project will incentivize the supply chain actors to adopt the proposed measures and technologies with the ultimate goal of increasing economic gains and reduce health consequences by consuming and trading aflatoxin safe food. Furthermore, the project will establish mechanisms for enforcing standard and encourage voluntary compliance with provision of market premiums for traders and farmers.

### 2.2.1 COMPONENT 3: CREATING AWARENESS AND PUBLIC EDUCATION

It has been established that while aflatoxin occurs in staple foods that are consumed daily, many farmers and consumers are not aware of the source and its health consequences, and therefore ignores measures meant to reduce the occurrences. On the other hand, some actors hold the key to success in any effort that is geared to influence public behaviour and change. These include policy makers, law makers and decision makers as well as diverse actors along the supply chain across all levels. Thus, for effective prevention and reduction of aflatoxin, public awareness and education is a key intervention for the overall minimization of related health and economic consequences.

**Specific Objective 4.1: Raise awareness and public education and disseminate information about aflatoxins mitigation measures**. The planned activities include (i) raising awareness about the importance of aflatoxin control through seminars, meetings and national media campaign ; (ii) developing ICT platforms for real-time communication; (iii) preparing leaflets, posters and feature stories in publication media to suit various users; (iv) conducting advocacy campaigns for policy makers and law-makers to sensitize them and influence their decision making; and (v) holding exhibitions and road shows to raise public awareness about aflatoxins.

### 2.2.2 COMPONENT 4: PROJECT COORDINATION, MONITORING AND EVALUATION

Specific Objective 4.1: Enhancing project coordination. The objective of this component is to facilitate efficient implementation of project activities and tracking of results. Project implementation will use existing structures in the Ministries of Agriculture Livestock and Fisheries, Finance and President's Office-Regional Administration and Local Government in project implementation, management, procurement, financial control, monitoring and evaluation. MALF will play the role of overall coordination and therefore assign a dedicated implementation team of key staff to ensure there is adequate capacity to coordinate, implement and monitor the project effectively. Under this component, support will be provided for operational costs, project monitoring and evaluation and impact assessments. In addition, the project will establish and support consultative forum to involve private sector. Development of each component was linked to relevant TAFSIP objectives, CAADP pillars and GAFSP component as illustrated in Table 7.

**Table 7: Project Component Link with TAFSIP, CAADP Pillars and GAFSP Components**

| Component Objective | TAFSIP/ASDP Objective | CAADP Pillar | GAFSP Component |
|---|---|---|---|
| 1. To improve pre- and postharvest technologies and management practices in the food supply chains | Food and Nutrition Security<br><br>Production and rural Commercialization | **Pillar III**: Increasing food supply and reducing poverty and improving responses to food emergency crises<br><br>**Pillar IV**: Improving agriculture technology and dissemination<br><br>**Pillar II**: Rural infrastructure and trade-related capacities for improved market access | Raising agricultural productivity and reducing risk and vulnerability<br><br>Reducing risk and vulnerability |
| 2. To improve capacities and strengthen key institutions for regulation and enforcement mechanism to prevent and control aflatoxin contamination | Rural Infrastructure, Market Access and Trade<br><br>Private Sector Development | **Pillar II**: Rural infrastructure and trade-related capacities for improved market access | Linking farmers to markets<br><br>Technical assistant and institution support |
| **Component Objective** | **TAFSIP/ASDP Objective** | **CAADP Pillar** | **GAFSP Component** |
| 3. To increase awareness and enhance public education on the effect of aflatoxin on health and economic consequences to stimulate their actions on preventive measures | Policy Reform and Institutional Support<br><br>Private Sector Development | **Pillar II**: Improving rural infrastructure and trade-related capacities for improved market access | Linking farmers to market<br><br>Technical assistant and institution support |
| 4. Project Coordination, Monitoring and evaluation | Ensuring effective coordination and implementation | | Technical assistant and institution support |

### 2.2.3 Project beneficiaries

The main beneficiaries are the farmers, traders and commodity processors all of whom will have improved access to aflatoxin free products. Thus, the implementation of this project will directly benefit about 60,000 farmers, 120 extension and technical staff, 2,000 traders and transporters, and 2,000 SMEs involved in high risk food processing. The project will target 50% of women participation and will be closely monitored by the M&E system.

## 2.3 JUSTIFICATION FOR THE PROPOSED APPROACH

### 2.3.1 Crops of choice

The TANIPAC project intends to minimize aflatoxin occurrence in the main staple food to improve food safety and reduce negative health consequences. Of all staple and cash crops cultivated, maize is the major and most preferred staple crop, with around 45% (or over 4.9 million hectares) used for maize production. More than 85% of maize production is by smallholder farmers, mostly for their own consumption, with some surplus traded in local markets. Maize and groundnuts together account for almost 44 percent of the calorie intake, and on average Tanzanians eat 521 grams of maize and groundnuts per person per day. It is estimated that the annual per capita consumption of maize is around 128 kg, and nearly 400 grams of maize are consumed per day per person; thus contributing about 34-36% of the average daily calorie intake. In Tanzania groundnut can be an important crop for weaning foods for children.

Available information shows that aflatoxins are prevalent in maize and groundnuts grown in Tanzania. Over 40% of maize samples from the Eastern and Western regions of Tanzania contain aflatoxins at levels that exceed the national regulatory limit of 10ppb (Abt Associate Inc, 2013). The report also shows that aflatoxins levels in over 18% of groundnuts from the main groundnut producing regions of Mtwara and Dodoma exceed the regulatory limit of 5ppb set for aflatoxin B1. Again the outbreak which occurred in the central zone claimed lives of Tanzanian and analysis indicated present of extremely high amount (360 ppb) of aflatoxin in the maize samples taken from the area (Kondoa, Chemba, Kiteto).

