

**ZANZIBAR AGRICULTURAL TRANSFORMATION FOR SUSTAINABLE  
DEVELOPMENT, 2010-2020**  
*For Agricultural Productivity, Food Security and Sustainable Livelihood*

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## Preface

For a long time in history, agriculture has continued to be an important pillar to support livelihood of a larger proportion of our people. This sector is responsible for ensuring food security by providing crops, livestock and marine products sufficient to feed over 1,000,000 people residing in Zanzibar. Agriculture is a direct source of employment to about 42 percent of the population and contributes to more than a quarter of the national economy.

Zanzibar has a great potential for developing agriculture, taking into account its comparative advantage of having good soils and rainfalls to support crop production as well as natural pastures for feeding livestock. The great diversity of marine macro flora and fauna species and a variety of forest resources provides unique opportunity for the islands to fairly taking a lead in fulfilling the demand for domestic and export market of farm products, especially fruits and spices at the regional and international horizon.

Like many other regional states of the sub-Sahara Africa, agriculture sector in Zanzibar is invariably devastated by a number of challenges, mainly associated with continuous application of inappropriate farming technologies, limited investment opportunities, and a slow pace towards commercializing agricultural production. Agricultural development is also defied by a poor marketing infrastructure and perpetuated by unpredictable impacts of climate changes. In order to address these challenges, joint initiatives are required to uphold the national endeavours towards the attainment of bona fide green revolution.

Since the beginning of the millennium, the Government has been compellingly embarking on the implementation of its national macro policies, strategies and programmes. The Zanzibar Growth Strategy (ZGS), Strategy for Growth and Reduction of Poverty (ZSGRP) and a long-term economic vision (Vision 2020) became a central focus in the attention of all major sectors namely; economic, social welfare as well as national governance. In this inventive the Government recognizes the role of agriculture being of a supreme significance in overall economic performance of the islands. In view of this scenario, the Government in collaboration with Development Partners (DPs) established the medium and long term agricultural development programmes (ASSP/ASDP-L) as well as Marine and Coastal Environment Management Project (MACEMP) with the prime objectives of empowering farmers' and fishermen's capacity

to produce and dispose their products profitably and to their best possible ways of protecting the environment.

This novel idea of introducing the Zanzibar Agricultural Transformation Initiative (ZATI) emerged at about time that Zanzibar is getting prepared to launch its second phase of the ZSGRP, now to be referred as MKUZA II. An overall viewpoint of the ZATI dwells on the creation of good environment for production, processing and marketing of agricultural products in the next ten years from which, a range of interventions will be required to make these aspirations possible. In this regard, a full commitment from all parties particularly the public and private sectors is essential. The Government is determined to undertake all necessary steps required to facilitate implementation process of this initiative as part of its obligation and realization of the ruling party manifesto.

As described hereunder, the accomplishment of ZATI philosophy is largely dependent on political will, professional commitment and private sector led transformation. It's my trust that all these essential ingredients are borne within our hearts and with the spirit of solidarity the success will always remain at our reach.

I commend the team of experts from the Ministry of Agriculture, Livestock and Environment for the magnificent job they went through towards successful completion of this document. I sincerely hope that all stakeholders working with agriculture and other development sectors will take their time to read and apprehend the proposed strategic approaches and get ready for timely implementation. What can be done today should not wait for tomorrow.

God bless Zanzibar and plentifully give us the strength and capacity to achieve our goals.

Thank you

**AMANI A. KARUME**  
**PRESIDENT OF ZANZIBAR AND CHAIRMAN**  
**OF THE REVOLUTIONARY COUNCIL**

## Acronyms and Definitions

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## ZANZIBAR AGRICULTURAL TRANSFORMATION INITIATIVE

### *For Agricultural Productivity, Food Security and Sustainable Livelihood*

## 1. INTRODUCTION

This **document** outlines strategic interventions towards agricultural transformation and commercialization in Zanzibar through Zanzibar Agricultural Transformation Initiative (ZATI). It highlights key interventions for public and private sector investment upon capitalizing on the opportunities provided by domestic and export markets, and consequently addressing challenges facing agricultural development.

The **report** underlines main issues and constraints facing agricultural sector and provide evidence based-analysis and justification for implementing the Agricultural transformation initiative through five main pillars, namely (i) increased public sector investment; (ii) commercializing agricultural production, (iii) increased agro-processing and value addition (iv) enhanced market linkages and trade; and (v) cross-cutting issues. Finally the **report** expounds on the need to create conducive environment for the implementation of proposed initiative as well as the detailed action plan (2010 – 2020).

## 2. AGRICULTURE IN THE CONTEXT OF ZANZIBAR ECONOMY

The agriculture sector contributed an average of 25 percent of the total GDP within eight years period from 2000 to 2007 (table 1). This contribution to the GDP is attributed by its dominance in foreign exchange earnings which currently accounts to over 70 percent. However, the country depends on limited agricultural commodities as primary export items confined to cloves and seaweed. Other potential export commodities include spices, marine products and fruits which have so far registered insignificant export proportion.

Agriculture is also by far the most important source of employment in the isles. On average, 70 percent of the population depends directly or indirectly in the agriculture sector for their livelihood (OCGS, 2007).

This implies that the sector has high potential for tackling socio-economic challenges including high levels of income poverty and food insecurity. Given the importance of the sector as a source of livelihood for the large majority of the population, and a base for foreign exchange earnings; the sector deserve adequate public and private sector

**Table 1: Percent Share of Agriculture in total GDP, 2000-2007**

Period	% share in total GDP
2000	23.0
2001	25.0
2002	25.0
2003	21.0
2004	23.0
2005	23.0
2006	29.5
2007	27.3
Source: OCGS 2007	

investment for attaining and maintaining the anticipated high growth rate. This remains a critical challenge for agricultural transformation in Zanzibar.