### 2.3.2 TANIPAC Project sites

The TANIPAC project will be implemented in the potential regions of maize and groundnuts production and where evidence indicates a high likelihood of occurrence of aflatoxins contamination. The regions include Dodoma (five districts), Manyara (three districts), Tabora (three districts), Kigoma (two districts); Morogoro (two districts), Ruvuma (two districts) and Mtwara (one district). The project will further be extended to two districts in Zanzibar, though they are not potential producer but their livelihood partly depends on maize and groundnuts that mainly produced in the Tanzania mainland.Manyara, Ruvuma and Kigoma being among the highest five maize producing regions in Tanzania. Tabora and Dodoma are also high groundnuts producers. Other high groundnut-producing regions are Mtwara, Kigoma and Ruvuma. Crop wise, the proportion of maize production in 2015/16 cropping season, was 1,218,419 tonnes which is 20% of the national total production of maize (6,148,699 Tonnes). Production of groundnut from these regions in 2014/15 was 740,000 tons equivalent to 40% of the total national production which amounted to 1.8 million tones. The initiative will also give special consideration to the regions of Dodoma and Manyara where there was an outbreak of aflatoxicosis that affected 65 people of which 19 died in 2016.

About half of the food samples from the victims' families were detected with aflatoxins at levels exceeding the maximum limit, ranging 5.5 - 362.2ppb. In Tabora, Shirima et al. (2013) reported dietary exposure to aflatoxin for children of age above one year using biomarker. Aflatoxin - albumin adduct was detectable in 84% children and the level was higher for fully weaned children. Previously Kimanya et al. (2008) reported that 30% of samples of maize from Tabora exceeded the regulatory limit of 10ppb.

An assessment of aflatoxins contamination in maize conducted in 2012 reported that about 43% of the maize samples from Morogoro (Kilosa) contained aflatoxin $B_1$ ($AFB_1$) at levels above the regulatory limit of 5ppb. Other data show high aflatoxin contamination in maize from Manyara (Kamala et al. 2014) and Ruvuma (Kimanya et al. 2008). For groundnuts, high contamination levels have been reported in more

than 18% of groundnut samples from Manyara and Mtwara (Nanyumbu), and Tabora contamination levels exceed the regulatory limit for Aflatoxin B1. Special consideration will be given to Zanzibar. In this region measures to mitigate aflatoxins during storage and preparation of foods will be employed. Zanzibar is not an important producer of groundnuts or maize but is an important consumer of the same.

### 2.3.3 TANIPAP Coordination approach

The aflatoxin control project will be implemented through a multi-sectoral approach mainstreaming into the existing government structure. The project will be subdivided into four major components which will be led by different manager based on institution or departmental relevancy. The proposed components are: (i) pre- and post-harvest technology and management; (ii) Capacity building and institutional strengthening; (iii) Advocacy and public awareness creation; and (iv) Coordination, monitoring and evaluation. For sustainability, the project implementation will capitalise on the public private partnership policy (PPP) in order to ensure involvement of private sector.

### 2.3.4 Pre- and Post-harvest Technology and Management

Aflatoxin contamination during crop development and maturity depends on environmental conditions that are optimal for the growth of fungi. During crop development, damage by pests (birds, mammals, and insects) or the stress of hot, dry conditions can result in significant infections. At the time of harvest, high moisture and warm temperatures can increase the risk of aflatoxin contamination. Inadequate drying and improper storage also increases the risk of aflatoxin contamination during postharvest. Countries such as Tanzania that is located between 40ºN and 40ºS latitude offer suitable growing conditions for the fungi, subjecting their populations to risk of exposure. Therefore, Promotion of technologies that have been proven to be effective in preventing aflatoxin contamination during pre-harvest (such as bio control)-and post-harvest (hermetic storage) handling for maize or groundnuts is vital and inevitable in the control of aflatoxin contamination. These approaches have the added benefit of reducing losses from insect pests and maintaining overall crop quality.

### 2.3.5 Strengthening institutional capacity

Strengthening institutions along the maize and groundnuts production and supply chain is paramount for sustainable control of aflatoxin in Tanzania. This includes; policy making, regulatory and technology transfer and weather forecasting institutions. The project will strengthen the existing Government institutions that are relevant to aflatoxin control. Support will target renovating and strengthening infrastructure and human capacity to ensure post-project sustainability. Implementation of standards and conformity assessments, including capacity building throughout the ecosystem for quality and conformity and behavioural change incentives such as financial and in-kind behavioural incentives for value chain actors aimed at encouraging activities related to aflatoxin mitigation.

### 2.3.6 Advocate and raise awareness on aflatoxin mitigation

In order to be able to prevent contamination one has to be aware of the aflatoxin problem and knowledgeable about the measures to prevent the problem. A survey conducted in Tanzania in 2012 showed that awareness and knowledge about aflatoxins are very low; only 20% were aware of aflatoxins. It was also found that knowledge of PHM, PHH and GAP is not widespread and that guidelines on the same were not available. Furthermore, policy makers need to be sensitized on issues of aflatoxin mitigation so that it can be implemented in the national agenda.

## 2.4 ACTIVITIES TO BE FINANCED

TANIPAC will be financed through its four major components which are; (i) Pre- and post-harvest technologies and management; (ii) capacity building and institutional strengthening; (iii) Public awareness and advocacy; and (iv) project coordination, Monitoring and evaluation. The specific activities of the sub-components include; (i) promoting adoption of Aflatoxin smart GAPs; (ii) validating and scaling up bio control technologies; (ii) promoting application of weather information in crop monitoring and early warning information provision based on aflatoxin prevalence during crop phonological stages in the field; (iii) promoting adoption of hermetic storage and collective warehouse based marketing systems; (iv) validating and scaling-up drying technologies in high humidity areas for maize and groundnuts; (v) developing a postharvest losses database, reviewing and disseminating guidelines and a manual for proper postharvest operations; (vi) strengthening the maize and groundnuts supply chain capacity to prevent aflatoxin occurrence. More interventions include, (vii) strengthening capability of institutions involved in aflatoxin control enhanced; (viii) establishing a mechanism for enforcement of standards and implementation of a marketing premium in the domestic market for maize and groundnuts; and (ix) raising awareness and disseminating information about aflatoxin mitigation measures. Moreover, the financing will consider activities for project coordination and management, procurement and logistics, monitoring and evaluation.

Implementation of each of the activities will give priority to the least privileged groups and will abide to the national agenda of women empowerment. Furthermore, the project will give priority to youth as guided by the National Strategy for Youth Involvement in Agriculture (NSYIA) of 2016. Nutrition, climate change and environment will be given special consideration as cross cutting agenda during implementation.

## 2.5 IMPLEMENTATION ARRANGEMENT

### 2.5.1 Implementation Arrangement

As is the case with the overall TAFSIP, at the central level, the GAFSP component of the program will be coordinated by MALF and implemented by the ASLMs and PO-RALG. Other key collaborative institutions in the course of project implementation includes: TFDA**,** TBS and COPRA (for regulatory issues); SUA and NM-AIST (for research and innovation); SIDO and VETA (for technology transfer) TFNC for public awareness and advocacy; FAO; and PACA (for technical support). The GAFSP funded component will thus stand as an embedded program within the broader ASDP/ASP and for convenient, timely execution of the project implementation, the budget will be ring-fenced and targeted to the activities as described in this proposal.

### 2.5.2 Project Management Team (PMT)

The project will not have a standalone Project Implementation Unit (PIU) but, rather, a Project Management Team (PMT) will be set-up comprising of public officials nominated by the Government. The PMT will be hosted by the Ministry of Agriculture Livestock and Fisheries. In this regard the Director of National Food Security (DNFS) will serve as the Project Director and be supported by a Project Coordinator (PC) to manage day-to-day affairs of the PMT. The PC will report to the DNFS, who will in turn report to the Permanent Secretary MALF. DNFS will then coordinate all supportive ministries in implementing the project. DNFS will make consultations with DPP who is the overall coordinator of ASDP II implementations and all reports regarding the project implementation will at all time be submitted to CMT which is the ASDP secretariat which oversee the whole implementation of the program. For effective implementation of the project, PMT will manage the project with support from

Ministerial Delivery Unit (MDU) which is responsible for unlocking any project developmental challenges for realization of results.

At the Regional level, the RS will facilitate coordination between the sector Ministries and the LGAs. The Regional Secretariats' general responsibilities are relevant for this program and hence will continue to (i) provide technical support for LGAs to operate efficiently; (ii) assist LGAs in capacity building; and (iii) monitoring the performance of LGAs. Regional Secretariats will thus have to add on to the LGA capacity building program the specific requirements proposed for this project. At the local level, project implementation will be guided by Local Government Authorities (LGA) working through the District Agricultural Offices. Each district will be responsible for procurement, contract administration, supervision of project activities, and reporting on progress for sites under its jurisdiction.

The Project is aligned to the Sector Wide Approach (SWAp) in the agriculture sector created under the auspices of the initial phase of the ASDP. Correspondingly, the Project will use a Technical Steering Committee (TSC) reporting to the ASDP Steering Committee for management and budgetary oversight. It is proposed that the technical oversight to be reinforced by the Annual Stakeholders Forum involving various relevant parties to this project which will (i) review progress in implementation and lessons learnt; (ii) share experiences and get feedback from direct beneficiaries; (iii) discuss options and propose improvements. The issues and recommendations arising from this event will be used in project implementation.

The GAFSP funded initiative will feed information into the TAFSIP systems and inform Development Partners' Agriculture Working Group (A-WG) where resources are allocated; the Technical Committee of the Directors that meets quarterly and oversees work-plans and budgets; the Inter-ministerial Coordinating Committee composed of PSs from ASLMs, CBOs and Private Sector where overall coordination of TAFSIP takes place; the National Coordination Committee brings together the mainland and Zanzibar ministers and goes up to the Presidential Retreat. Budget control for the GAFSP funded component of the TAFSIP will be the responsibility of the Ministry of Finance and Planning (MFP) working within the MTEF.

### 2.5.3 Results Monitoring and Evaluation

The project will establish a monitoring and evaluation system with two main components. The first component will be to monitor the level of achievement of expected results. This will start with a baseline survey, and will be linked with, and followed by, a mid-term evaluation survey, and an end of project evaluation survey. These surveys will be backed by smaller annual surveys to track annual changes in key result indicators. The annual surveys will be implemented by Government staff. The project will contract an independent agent to verify the baseline, midterm performance and end of project achievement of key result indicators. In complement, a simple management information systems (MIS) will be established in the MALF and Ministry of Agriculture Natural Resources, Livestock and Fisheries to help track the implementation progress including disbursement, procurement, and the implementation of planned activities. M&E teams from Mainland and Zanzibar will be responsible for monitoring project implementation including the measurement of the key performance indicators. The project monitoring will be the continuous observation of project progress focusing on activities and outputs and their contribution to outcomes. This will be done by systematically gathering key performance data for regular analysis.

## 2.6 AMOUNT OF FINANCING REQUESTED

The United Republic of Tanzania (URT) is requesting for USD 41,270, 930 from the GAFSP Trust Fund as part of resource mobilization to bridge the funding gap for the five year ASDP-II program. The goal is to modestly contribute towards bridging the overall ASDP-II gap of USD 2,898 million. The basis has been to allocate the available funds over a period of 5 years, appreciating that there is normally a slow start-up in the first year, increasingly during the next two subsequent years and lowering thereafter. The design of the project and hence the proportions to the various activities conforms to the ASDP-II budget which is an implementing arm of TAFSIP. The funding need identified will specifically address the cross cutting challenge of aflatoxins (affecting food security, nutrition and health as well as trade and income generation) for maximum impact. Table 8 summarize the proposed funding requirements for the entire project. Interventions under the project are expected to cover five years period, from 2017 to 2021 subject to change depending on the actual implementation kick off time. This timing is aligned with ASDP II which is the implementing instrument of TAFSIP. Within this period, and if the assumptions remained the same, the anticipated outcomes and goals will be realised.