### **3. ISSUES AND CHALLENGES OF AGRICULTURE SECTOR IN ZANZIBAR**

In an effort to improve the agricultural sector, the Revolutionary Government of Zanzibar initiated and carried out a range of agricultural programmes and projects to address key challenges that impede the progressive development of the sector including: crop development and plant protection, capacity building and farmer empowerment, support services (research, extension/advisory services), irrigation and water management, livestock development and services, agro-forestry, marine and coastal areas conservation, and natural resources management. In spite of all these efforts, Zanzibar's agriculture has not performed well to reach the target set to contribute sufficiently and sustainably in promoting economic growth and reduction of poverty. Main issues and challenges that limit the sector performance are classified into five major categories as highlighted below:

#### **3.1 Issues related to public sector investment**

Despite a commendable increase in the budgetary allocation to the agricultural sector<sup>1</sup> from 4.5% of the national budget in 2004/2005 to 7.7% in 2008/2009 financial year, this increase has not been directed to facilitate the core functions of the sector such as research and development, human resource development, agricultural related infrastructure resulting into poor provision of agricultural support services, weak policy implementation and inadequate enforcement of regulations.

The agricultural related infrastructure is constrained by inadequate and poor state of crop, fisheries, and livestock related infrastructure, namely: small to medium scale irrigation schemes, rural feeder roads, agricultural rural market centers and storage facilities, fish landing sites, slaughter houses and abattoirs. These constraints contribute to the low production and productivity performance of the sector.

As for agricultural support services such as agricultural mechanization, input supply, extension, research, advisory services and financial services, the Government has been a sole provider of these services in the last four decades. The private sector, on the other hand, has not been able to adequately participate in the provision of agricultural support services albeit the Government policy as enshrined in the Agriculture Sector Policy of 2002. The shying off of private sector is partly attributed to their limited financial and operational capacity, limited knowledge on demand and profitability of the sector, and unclear incentive package for investment into the sector. The other constraint that limit private sector participation in the provision of agriculture support

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<sup>1</sup> This is a positive indication of the Government commitment towards meeting the financing target of 10% as agreed in Maputo Declaration of 2003.

services is the continued Government generous provision of services at subsidized price, a situation that limit private sector operations at market costs.

With regards to weak policy implementation and regulations enforcement, the Government's capacity to implement policies and strategies is constrained by limited availability of skilled manpower, brain-drain and weak public, private and farmer's institutions. Failure of government to provide attractive incentives so that the most trained and qualified staff could remain in the country has negatively impacted on research and technology transfer as well as effective implementation of existing policy and strategies. As a result, agriculture sector institutions have remained understaffed both in term of quality and quantity, therefore their effective fulfillment of core functions remains unsatisfactory.

### **3.2 Issues related to commercialization of agricultural production**

Agricultural production is predominantly subsistence, small scale and largely rainfed. Low capacity in terms of finance, knowledge, skills and technology to exploit available resources intensively and efficiently impedes smallholder's transformation into commercial farming as well as undermines private sector investment and incentives for entrepreneurship.

As for food crops sub-sector the analysis of production performance reveals that production of most of food crops is far below potential levels (Annex 1). Main factors contributing to low production and productivity are: recurrent droughts, which have recently increased both in frequency and severity; low input use including lack of improved planting material e.g. seeds and inadequate use of fertilizers and pesticides; limited knowledge on improved production technology, weak support services (research, extension and credit); degradation of natural resources; low productivity of labour; high post harvest losses; limited small holder's adaptation of improved farming practices; and inadequate capital investments for farm improvements. Given the seasonality in crop production and persistent climate change, investment in expansion of land under irrigated agriculture and water harvesting techniques would be the most reasonable option for stable and higher agricultural productivity. The potential exists to increase both smallholder and large-scale irrigation.

Although the livestock sector performance is encouraging, recent livestock production growth rates have showed overall positive trend but productivity per head has remained very low. This is attributed among others by; (a) inadequate provision of animal health and management services such as availability of quality and affordable animal feeds; (b) an outdated and weak regulatory framework; (c) poor genetic potential of livestock breeds (d) weak linkages between producers and markets; and (e) inadequate number of qualified technical personnel, equipment and lack of research facilities. Despite these constraints, Zanzibar has significant potential for market-led



commercialisation of the livestock sub-sector, driven by domestic urban demand and the increasing tourist investments.

Fisheries are of great importance to the economy of Zanzibar. In recent years there have been significant increases in fish catch from 20,541 tons in 2001 to 25,396 tons in 2009, being the results of increased Government efforts in conservation of marine and coastal environments. Despite this positive performance, it is well acknowledged that marine resources in both territorial sea and Exclusive Economic Zone (EEZ) are under utilized. As matter of fact most of fisheries activities are currently undertaken in inshore waters which are unsustainably over exploited. There is a great potential for Zanzibar to benefit more if fishing activities are transformed to effectively capitalize on existing potentials.

Seaweed farming is another important activity for social and economic development in Zanzibar. The farming has been confirmed to: support livelihoods of coastal population particularly women; became major cash crop supplement to cloves on foreign currency earnings; reduce degradation of marine environment and destruction of coral reef caused by dynamite fishing. Despite being registered to sustain export growth in recent years, available data shows that there is limited capacity for export expansion due to international marketing arrangements that prescribed a quota system that restrict Zanzibar to annual supply of only 7,500 metric tons. The development of seaweed farming and its contribution to the livelihood of people can be effectively sustained through addressing the challenges of poor quality and limited availability of varieties with higher market potentials. Other challenges include limited investment on secondary and tertiary processing of seaweed and inadequate farmers' skills in farming and post-harvest handling techniques such as drying.

The Government and its agencies like JKU, Prisons and Ministry of Agriculture, own large areas of land, which are at best not producing optimally, or at worst, completely idle. Some of the farms are now used for research and training, seed production, crop production, nurseries, sugar plantations, dairy farms, poultry farms, cross-bred heifer multiplication centres, beef and goats ranches and forest and rubber plantations. Though the infrastructure in these farms may have deteriorated somehow, the farms represent a relatively developed land and enterprises which can immediately be utilized to meet the food needs and increased export earnings of the country. Clearly, the farms must be operated on commercial basis in order to maintain the production scales for which they are intended.

### **3.3 Issues related to agro-processing and value addition**

The low domestic production of food in Zanzibar is compounded by higher level of post-harvest losses due to poor handling, inadequate processing and poor storage technology and facilities. The average waste for rice, cassava, vegetable (tomatoes) and

fish is 13, 26, 42 and 25 percent per year respectively. This rampant scenario applies to other agricultural products with export significances and potentials.