**Table 8:** Funding Estimates for Key Program Interventions, USD

| s/n | Item | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|---|---|---|---|---|---|---|---|
| **A:** | **Pre-harvest Measures** | | | | | | |
| i | Promote adoption of Aflatoxin smart GAPs | 348,000.00 | 292,000.00 | 222,000.00 | 201,000.00 | 192,000.00 | 1,255,000.00 |
| ii | Validate and scale up bio-control technology | 1,921,000.00 | 1,488,000.00 | 2,519,000.00 | 1,390,000.00 | 1,936,000.00 | 9,254,000.00 |
| Iii | Weather forecast information in crop monitoring and early warning system | 1,189,000.00 | 163,000.00 | 197,000.00 | 257,000.00 | 257,000.00 | 2,063,000.00 |
| | **Sub-Total** | **3,458,000.00** | **1,943,000.00** | **2,938,000.00** | **1,848,000.00** | **2,385,000.00** | **12,572,000.00** |
| **B:** | **Post- harvest Measures** | | | | | | |
| iv | Promote adoption of hermetic storage and collective warehouses based marketing | 1,241,000.00 | 2,131,000.00 | 2,483,580.00 | 2,520,090.00 | 1,099,000.00 | 9,474,670.00 |
| v | Validate and scale up drying technologies in high humid areas for maize and groundnuts | 537,000.00 | 1,101,000.00 | 592,000.00 | 284,000.00 | 280,000.00 | 2,794,000.00 |
| vi | Establish data base for Postharvest Losses, review and disseminate guidelines and manual for proper postharvest operation | 151,000.00 | 83,000.00 | 147,000.00 | 169,000.00 | 200,000.00 | 750,000.00 |
| vii | Strengthening the maize and groundnuts supply chain capacity to prevent aflatoxin occurrence | 404,000.00 | 257,000.00 | 312,000.00 | 94,000.00 | 28,000.00 | 1,095,000.00 |
| | **Sub Total** | **2,333,000.00** | **3,572,000.00** | **3,534,580.00** | **3,067,090.00** | **1,607,000.00** | **14,113,670.00** |
| **C:** | **Institutional capacity and strengthening** | | | | | | |
| viii | Capacity of institutions involved in aflatoxin control enhanced | 100,000.00 | 2,000,000.00 | 1,000,000.00 | 1,000,000.00 | 1,000,000.00 | 5,100,000.00 |
| ix | Enforcement of standards and implementation of marketing premium in informal sector for maize and groundnuts. | 111,000.00 | 166,500.00 | 166,500.00 | 166,500.00 | 166,500.00 | 777,000.00 |
| | **Sub Total** | **211,000.00** | **2,166,500.00** | **1,166,500.00** | **1,166,500.00** | **1,166,500.00** | **5,877,000.00** |
| | **Public awareness** | | | | | | |
| x | Advocacy and awareness raising on aflatoxins mitigation measures. | 1,000,000.00 | 1,150,000.00 | 1,000,000.00 | 800,000.00 | 300,000.00 | 4,250,000.00 |
| | **Sub-Total** | **1,000,000.00** | **1,150,000.00** | **1,000,000.00** | **800,000.00** | **300,000.00** | **4,250,000.00** |
| **D:** | Support to the project coordination, monitoring and evaluation | 338,065.00 | 507,099.00 | 760,650.00 | 1,140,975.00 | 1,711,464.00 | **4,458,260.00** |
| | **Sub-Total** | **338,065.00** | **507,099.00** | **760,650.00** | **1,140,975.00** | **1,711,464.00** | **4,458,260.00** |
| | **Grand Total** | **7,340,065.00** | **9,338,599.00** | **9,399,730.00** | **8,022,565.00** | **7,169,964.00** | **41,270,930.00** |

## 2.7 PREFERRED SUPERVSING ENTITY

The preferred supervising entity for the project would be the African Development Bank (AfDB). The Bank is amongst the lead Development Partners in Tanzania, providing substantial funding and technical assistance in the Agriculture sector. AfDB has been supporting several initiatives including the very recent signed soft loan of about USD 93.5 million to support the sector through the Tanzania Agriculture Development Bank (TADB). More support from AfDB includes ongoing project on Market Infrastructure and Value Addition and Rural Finance (MIVARF), the Bank contribution is US$ 62.9 million out US$ 170 million of the total project cost. The project is coordinated under the Prime Minister's Office. Furthermore, the AfDB supported construction of storage warehouses and marketing centre through DASIP project during implementation of ASDPI. The total Bank Portfolio for the DASIP project was US$ 64.465 million. Therefore the Government of Tanzania is proposing AfDB to be a Supervising Entity for the proposed project under GAFSP funding.

Furthermore, the Food and Agricultural Organization (FAO) and Africa Union Commission (AUC) through PACA, will provide technical support to ensure effective implementation of the project. FAO has been providing support to the agricultural sector through development of various value chains in both livestock and crops. FAO's development programme is designed to respond to the priorities of the Government of Tanzania as outlined in the ASDP-II and Vision 2025 AUC through PACA has been supporting the Government to mitigate aflatoxin contaminations in food crops particularly maize and groundnuts. PACA support several studies that have been utilised as evidence in the Government decisions and resource mobilization including preparations of this project. Therefore, these evidences substantiate GOT, AfDB, FAO and AU-PACA to be implementing partners of TANIPAC.

## 2.8 POST PROJECT SUSTAINABILTY AND EXIT STRATEGY

The Government has placed a high priority on the project due to its effects on food and nutrition security. A successful implementation of the project will usher in an era of expanded trade opportunities as well as improving health status of the people. Sustainability is assured because project activities will be integrated into existing institutional frameworks whereby ASDP II framework will guide the whole implementation. Moreover through institution strengthening there will be experts to continue supporting efforts initiated under the project aimed to control aflatoxins contamination.

Sustainability elements are also built into the technology transfer platform whereby MALF will collaborate with SIDO and VETA to groom more artisans capable of manufacturing metal silos within the locality at affordable costs. Through PPP, the Government will closely collaborate with manufacturers of hermetic packaging materials such as PICS bags so as remove any barriers that limit their commercialization and production expansion. Awareness created by the project will also catalyse the demand of aflatoxin safe foods hence providing an incentive to the farmers, processors, and traders to sustain the production of aflatoxin safe food. The training targets existing MALF extension officers who will in turn train other officers at the farmers' levels to sustain the adopted technologies and reach more farmers. The training guidelines and technology manuals to be developed by the project will be shared with extension officers at the field level to act as their day to day tools in handling aflatoxin related challenges. The Tanzania national steering committee for mycotoxin control, acts as the coordinating board for mycotoxin initiatives in the country and will be responsible in ensuring that the lessons learnt in the project are disseminated for wider impact in the country.

## 2.9 RISK AND RISK MANAGEMENT

**Risks**

This project is a component of the main agricultural sector development program being led and managed by the Government of the United Republic of Tanzania through the Ministry of Agriculture Livestock and Fisheries (MALF). Though this project is unique to other project being implemented, the anticipated risks are not different from those under the overall agricultural development program. These risks have been identified and addressed in the overall agricultural investment plan-TAFSIP. They include inadequate institutional capacity of both Central and Local Government to execute the project in an effective and efficient manner; lack of strong interest from beneficiaries which very often contribute to slow or no adoption of proposed intervention; technological risks which may not bring anticipated results in all project areas; flow of resources though is a known risk, it may contribute to poor performance during project implementation.

**Risk management**

In order to ensure project execution is effective and efficient, management of potential risks is necessary and will be well considered to identify, analyse and put response and monitoring mechanisms throughout project implementation. However, specific measures to address these risks will entail the Central Government, particularly the President's Office and MALF instituting a strong leadership and Project management Team at the local Level to oversee the implementation of the project. This will facilitate achievement of proposed objective timely and efficiently while minimizing these anticipated risks. Moreover, smart targets will form the basis for performance assessment and performance accountability to ensure objectives are attained to the highest level. Additionally, the success of this project hinges on the readiness of the private sector to engage in technology commercialization, scale-up, adoption and dissemination, thus private sector will be closely involved in implementing this project not only to reduce risks but also increase chances of sustainability. Government will ensure a conducive environment is created and will encourage and involve private sector to take the leading role during early stages of project implementation to increase change of success and ensure high adoption rates during later stages and post project time. Moreover, key government institution implementing this project will be strengthened and capacity enhanced to ensure they deliver beyond expectations to minimize failure risks. Strong advocacy message will be delivered to ignite beneficiaries' interest towards acceptance and adoption of proposed intervention technologies to increase the chance of success.

## 2.10 CONSULTATION PROCESS

The process of identifying concrete investment options was informed by findings of the Country Aflatoxin Assessment which was carried out in 2012 and published by Abt Associates Inc in 2013. In 2014 PACA provided support to Tanzania to review the 2013 country aflatoxin assessment report and identify recommendations that can be included in the comprehensive Aflatoxin Strategy and Investment programs. The review was also aimed at identifying gaps that can be addressed to strengthen the food safety taking into account the Tanzania's food safety system. The review was performed by a team of consultants who worked in consultation with the Tanzania Mycotoxins Steering Committee (MSC) and with the guidance of the relevant authorities of the country. The findings and recommendations of the assessment guided the development of a National Aflatoxin Mitigation Strategy and Investment Program for Tanzania.

In particular, close consultation with the following institutions was done; the Partnership for Aflatoxin Control in Africa (AUC-PACA) as well as the Ministry of Health, Community Development, Gender, Elderly and Children (MHCDGEC), the Ministry of Agriculture, Livestock and Fisheries (MALF), the Ministry of Industry, Trade and Investments (MITI), the Prime Ministers' Office responsible for Government Business Coordination, President's Office – Regional and Local Government Authority (PO-RALG) and President's advisor on nutrition. Other government agents consulted include the management teams of the Tanzania Food and Drugs Authority (TFDA) (including the National Mycotoxin Steering Committee), The Cereals and Other Produce Regulatory Authority (COPRA), The Cereals and Other Produces Board (COPB), Tanzania Food and Nutrition Centre (TFNC) and Tanzania Bureau of Standards (TBS).

Consultation was also held with District authorities of Mbarali in Mbeya, Misungwi in Shinyanga, Kilosa in Morogoro, Bukombe in Geita, Njombe in Njombe and Kongwa & Chemba in Dodoma. Development partners who provided inputs are USAID, Bill and Melinda Gates Foundation, IFAD, FAO, WHO, AfDB, World Bank, Belgium Embassy, Danish Embassy and WFP. The review and consultation processes catalysed the strategic actions in Tanzania by identifying existing programs that can integrate aflatoxin control measures; avoid duplication of efforts and provide the necessary input to align aflatoxin control with broader food safety and Sanitary and Phytosanitary (SPS) issues. Tanzania Private Sector Foundation-(TPSF), The Bakhressa Group of Companies and East African Grain Council were among private sector stakeholders consulted.

## 3.0 PLAN FOR DETAILED PREPARATION

Preparation of a detailed project document will involve a team of dedicated experts from MALF, TFDA, TBS and PMO. The composition will consider professionalism and experience in writing project proposals. The team of at least 8 experts led by a focal person from the Directorate of National Food Security will team up with the proposed supervisory entity (AfDB) to prepare and finalise the detailed project document. The exercise will involve a feasibility study where baseline data for the project and environmental impact assessment will be established. In order to accomplish the task in time, the Government intends to submit a special request from the preparation grant avenue available within the GAFSP funding. The request will be submitted along with the project proposal document. Table 9 and 10 indicates the list of Government officials who will be fully be engaged in the exercise and an action plan for the seven month assignment.