In addition there is limited value addition for primary export commodities as well as for other potential export crops such as fruits, spices and perishable commodities (vegetables, livestock products and fish). Seasonality of production and lack of storage facilities render these commodities more vulnerable to large scale losses. The sub sector is also constrained by inadequate infrastructure, poor management, lack of experience in value addition and branding, inadequate creativity and weak entrepreneurial skills. Poor post-harvest and handling technology lead to poor quality of local agricultural product that makes it difficult for smallholder producers in Zanzibar to capitalize on the opportunities provided by the growing local and export markets.

### **3.4 Issues related to market linkage and trade**

Far-reaching changes in domestic and global markets are creating big opportunities for farmers and agribusiness entrepreneurs. The demand for high-value primary and processed products is rapidly increasing, driven by rising incomes, faster urbanization and market segmentation, liberalized trade, foreign investment, and tourism. These developments are expanding both internal and external market opportunities, which are important for fostering agricultural and non-farm growth and for greater employment and rural incomes. But these new market opportunities categorically demand stability of supply, quality, timely deliveries, and economies of scale. These are the very challenges facing Zanzibar agriculture.

In Zanzibar, there is generally low level of knowledge of farmers on opportunities either in the internal or the external markets. Farmers, fishers and livestock keepers are virtually disconnected from the local tourism industry for instance, and are not aware of the changing nature of the food industry opportunities and market segmentation. The uptake of new crops that are more marketable or of a higher value is also slow. This is a situation that can be aided by better availability of information and extension services, as well as by stimulating levels of farmer organization that may be better equipped to take advantage of market opportunities. The opportunities exist for widening the scope and volume of Zanzibar's local commodities into the domestic and export markets as well as in exploiting untapped potentials for secondary and tertiary processing, promotion of non-traditional crops and strengthening effective inter and intra-sectoral linkages.

### **3.5 Issues related to environmental sustainability**

Zanzibar's increasing population is placing formidable pressure on environment. The main issues that limit environmental sustainability include large scale encroachment on forest areas from settlement, farming and tourism development, habitat degradation particularly in the coral rag forests, coral reefs and mangroves. In addition, widespread

wildlife harvesting – both in the terrestrial and marine environments poses a threat to the endangered terrestrial and marine biodiversity.

Zanzibar's natural land resource base, sufficient underground water and good climatic conditions, if efficiently utilised, favors expansion and diversification of both crop and livestock production. These features are of utmost importance in islands' ecosystems and in sustaining livelihoods. They protect, conserve and manage ecological resources, including flora and fauna, and in maintaining soil and water conservation.

On the other hand, the coast and its resources are Zanzibar's most valuable assets. If used correctly, they can help in sustaining the present and future generations. The rapid transformation of Zanzibar's coast as a result of tourism development remains one of the most critical issues concerning the coastal zone. Widespread development seen on Unguja's East Coast, in areas such as Kiwengwa, are changing the face of Zanzibar. Pemba Island is largely in good shape, but is in a critical phase to determine how it will limit tourism development to few specific areas, as outlined in Zanzibar's Tourism Zoning Plan. The maintenance of mangrove stands is also of importance, as they are critical for protection against coastal erosion and as crucial breeding grounds for fish, crustaceans and molluscs. They provide a valuable ecosystem function that extends to coral reefs and overall fisheries. Coastal erosion that is evidenced by increasing tourism activities offshore and coral reef damage, if left unchecked, will negatively impact tourism, fisheries and Zanzibar's biodiversity.

#### **4. NECESSITY FOR A NATIONAL VISION TOWARDS "ZANZIBAR AGRICULTURAL TRANSFORMATION INITIATIVE"**

The **"Zanzibar Agricultural Transformation Initiative"** is based on prioritizing agricultural development as crucial means for socio-economic transformation of the isles. The necessity for adopting the Zanzibar Green Revolution is evidenced in the government overarching policy frameworks, as articulated in the Zanzibar Development Vision 2020 and the Zanzibar Agricultural Sector Strategic Plan (SP) which advocate for commercialization and food self-sufficiency that necessitates transformation and modernization of the agriculture sector through intensification and production diversification. Moreover, development of the agriculture sector has been identified as a priority for poverty reduction in Zanzibar's Strategy for Growth and Reduction of Poverty. The key factors necessitating Zanzibar Green Revolution include the following:

##### **4.1 Agriculture as a support sector for economic growth and food security:**

- Agriculture is a main source of growth for the national economy, a provider of investment opportunities for the private sector, a prime driver of agriculture-related industries and the rural non-farm activities. The potential for agriculture to tackling greatest economic challenges including high levels of poverty and food insecurity is enormous but has not been realized as the sector is still

confronted with dismal performance of low growth rates induced by inadequate and inefficient utilization of its resources;

- Zanzibar has a comparative advantage in the production of cloves, tropical fruits, spices and essential oils. This can be further enhanced by increasing farm productivity, value addition and improved marketing efficiency.
- The expanding domestic market for food, especially for livestock, marine and vegetable products is another opportunity for Zanzibar agriculture. With expansion in the rapidly growing tourism industry and rise of high income market segments, domestic demand for fish, meat, milk, and other high-protein products is likely to grow at a rapid pace. Similarly, strengthened regional integration offers opportunities for Zanzibar products within EAC and SADC markets. Exploitation of these trading opportunities is vitally essential.
- Opportunities also exist for the production and export of cash crops; including fruits like mango and papaya; spices, sea weed and other marine products. Furthermore, there is an increasing consumer preference to natural food ingredients globally; and many agricultural products which were replaced by artificial compounds over the last fifty years are now making a comeback. Similarly new uses – culinary, industrial, and medicinal – are constantly being found for herbs, honey (and by-products), and plant extracts. Zanzibar needs to keep the horizons examined for such opportunities, looking for high value niche markets to match the limited production capacity.

#### **4.2 Agriculture as a livelihood:**

- Agriculture employs directly or indirectly about 70 percent of the total labour force. In addition to being a source of income, the agriculture sector has a direct contribution to the food security, nutrition and health status of the people and an indirect impact on many other aspects of livelihood. In comparison to other sectors of the economy, agriculture has enormous potential in supporting livelihoods in both rural and urban areas.
- The sector has wide scope to stimulate expansion of other sectors such as agro-processing and value addition and market linkages to service and trade sectors. As such the sector creates employment and support livelihood to a large segment of the population. Increased investment in agriculture will accelerate the growth of the sector and therefore facilitate achievement of sustainable rural and urban livelihood systems and consequently promote overall food security and economic well-being.