**Table 9: Team of Government Officers for detailed project preparations**

| S/N | Name | Institution | Position | Current Role |
|---|---|---|---|---|
| 1 | Clepin B Josephat | MALF-National Food Security | Principal Chemist | FP-TANIPAC project |
| 2 | Eng. January Kayumbe | BRN-Ministerial Delivery | Head - MDU | Coordinate BRN Projects |
| 3 | James Ngwira | MALF- Policy and Planning | Principal Economist | Project preparations |
| 4 | Beatrice Palangyo | MALF-Crop Development | Principal Agric. Officer | Bio control focal person |
| 5 | Pascal Vyagusa | PMO-Coordination | Agric. Economist | Agric. Sector Coordination |
| 6 | Gration Rushunju | MALF- Postharvest | Senior Chemist | Postharvest Specialist |
| 7 | Aradius Kategano | MALF-CMEW | Agriculture Officer | Crop monitoring |
| 8 | Lilian Gabriel | MITI-TBS | Standard Officer | Standard development |
| 9 | Mwanaidi A. Khatibu | Ministry of Agric. Zanzibar | Principal Agric. Officer | Agric. Sector Coordination |

**Table 10: Action plan for 12 weeks project preparations**

| Action Plan for Detailed Project Preparation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WEEKS | | | | | | | | | | | |
| **Activities** | **Responsible** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Project Preparatory Logistics | MALF, AfDB, PMO | | | | | | | | | | | | |
| Feasibility study | MALF,AfDB,PACA,PO-RALG&FAO | | | | | | | | | | | | |
| Report Writing | MALF,AfDB,FAO,PACA | | | | | | | | | | | | |
| Project Development | MALF,AfDB,FAO,PACA | | | | | | | | | | | | |
| Project sharing and Review | MALF,AfDB,FAO,PACA | | | | | | | | | | | | |
| Project clearance& submission to GAFSP | MALF,MOF,AfDB | | | | | | | | | | | | |

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## ANNEXES

### ANNEX 1: On-Going Donor Funded Agricultural Sector Programs and Projects

| Project/Programme | Summary | Cost | Funding | Time Horizon |
|---|---|---|---|---|
| Agricultural Sector Development Programme (ASDP) | The ASDP provides a framework for the implementation of the Agricultural Sector Strategy (ASDS) to improve production and productivity in the agricultural sector to increase incomes and raise the standard of living in rural areas. The ASDP is implemented in all regions of mainland Tanzania. A follow-on basket program is currently being planned. | Approx. $200million per annum | URT, WB, | 2017-2027 |
| Agriculture Strategic Plan Zanzibar (ASP) | The ASP was developed to create conducive environment to support agricultural sector policy implementation, and hence improve livelihoods of the population. However, the main shortcoming of ASP is limited of sector wide approach to accommodate livestock and fisheries. | NA | NA | NA |
| Feed the Future | The programme will support value chain development in the agricultural sector through irrigation, rural roads, food processing trade, policy reforms, research, and capacity building in the sector and will cover the regions of Morogoro, Manyara and Dodoma as well as Zanzibar. | Estimated $300 million | USAID | 2011-2015 |
| Tanzania Bread-Basket Transformation Project | Pilot approach to creating a bread basket in the southwestern highlands of Tanzania covering the regions of Rukwa, Morogoro, Iringa, Mbeya and Ruvuma. The project aims to increase smallholder incomes and improve food security by focusing on the development of maize, rice and beans. | Estimated cost of $173 Million | URT, AGRA | 2010-2015 |
| Southern Agriculture Growth Corridor for Tanzania (SAGCOT) | Public private partnership initiative to transform the agricultural sector. Building on the Kilimo Kwanza declaration of 2009. It will cover the regions of Coast, Dar-Es-Salaam, Morogoro, Rukwa, Iringa, Mbeya and Ruvuma. | Estimated costs of $3.4 billion | URT, Private Sector, WB, other DPs | 2011-2031 |
| Marketing Infrastructure, Value Addition and Rural Finance Support Programme (MIVARF) | MIVARF will provide support towards increased financing of agricultural activities and development of market infrastructure and agro-processing including supporting grassroots MFIs to provide better services to small scale farmers and will cover all regions in Tanzania mainland and Zanzibar | $150 million | URT, IFAD, AfDB, AGRA | 2011-2018 |
| National Rice Development Strategy (NARDS) | Aimed at promoting increased production and productivity of rice to increase farmer incomes and to promote food security by transforming the existing subsistence-dominated rice sub-sector progressively into commercially and viable production system by 2018. | NA | JICA | 2009-2018 |
| Expanded Rice Production Project | The PDO is to increase the productivity and production of rice among smallholders in targeted areas of Morogoro and Zanzibar. The direct project beneficiaries are 33,069 smallholder farm households in the selected irrigation schemes of Tanzania Mainland (24,372 households) and Zanzibar (8,697 households). The project has four main components: (i) Sustainable seed systems; (ii) Improving crop productivity through better irrigation and crop management; (iii) Innovative marketing strategies; and (iv) Project management and coordination. | US $ 27 Million | GAFSP, URT | 2015-2020 |