## 5. DESCRIPTION OF ZANZIBAR AGRICULTURAL TRANSFORMATION INITIATIVE

### 5.1 Main philosophy

The Zanzibar Agricultural Transformation initiative attempts to address the root causes of the vicious circle of low agricultural productivity, inadequate food supplies, low income and perpetual poverty. The initiative is a crucial means for generating the drive for high and sustained growth rate of the isle's economy. The main philosophy is built upon the following three main fundamentals:

**Political will:** All levels of political and decision making in public, civil society organizations and private sector will be dedicated in prioritizing agriculture in planning, resource allocation, and investment. The small-holder farmers, livestock keepers, fisher-folks, and micro-entrepreneurs in rural and urban Zanzibar, local and foreign investors will be encouraged and empowered to participate in the implementation of Zanzibar Agricultural Transformation initiative;

**Professional commitment:** Public research and extension system ought to develop more active partnership with farmer organizations, private sector and NGO's so as to instigate enhanced adoption of technologies and product based development strategies; and that technology generation assessment, refinement and transfer can be undertaken in a more coordinated and effective manner to realize objectives of **Zanzibar Agricultural Transformation initiative**.

**Private-sector led transformation:** The emerging private sector should be enabled and empowered to take a leading role in partnership with public sector in transforming agriculture into a dynamic economic sector that contribute towards meeting national food security, poverty reduction and improve socio-economic well-being.

### 5.2 Objectives

The overriding objective of **Zanzibar Agricultural Transformation initiative** is to provide an enabling environment to enhance and sustain the growth and development of agricultural sector to become commercial and more globally competitive. Specific objectives are:

- (i) increase public investment in agricultural sector;
- (ii) promote private sector investment in agricultural production;
- (iii) enhance productivity and competitiveness of the sector;
- (iv) promote export diversification;
- (v) create employment and wealth; and
- (vi) deepen linkages with other growth sectors of the economy



## 6. MAIN COMPONENTS OF ZANZIBAR AGRICULTURAL TRANSFORMATION INITIATIVE

### 6.1 Increased Public Sector Investment

The Revolutionary Government of Zanzibar has in recent years strived to put in place a favourable macro-economic policy environment for promotion of public and private investment in the agriculture sector. This entails provision of support services required for increasing and sustaining agricultural production and productivity, growth of real farm income, sustainable livelihood and food security. The ZATI aims at enhancing capacity and efficiency in services delivery in terms of (i) technological development (research, infrastructure and support services), (ii) build institutional and human capacity to best serve the sector (iii) provision of favorable policy, legislative and regulatory environment supportive to increased private sector participation into the sector. The following areas are prioritised for public investment to facilitate implementation of the ZATI.

#### 6.1.1 Infrastructure Development

Public investment in the sector should be directed towards infrastructure development that include rehabilitation of existing rural and agricultural infrastructures and establishing new ones to help in mitigating impacts of climate change, restore soil fertility, remove barriers to domestic trade and flows of food. Zanzibar Agricultural Transformation will emphasise on up scaling ongoing efforts to rehabilitate and establish small scale irrigation structures, storage facilities including cold storage for fish and livestock products, rural feeder roads and soil conservation schemes. These initiatives can be supported by special targeted cash or food for work programs.

#### 6.1.2 Provision of support services

Enhanced farm productivity requires essential supporting services for agricultural growth which include agricultural mechanization, farm input supply, agricultural extension and financial support services. The Revolutionary Government of Zanzibar has been all along taken a leading role in provision of these services. With the introduction of economic liberalization measures and the advocated private sector led economy, the RGoZ has accepted to gradually pave the way for entrance of private sector operations in the Zanzibar economy. While this policy shift has yielded favourable outcomes in other sectors of the economy over the past two decades, the agricultural sector has not been commercialized to any significant proportion and therefore has not enjoyed the anticipated benefits of private sector investment. Zanzibar Agricultural Transformation initiative will redress this holdup through the following interventions:

*Promote access to agricultural inputs and services*

Access to mechanisation, quality seeds, fertilizers, technology packages and technical services, is considered as prerequisite for enhanced technology adaptation that is necessary for transformation of subsistence agriculture. The public investment will promote access to improved agricultural inputs and services by smallholder farmers through facilitating the process of involving private sector engagement in the supply of basic inputs such as locally adapted quality seeds, fertilizer, animal feed, small irrigation pumps, small tillage equipments (power tillers) and veterinary drugs and services. The public investment will also be directed to build institutional capacity to enhance provision of technical advice, research and development, market and price information, local seed production and multiplication as well as facilitating development and promotion of intensive farming practices including improved crop production and poultry rearing and small scale dairy farming. In so doing the emphasis will be on developing more active partnership between public, farmer organisations and private sector.

The windows for private sector participation in provision of agricultural support services should be build on the premises that the Government will gradually withdraw from provision of these services while building the private sector capacity through necessary policy, financial and operational support. The Government will also continue to subsidize the services for smallholder farmers so long as the payments for commercial services will not enable farmers to break even in their production enterprises due to other factors that hinder realization of potential yield levels. Once farmers are able to achieve potential yield levels for particular crops, then the Government subsidies for those crops will cease to be offered.

*Support Availability and Accessibility of financial services*

The thrust in **Zanzibar Agricultural Transformation initiative** will be to facilitate credit availability through development of specific rural credit schemes to stimulate intensification and commercialisation of agriculture and promote accessibility to commercial financial services that will accelerate linkages between agriculture and other growth sectors (tourisms, services and trade) with specific targets to improve competitiveness of local producers through value addition and diversification to meet the requirements of expanding local market and for export

*Promote intensification and diversification in response to the market demands*

The public resources will also be directed towards promoting production intensification to capitalize and upscale on achievements from previous empowerment interventions. This will be built from lessons learned through implementation of the World Bank supported Participatory Agricultural Development and Empowerment Project (PADEP), Marine and Coastal Environment Management Project (MACEMP), Tanzania Social Action Fund (TASAF) and IFAD supported Agricultural Support Services Programme and Agricultural Sector Development Programme-Livestock (ASSP/ASDP-

L). Particular focus will be placed on investment component of interventions that have shown high productivity potentials in crops, livestock and fisheries.