**Annex II**. Results Framework for the GAFSP Funded TANIPAC

| S | Sub-component | | Expected results, Outcomes and Impacts | | | Institutional and policy consideration |
|---|---|---|---|---|---|---|
| | | **Activities** | **Expected results** | **Outcome** | **Impact** | |
| 1 | Pre harvest aflatoxin mitigation measures | 1.Promote adoption of Aflatoxin smart GAPs | 4000 GAPs guidelines (200 in each district) distributed by 2018<br><br>2 resistant maize & groundnut varieties adopted by 2018 | Increased farmers yield<br>Improved quality and safety in the supply chain | Improved livelihoods | Food safety policy and National aflatoxin mitigation strategic plan |
| | | 2.Validate and scale up application of biocontrol technology | Registration procedure approved by crop protection authorities<br><br>70% of the target farmers adopt the bio-control technology by 2023 | Increased trade and improved household health | Improved livelihoods | Agricultural Research institutes and Crop Development |
| | | 3. Develop a decision support system for crop/weather monitoring and early warning | Effective, timely and reliable early warning system in place and Five portable weather station installed and operational | Increased yield | Improved livelihoods | Crop Monitoring and Early warning Unit under Food Security |
| 2 | Post-harvest technologies and management | 3.Promote adoption of hermetic storage and collective warehouse based marketing systems | 300,000 super grain bags in use by by 2020.<br><br>10,000 hermetic storage facilities in use by 2020.<br><br>20 warehouses constructed by 2020. | Reduced loss | Improved livelihoods | Post-harvest handling and management practices schemes under the Directorate of National Food Security |
| | | 4. Validate and scale-up drying technologies in high humid areas for fast and proper drying of maize and groundnuts after harvest. | 2000 drying platforms constructed<br><br>20 solar validated and installed by 2019 | Increased yield and quality | Improved livelihoods | Post-harvest handling and management practices schemes under the Directorate of National Food Security |
| | | 5. Develop and disseminate guidelines and manual for proper postharvest operations. | 5000 copies of aflatoxin smart guidelines developed and disseminated by 2018. | Reduced loss and improved safety and quality | Improved livelihoods | Post-harvest handling and management practices schemes under the Directorate of National Food Security |
| 3 | Awareness Creation and public education | 6. To raise awareness and public education on aflatoxin health effect and economic consequences | Policy makers and lawmakers knowledge on aflatoxin effect increased<br><br>Information packages on aflatoxin issues and health consequence developed and disseminated. | Awareness enhanced | Food and nutrition security improved | MALF,MOHGCD,TFNC |
| 4 | Strengthening Institutional Capacity | 7.To Strengthening Institutional Capacity | 10000 field test kits for aflatoxin supplied by year during the project life. | Increased food safety | Improved livelihood | Food safety policy and enforcement of the standards |
| | | Incentives for production and marketing of aflatoxin safe products | To establish a mechanism for enforcement of standards and implementation of marketing premium in informal sector for maize and groundnuts | 20 Strategic food warehouse storage for maize constructed by 2023<br>Two major cereal markets (Kibaigwa and Tandale) adopt aflatoxin testing protocols, maize grading standards by 2023. | Increased trader incomes<br><br>Increased food safety | Improved livelihoods |

**Annex III**. Project objectives, output and monitoring indicators

| **Project Objective** | **Monitoring indicator** | **Beneficiaries** |
|---|---|---|
| ***Goal:*** *To improve food safety and food security through reduction of aflatoxin contamination in maize and groundnut value chains for enhanced livelihood* | | |
| ***Project objective 1****:To improve pre- and postharvest technologies and management practices in the maize and groundnut supply chains in six regions of the mainland(18 DCs) and Zanzibar(2Distr.)* | | |
| Output 1.1: Improved good agricultural practices | 40,000, farmers adhering to GAPs and using improved variety seeds | Farmers-<br>Men-15,000<br>Women-15,000<br>Youth-10,000 |
| Output 1.2: Bio-control technologies validated and adopted in agriculture | ➢ 10000,farmers adopted use of bio-control measures<br>➢ 500 validation test conducted on bio-control | Farmers-<br>Men-6,000<br>Women-4000 |
| Output 1.3: Famers field school conducted for lead farmers | ➢ 500 lead farmers participated in FFS | Lead farmers:<br>Men-300<br>Women-200 |
| Output 1.4; Weather forecasting for crop monitoring and early warning improved | ➢ Quality of data generated<br>➢ Number of weather stations installed and operational<br>➢ Number of rainfall gadget installed and working<br>➢ 120<br>➢ staff trained on aflatoxin information capture and collection | MALF, LGAs<br><br>Staff-120 |
| Output 1.5: Novel hermetic storage promoted and in use | ➢ 10,000 household using hermetic storage silos and 30,000 PICS bags<br>➢ 200 artisans trained on Hermetic storage silo construction | Households:<br>Men-15000<br>Women-10000<br>Youth-15000<br>Artisans- 200 |
| Output 1.6: Drying technologies validated and disseminated | ➢ Number of household using drying technologies<br>➢ 2000 household using platform drying<br>➢ 200 artisans trained on drying technology construction | Farmers- 2000<br><br>Artisans- 200 |
| Output 1.7: Collective warehouse constructed and equipped for market linkages | ➢ 20 warehouses constructed and equipped and linked to market<br>➢ Number of WH operators trained on postharvest management and market linkages | Farmers:<br>Men-8000<br>Women-6,000<br>Traders-<br>Men -9000<br>Women-5000<br>Youth 6000 |

| | | |
|---|---|---|
| | | Operators-100 |
| Output 1.8: Supply chain actors capacity on postharvest management and aflatoxin contamination reduction measures improved | ➢ Number of supply chain actors trained<br>➢ Number of training guidelines and manuals produced<br>➢ Number of FBOs trained and capacitated<br>➢ Number of technical and extension staff trained on postharvest issues | Transporters-2000<br>Traders-2000<br>Farmers: Men -5000<br>Women-3000<br>Youth-2000<br>Processors:Men-1200<br>Women-800 |
| Output 1.9: Postharvest loss through aflatoxin contamination reduced | ➢ 50 % of PH Loss reduced through adopted novel technologies by 2022<br>➢ 45 staff trained on postharvest losses assessment and value chain management<br>➢ 3 postharvest loss assessment conducted | MALF, LGAs<br>Farmers: Men-20000<br>Women-10,000<br>Youth-10,000<br>Staff: Male -25<br>Female-20 |

| ***Project objective 2**: To improve capacities and strengthen key institutions for regulation and enforcement mechanism to prevent and control aflatoxin contamination in the food value chain* | | |
|---|---|---|
| Output 2.1: Regulatory framework enabled and fully functioning | ➢ Regulatory framework in place | TFDA,TBS, ZFDA, COPRA |
| Output 2.2: Food safety risk assessment body established | ➢ Food risk assessment body operational | TFDA, ZFDA |
| Output 2.3: aflatoxin control Mainstreaming into national policies | ➢ Number of policies with mainstreamed aflatoxin issues | National |
| Output 2.4: aflatoxin centres of excellence testing laboratories establishment | ➢ 3 excellence centres established and operational<br>➢ 3 laboratories equipped for aflatoxin testing | MALF,TFDA, ZFDA |
| Output 2.5: Standards for mycotoxins harmonized | ➢ Number of standards harmonized | TBS/ZBS, TFDA |
| Output 2.6: Well informed system for post-harvest loss indicators established | ➢ System for postharvest loss indicators established | MALF, LGAs |
| Output 2.7: Aflatoxin risk assessment protocol formulated | ➢ Number of protocol formulated and validated for risk assessment | TFDA,ZFDA, MALF |
| Output 2.8: Innovative market incentives and enforcement mechanisms established | ➢ 2000 supply chain actors enabled to adopt novel technologies<br>➢ 5-20% Premium offered to traders and farmers adhering to aflatoxin reduction measures<br>➢ 20 businesses implementing voluntary compliance of aflatoxin standards | • 2000 supply chain actors<br>• Farmers and traders<br>• 20 businesses |

| | | |
|---|---|---|
| | ➢ Aflatoxin occurrence decreased by 50% through improved marketing system | • Consumers |

| **Project objective** | **Monitoring indicator** | **Beneficiaries** |
|---|---|---|
| ***Project objective 3**: to increase awareness and enhance public education on the effect of aflatoxin on health and economic consequences to stimulate their actions on preventive measures and safe food production and consumption* | | |
| Output 3.1: Awareness and public education on aflatoxin health effect and economic consequences raised | ➢ 10 seminars, 10 meetings and 2 campaign conducted to various stakeholders on the effect of aflatoxin | Public, private sector, traders |
| Output 3.2: Aflatoxin information dissemination and discussion enhanced | ➢ 1 platform for establishing aflatoxin issues discussion established by 2021 | Private sector, public actors |
| Output 3.3: Policy makers and lawmakers knowledge on aflatoxin effect increased | ➢ 5 advocacy campaign for policy makers and lawmakers conducted by 2020 | Law makers<br>Policy makers |
| Output 3.4: Information packages on aflatoxin issues and health consequence developed | ➢ 3 Leaflets, 2 posters and 10 feature stories in publication media produced and published by 2018<br>➢ 5 exhibitions and 20 road shows conducted in project area to sensitize and educate public by 2018 | Public |

**THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF AGRICULTURE LIVESTOCK AND FISHERIES**

**Address:** KILIMO DAR ES SALAAM
Telephone Number: 022-2865950

**Fax Number:** 022-2865951
**E-mail:** ps@kilimo.go.tz


Department of Administration,
KILIMO Complex,
1 Kilimo Street, .
**15471 DAR ES SALAAM.**

30th December, 2016.

**Ref. No.** FB 411/468/01/2016/07

GAFSP Steering Committee,
MSN MC5-510,
The World Bank Group,
3301 Pennsy Drive,
**Landover, MD 20785 USA.**

**REF: DETAILED PROJECT PREPARATORY ADVANCE (PPA)**

I have the honour to request for project preparatory advance to finance for the detailed project preparations. This is an important area that should be taken care of before implementing the project. Total amount requested is USD 498,580. The activities that will carried out under PPA includes;

1. Feasibility studies and detailed project designs, including technical studies;
2. Environmental and social impact assessments,
3. Pre-contract services including revision of designs and tender documents;
4. Institutional support, capacity development
5. Carrying out the technical design and completion of the baseline studies;
6. Development of the project monitoring and evaluation framework;

Attached for your attention are the relevant specific activities that will be financed under PPA to enhance effective implementation of the main project. Due to budgetary limitations we cannot secure fund for this particular activity as it was not forecasted in advance and therefore not considered during the budgeting session. The public fund regulations in Tanzania require all public expenditures to have been approved by the Parliament prior to. The Ministry of Agriculture Livestock and Fisheries is therefore requesting GAFSP Steering Committee to make a consideration for this important part. The PPA fund will be channelled through AfDB who is the supervisory entity for the project.

Please accept the assurances of my highest consideration.

Eng. Mathew Mtigumwe
**PERMANENT SECRETARY- AGRICULTURE**

| | | | | | |
|---|---|---|---|---|---|
| **DETAILED PROJECT PREPARATORY ADVANCE** | | | | | |
| **S/NO** | **Activity** | **Specific Item** | **No** | **Unit Cost (USD)** | **Total Cost (USD)** |
| 1 | **Institutional Support and capacity development during the project preparatory phase.** | Supervision cars (Toyota Hardtop) | 3 | 68,000 | 204,000 |
| | | Office equipments (Laptop) | 10 | 1,085 | 10,850 |
| | | Office equipments (Desktop) | 5 | 500 | 2,500 |
| | | Office equipments (Printers ) | 3 | 1,280 | 3,840 |
| | | Office equipments ( Photocopier with Scanner) | 2 | 920 | 1,840 |
| | | Office equipments (Tablets)), | 5 | 1,000 | 5,000 |
| | | Air Conditioner | 3 | 850 | 2,550 |
| | | Office furniture | Lumpsum | | 15,000 |
| | | Stationeries | Lumpsum | | 6,000 |
| 2 | **Feasibility studies and detailed project designs** | | Lumpsum | | 80,000 |
| 3 | **Pre-contract services (revision of designs, tender documents preparation and supervision)** | | Lumpsum | | 42,000 |
| 4 | **Environmental and Social Impact Assessment** | | Lumpsum | | 50,000 |
| 5 | **Develoepment of the project monitoring and evaluation Framework** | | Lumpsum | | 10,000 |
| 6 | **Baseline study and warehouses designing** | | Lumpsum | | 65,000 |
| | | | | **Total Amount** | **498,580** |