On production diversification the emphases will be on development of higher-value products to catch up the growing share of expanding tourist and export markets. New varieties, with high market demand will be introduced along with promoting increased value addition to enhance competitiveness and compliance with the quality required by different market segments

### 6.1.3 Policy and regulatory environment

The focus of **Zanzibar Agricultural Transformation initiative** will be to create a favourable policy and regulatory framework that will lead to enhanced quality compliance with local, regional and international standards; facilitate measures that will promote private sector investment into the sector and create room for strengthened public private partnership. To that effect, the following areas will be emphasised during implementation:

#### *Enhance capacity in value addition and agro processing*

The thrust will be placed to broaden institutional capacities to specifically provide services related to value addition and agro-processing such as quality assurance, inspection and certification and take concrete steps to enhance knowledge and information sharing amongst the relevant stakeholders on agro-processing and value addition. In addition, the public investment will be extended to provide support and improve the expansion of the degree of processing (secondary and tertiary industries), so as to increase the share of product prices and strengthen incentive structure for private sector participation in agro-processing and value addition.

#### *Promoting Private Sector Investment*

The private sector consists not only of various entrepreneurs and traders but also farmers, and livestock keepers and fisher folk. The government recognizes the essential role of the private sector in achieving agricultural growth and prosperity through investment in production, marketing and processing. Effective private sector participation will be stimulated through provision of favorable economic environment, promotion of agricultural technology and collection and dissemination of information to reduce the risk inherent in agricultural investment. If well coordinated and stimulated, the private sector could provide opportunities for employment creation in both rural and urban areas.

The private sector investment in agriculture will steer the process of agricultural transformation towards a vibrant commercial sector that is responsive to market demand in four priority components of **the Zanzibar Agricultural Transformation** with specific focus on whole value chain development for priority commodities which Zanzibar has comparative advantages. The priority components have a huge



opportunity for interlinkages with other sectors especially the services such as tourism and trade which have registered high rates of growth over the last decade.

#### **6.1.4 Human and institution capacity**

The public investment will be directed towards enhancing institutional and human resource capacity, prompting efficiency through appropriate incentive and motivation packages to scientists and professional staff and to support and strengthen capacity of producer institutions for them to adequately participate in provision of support services necessary for **Zanzibar Agricultural Transformation** implementation. Specifically, the initiative will focus on:

##### *Institutional strengthening and human capacity*

Support will be availed to strengthen the institutional capacity for managing agricultural development and increase the ability to cope up with emerging challenges by putting in place a system of coordination, and empowering the relevant institutions by providing them with adequate resources both financial and human. Public investment will also include developing scientific and professional human capacity so as to benefit from technological opportunities. Emphasis will be to create proper working environment for scientists to efficiently deliver and to put in place clear framework for implementing human resource development programme specifically addressing gaps in high-technology areas.

##### *Support creation and strengthening of trade unions, producer organizations and farmers groups*

Farmers and trade organisations should be prepared and empowered to demand and access support services provide by public and private sectors; to take part on the design, implementation and monitoring of agricultural projects and to further participate in the process of commercialising the sector and to demand favourable national policies and legislations to effectively and efficiently guide the sector.

### **6.2 Commercializing Agricultural Production**

The main focus of this component is to promote the development of value chains of a few selected high value commodities based on comparative advantage, farmer preference and market demand through: a) transformation of subsistence smallholder farming into viable commercial production units that are feasible for private sector investment (service provision, market access); b) promoting adequate utilisation of productive land and industrial resources through joint venture schemes (medium to large scale firms) for increasing employment and agricultural output; c) enhanced investment in identified priorities areas to increase agricultural output.

#### **6.2.1 Sectoral priorities and profiles**

The opportunities for agricultural commercialisation in Zanzibar are in crop production, livestock, fisheries and aquaculture. The following section provides

strategic guidelines for major agricultural commodities with potential for private sector investment:

### **(i) Crops sub-sector**

RGoZ policy objectives on crops is to increase food self sufficiency and exploit opportunities for exports for crops that Zanzibar has comparative advantages. The strategic approach for achieving this is to gradually commercialize the production of rice, cassava, banana, sweet potatoes, vegetables, selected tropical fruits and spices. This is clearly articulated in MKUZA, the Agricultural sector policy and Food Security and Nutrition policy that collectively aim at promotion of sustainable livelihoods and enhancement of food security at household and national levels. The following sections will give highlights on the current and potential levels of production; proposed technological packages to reach the potential yield levels and the cost benefit analysis for production of these priority crops. The intention is one and clear; to provide evidence of agribusiness potentials in Zanzibar that should prompt private sector investments needed to bring about the envisaged commercial transformation of the sector.

#### **Rice**

Rice is a staple food in Zanzibar and is grown mostly during the long rainy season. Only a few households plant the crop during the short rainy season and most of these households are located in areas where few irrigation schemes are operating. The current consumption rate is estimated at 100,000 tonnes a year with nearly 80 percent of consumed rice being imported. Total land area under rice cultivation is estimated at 11,646 ha of which 8,521 ha could be irrigated. Within the existing trends in production, domestic rice production is far below the potential with productivity of only 1 tons/ha, against a potential of 3.5 tons/ha. Major problems constraining rice production in Zanzibar include; lack of improved seed varieties and limited use of fertilizer, inadequate mechanization services and low level of irrigation. These shortcomings weaken capacity of domestic growers to compete with imported rice. However, despite these constraints Zanzibar has the potential to either meet its own demand or reduce the volume of imported rice.

The purpose of **Zanzibar Agricultural Transformation initiative** is to increase the share of local produced rice in domestic market. *The target set* for the coming five years is to reach yield potential of 3 tonnes/ha for rainfed rice and 6 tonnes/ha for irrigated rice. This will increase production of paddy from the current annual level of 18,000 tonnes to 45,000 tonnes.

*Proposed packages* to reach the potential yield levels includes; production and distribution of high yielding seeds, improved access to affordable and timely tillage operations, improved access to appropriate and adequate fertilization, proper and timely weeding, and efficient use of rain water through bunding and other improved

crop husbandry practices. To enhance the efficiency of rice production the focus is on supporting the smallholder farmers to form groups that will create larger and more viable commercial production units. The involvement of the private sector in large-scale paddy production is encouraged through contract farming to these commercial units.

**Cost benefit analysis** shows that rain-fed rice farming can be a profitable enterprise only if efforts are made to increase investment in support services for farmers to be able to reach potential yield levels. This is a challenge that **Zanzibar Agricultural Transformation** is set to overcome. The analysis of cost of production and product values at market prices shows that Net returns of rainfed rice production is negative (at about Tsh - 423,125 and Tsh - 223,125 at the current attainable productivity level of 1 tonnes per hectare for lower and higher price levels respectively). This in fact, is the main justification of continued Government subsidies in mechanized services, fertilizers and seeds to rice farmers. Through improvement of productivity to 3 tonnes per hectare, the Net returns per hectare will be increased to about Tsh 776,875 and Tsh 1,376,875 for lower and higher price levels respectively (Annex 2). On the other hand, the analysis of cost of production and product values shows that Net returns of irrigated rice production is positive at Tsh 312,000 and Tsh 1,012,000 at current attainable yield level of 3.5 tonnes per hectare, at low and high price expectations respectively. The case is even better for envisaged potential yield level of 6 tonnes per hectare, where the Net returns per hectare will be about Tsh 1,212,000 and Tsh 2, 212 000 for lower and high price expectations respectively (Annex 2).

### **Cassava**

Cassava is most dominant food crop grown in Zanzibar and a staple for the majority of poor in rural areas. **Area under cultivation** is estimated at 34,000 ha (Unguja 11,840ha and Pemba 22,160 ha). The current average annual yield is estimated at 5 tonnes/ha while potential yields is 25 tonnes/ha. The main constraints to increased cassava production includes; depleted soil fertility, poor yielding varieties that are also susceptible to pests and diseases, high post harvest losses and limited options for utilisation.

**Proposed packages to reach the potential yields includes** production and distribution of high yielding planting materials that are known to be resistant against pests and diseases, promote adoption of improved land husbandry practices for maintenance of soil fertility, promote processing and value addition and organize production into viable commercial units for market linkages.

**Cost benefit analysis:** The analysis of cost of production and product prices at market shows that Net returns of cassava production is about Tsh 446,250 and Tsh 946,250 at current attainable productivity level of 5 tonnes per hectare for lower and higher price levels respectively. Through improvement of productivity to 20 tonnes per hectare, the Net returns per hectare increased to about Tsh 1,946,250 and 3,196,250 respectively

(Annex 2). The analysis shows that cassava farming can be more profitable enterprise if efforts are made to increase investment in production and distribution of appropriate planting materials and in linking the smallholders to potential markets. Improvement of processing and value addition will further accelerate the pace of commercialization of cassava production.

### **Banana**

Banana is an essential staple crop ranked at the third position in terms of consumer preference after rice and cassava and is an important source of trade and income especially with smallholder farmers. It is grown in all agro ecologies of Zanzibar, although it does well in the plantation and “deep soils” areas of both islands. Total area under cultivation is estimated at 13,570 ha (Unguja 6580 ha and Pemba 6990 ha). The average attainable yield of banana is currently 8.1 tonnes per hectare far below the potential yield of 14.4 tonnes per hectare. This has been contributed by a number of factors including diseases, declining of soil fertility, nematodes and other pests. Most of the varieties grown by smallholder farmers are of low production potential.

*Proposed packages to reach the potential yields includes:* production and dissemination of quality and healthy planting materials to small-scale farmers, promote adoption of improved land husbandry practices for maintenance of soil fertility, intensification of banana cultivation through home gardening<sup>2</sup>, mitigating effects of climate change through appropriate irrigation practices and processing banana into high value products such as juices, parked slices as well as the promotion of new and sustainable partnerships between farmers and private enterprises as anticipated in **Zanzibar Agricultural Transformation** implementation guidelines.

*Cost benefit analysis:* The analysis of cost of production and product prices at market shows that net returns of banana production is about Tsh 177,500 and Tsh 1,311,500 at current attainable productivity level of 8.1 tonnes per hectare for lower and higher price levels respectively. Through improvement of productivity to 14.4 **tonnes per hectare**, the net returns will be increased to about Tsh 2,067,500 and Tsh 4,083,500 respectively (Annex 2). The analysis shows that banana farming can be more profitable enterprise for farmers and other entrepreneurs if efforts are made to increase investment in production and dissemination of appropriate planting materials and in linking the smallholders to potential markets

### **Sweet potatoes**

Sweet potato is one of the important food crops and stands at fourth position in the general local food basket of Zanzibar. The total area under sweet potatoes cultivation estimated at 5230 ha (Unguja 3800 ha and Pemba 1430 ha). The average fresh root yield at farm level is only 8 tons per hectare compared to the potential yield of 20 tons per hectare. Such low yield is due to the fact that farmers use poor yielding local varieties which are also susceptible to common insect pests and diseases.

<sup>2</sup> This will involve up scaling of the Makunduchi model of banana cultivation to all other districts.



*Proposed packages to reach the potential yields includes* production and distribution of high yielding planting materials, rich in vitamin A and tolerant to common pests and diseases, enhance adoption of improved land husbandry practices such as time of planting to avoid moisture stress and for improvement of soil fertility.

**Cost benefit analysis:** The analysis of cost of production and product prices at market shows that net returns of sweet potatoes production is about Tsh 446,250 and Tsh 946,250 at current attainable productivity level of 8 tonnes per hectare for lower and higher price levels respectively. Through improvement of productivity to 20 tonnes per hectare, the net returns will be increased to about Tsh 1,946,250 and Tsh 3,196,250 respectively (Annex 2). The analysis shows that sweet potatoes cultivation can potentially be a viable enterprise for farmers and other agro-entrepreneurs if recommendations for improvement are implemented as guided by the ZATI.

### **Vegetables**

The Zanzibar vegetable production is made up of a large number of small producers that produce a limited range of indigenous vegetables. The common vegetables grown include tomatoes, egg plants, green peppers, okra, chilies, and cabbages, cucumbers, spinach (Amaranth), Chinese cabbage, cassava leaves, cowpea leaves and onions. Total area under vegetable cultivation estimated at 4617 ha (Unguja 4057 ha and Pemba 560 ha). The average yield of vegetables is about 5 – 7 tonnes/ha for all common vegetables which is far below the potential yield levels that are obtained in neighboring countries. The total annual production of vegetables in Zanzibar is around 10,500 tonnes, again far below the total annual requirements. Consequently, most of the vegetables consumed are sourced outside Zanzibar. Recent value chain study (ZAFFIDE, 2006) indicated that 80% of vegetables and 20% of fruits supplied to tourist hotels and restaurants are imported, mostly from mainland Tanzania, but also from Kenya and outside Africa. Experiences from recent development interventions such as ASSP, TASAF and PADEP have demonstrated that there is a considerable potential for increased local production of vegetables to meet domestic demands for vegetable products. The envisaged potential yield levels for most vegetables are in the range between 25 and 45 tonnes per ha.

*Proposed packages to reach the potential yields include:* production and distribution of high yielding varieties, promotion of investments in protected agriculture (such as green houses, net houses, and tunnels; etc) enhance adoption of improved crop and land husbandry practices, facilitate the availability and accessibility by smallholder of advanced agricultural equipments (such as a package for drip line irrigation), knowledge, and technologies that are essential for various improved agricultural techniques.

**Costs benefit analysis:**

The analysis of cost of production and product prices at market shows that net returns per hectare of typical vegetable production (tomato) is about Tsh 327,500 and Tsh 1,827,500 at current attainable productivity level of 5 tonnes per hectare for lower and higher price levels respectively. Through improvement of productivity to 25 tonnes per hectare, the net returns will be increased to about Tsh 10,327,500 and Tsh 17,827,500 respectively (Annex 2). The analysis shows that vegetable cultivation in Zanzibar can potentially be a viable enterprise for farmers and other agro-entrepreneurs if recommendations for improvement are implemented as guided by Zanzibar Agricultural Transformation initiative.

**Fruits and Spices**

Zanzibar's tropical climate provides ideal conditions for the production of many types of tropical fruits spices. Several studies have been conducted in Zanzibar on the aspects of diversification and intensification of these crops. They include studies from the Zanzibar Cash Crops and Farming Systems Project namely Spices and Essential Oils (1992), Proposed Candidate Crops for Research and Development (1993), and Rural Income Earning Opportunities in Zanzibar with Regional Analysis (1994). In these studies, different crops were researched in terms of their advantages, disadvantages and constraints. Moreover, a gross margin analysis was also carried out. Table xx below shows the advantages, disadvantages and constraints of growing different crops in fruits and spices category.

**Table 2: Selection of Zanzibar Cash and Food Crops Considered for Crop Diversification**

S/N	Name	Advantage	Disadvantage	Constraint/Challenge?
1	Black Pepper	<ul style="list-style-type: none"> <li>i Low input system and therefore low cost.</li> <li>ii High returns.</li> <li>iii The crop is easy to handle since in most cases it is sold while still green on the vine to the middlemen and therefore the responsibility to assess, harvesting and to find markets lies with the middlemen</li> </ul>	<ul style="list-style-type: none"> <li>i Long maturity period, from 3 to 4 years after planting.</li> <li>ii Price fluctuations.</li> </ul>	The profitability of the crop depends much on the high prices, which cannot be easily predicted at the time of planting given its long maturity period. In light of this efficiency and high level of production it is important to ensure profitability of the crop.
2	Cinnamon	<ul style="list-style-type: none"> <li>i Harvesting can take place at anytime of the year.</li> <li>ii Lowest demand needs</li> </ul>	<ul style="list-style-type: none"> <li>i Poor revenues which are lower than any other tree crops.</li> </ul>	<ul style="list-style-type: none"> <li>i Accessibility to private lands is a major constraint.</li> <li>ii The crop is highly vulnerable to theft which</li> </ul>

S/N	Name	Advantage	Disadvantage	Constraint/Challenge?
		<p>for labour as compared to other tree crops.</p> <p>iii High returns to cash expenditure and to the household labour</p> <p>iv Availability of the local markets.</p>		<p>has the following impact on the crop:</p> <p>iii Premature harvesting which affects the quality and yields of the crop.</p> <p>iv Deterring farmers to engage in the production.</p> <p>v Additional costs of paying security guards where it is commercially grown.</p>
3	Ginger	<p>i Usually low labour demand.</p> <p>ii In the modeled small-scale monocrop cultivation system, the crop appears to be economically attractive, generating high revenues.</p>	<p>i High input system, which leads to high cost of establishment (transport costs, fertilizer etc.).</p> <p>ii (ii) Vulnerable to diseases, which can wipe away the entire crop.</p>	<p>i Production level is highly constrained by poor soil fertility.</p> <p>ii Competition from other imported ginger constrains the market expansion.</p>
4	Kichaa chilli	<p>i Harvesting is throughout the year, which lasts for about 2-3 years</p>	<p>i High labour demanding crop</p> <p>ii Intercropping affects the yield.</p>	<p>i Credit availability to farmers to pay harvesters that are usually paid before sales</p>
5	Mango	<p>(i) High returns and therefore it is among the major sources of cash to farmers. Low maintenance costs.</p>	<p>i Long maturity period, from 4-10 years depending on the variety.</p> <p>ii Yields are very unpredictable. Sometimes a single tree can bear 2000 fruits per year sometimes no fruits at all.</p> <p>iii Intercropping is limited to some few crops.</p>	<p>i Prevalence of notorious pest “Mango fruit flies” has seriously affected the whole Mango industry especially exports.</p> <p>ii Transport problems e.g. transport links and the availability of freight space to the Gulf States constrains exports.</p> <p>iii Access to land and long maturity period discourages large-scale farming.</p>
6	Turmeric	<p>i Easy to handle as farmers sell to middlemen.</p> <p>ii Farmers have control on pricing, since the crop can be stored</p> <p>iii As an annual crop it can be grown on a borrowed land.</p> <p>iv Can be intercropped with Mango trees</p>	<p>i Price fluctuations.</p> <p>ii Vulnerable to diseases which can wipe out the whole crop.</p> <p>iii It is a seasonal crop, and therefore timing is crucial, late planting can have serious effects on yields.</p>	<p>i Availability of wood for processing constrains production of the crop.</p> <p>ii Unreliability of market and prices limit expansion of the crop</p>

S/N	Name	Advantage	Disadvantage	Constraint/Challenge?
7	Vanilla	(i) High returns	i Long maturity period, from 4 years. ii Very labour intensive demanding crop. iii Not suitable for intercropping. iv It is risky, as investment in labour is done before it is clear how harvesting will be.	i Difficult in production process. ii It is not very much used locally and therefore limits its market expansion. iii Highly dependent on processors, discourages farmers' willingness to adapt to the crop

The selected cash crops for possible diversification show different levels of net returns per hectare as shown in the table below. The analysis provides a reasonable picture of the diversification opportunities available in the agricultural sector.

**Table 3: Profit margins for selected cash crops**

Crops	Current Yield (Kg)	Potential Yield (Kg)	Price (Tsh/Kg)	Current Revenue Tsh	Potential Revenue	Cost of Production Tsh Per Ha	Current Net Return Per Ha (Tsh)	Potential Net Return (Tsh)
Black Pepper	1,460	1,800	1,600	2,336,000	2,880,000	703,593	1,632,407	2,176,407
Cinnamon	625	2,500	1,400	875,000	3,500,000	444,600	430,000	3,055,400
Ginger	4,750	7,500	600	2,850,000	4,500,000	981,297	1,868,703	3,518,703
Mango	22,500	36,000	400	9,000,000	14,400,000	711,000	8,289,000	13,689,000
Turmeric	1,615	3,500	600	969,000	2,100,000	374,706	594,294	1,725,294
Vanilla	250	500	25,000	6,250,000	12,500,000	2,970,000	3,280,000	9,540,000
Kichaa Chilli	1,250	2,500	1,800	2,250,000	4,500,000	1,485,000	765,000	3,015,000

*Source: Adopted from Rural Income Earning Opportunities in Zanzibar with Regional Analysis*



*(1994) and adjusted to current prices (2009).*

From the Table above, all the selected crops appear to be candidates for possible diversification and intensification. Zanzibar Agricultural Transformation initiatives will undertake extensive assessment of additional fruits such as Papaya which is potentially suitable in coral rag areas and pineapples and Persian fruits which could be potential candidates to link with the expanding tourist markets. Efforts will also be made towards rehabilitation of Cloves and Coconuts, the traditional export crops of Zanzibar. The development of most of these crops is dependent upon active private sector involvement. This will be possible through supportive institutional and economic environment as well as empowerment and investment interventions, the very ultimate objectives which Zanzibar Agricultural Transformation is set to achieve.

### **Cloves and Coconuts**

Cloves and Coconuts occupy a prime position in the history and agricultural system of Zanzibar. Cloves have been a major foreign exchange earner in Zanzibar for the last hundred and fifty years. Its production has however registered a significant steady decline over the last four decades from an annual average of about 16,000 tonnes in 1970's to a current average of between 1,500 to 3,500 tonnes in 2000's. Declining production has been attributed to climatic variations, insecurity of the three-acre land tenure system, diseases, poor management and limited replacement and ageing of clove trees. Zanzibar Agricultural Transformation initiative has recognized the importance of cloves as traditional export crop but also as the main contributor to both GDP and livelihood of the majority of Zanzibaris. Official statistics (OCGS, 2007) showed that Cloves contributed an annual average of about Tshs 6.5 billions to smallholder farmers who sell the crop to ZSTC between 2002 and 2006, a significant income that surpass the contributions of all other economic activities combined. In an effort to rehabilitate the Clove industry, the RGoZ commissioned a study in 2004 to review the existing structure of the Zanzibar clove industry and proposes strategies for revamping the clove industry. The Zanzibar Agricultural Transformation initiatives will support implementation of recommendations that includes de-regulation of clove marketing and creation of clove development fund to support clove development strategy and clove rehabilitation programmes.

Coconuts on the other hand, feature prominently in the agricultural systems of Zanzibar and in the multiple uses of its diversified products. Most of the palms are old and affected by pests and have low yields because of poor management practices. In addition, the significant portion of land that was previously occupied by coconuts has been encroached and turned into settlements and other human occupations. These situations are thought to have immensely reduced the coconut populations and production to the extent that Zanzibar is now importing significant portion of her coconuts requirements from Mainland Tanzania. Zanzibar Agricultural Transformation initiatives will embark on an extensive review of coconut industry in Zanzibar and endeavor to reverse the situation through instigating concerted efforts by both public and private sectors towards coconut rehabilitation.

## **(ii) Livestock Sub-Sector**

The Zanzibar animal production includes keeping of dairy and beef cattle, goats and poultry. It is apparently observed that livestock sub-sector is growing in terms of number of people engaged in livestock industries and production. However productivity per head of animal is far below the potential. Traditional stocks/breeds of animals are the main source of livestock products in the country. Zanzibar has a significant potential for market-led commercialisation of the livestock sub-sector, driven by domestic urban demand and the increasing tourist investments. This potential is underutilized however, and the country has large deficit in livestock products which is addressed by import. Available data show that about 91 percent of livestock products consumed in tourism sector are imported. Generally, development of livestock sector is constrained by low productivity, inadequate support services and insufficient supply of improved stocks, livestock diseases, poor quality and high cost of feed, poor processing and marketing infrastructures and other inputs. Other factors include inadequate financial credit and processing facilities and poorly organized marketing system.

### **The Dairy industry**

In Zanzibar, milk production is mainly from cattle however, dairy goats are also gaining popularity. Most of cattle found in dairy industry are indigenous which are genetically characterized by low production and reproduction potential with a fairly short productive lifespan. Given the expansion of tourism sector, dairy industry has a potential to expand production to meet the current deficit in milk. Milk production is estimated at 60% of the local requirements of 7.3 million litres annually. This excludes the increasing demand for milk and milk products to service the tourist industry and for production of other related milk products such as cheese, yoghurt, ghee, flavored and UHT milk. As such there is a need to promote private sector involvement in dairy industry to capture opportunities provided by expanding demand of milk and other products. This could be capitalized through various business ventures along the dairy value chain.

***Proposed packages to reach the potential yields include:*** Investment in the areas of production and value addition, specifically on:

- Processing and value addition of animal products so as to increase quality and shelf life,
- Large-scale production for dairy cattle through joint venture schemes,
- Milk processing, marketing and value addition (manufacture of cheese, butter, yogurt etc),
- Provision of support service such as artificial insemination and farm input supplies such as quality feeds, supplements and veterinary services,
- Strengthening milk collection centres and distribution facilities,
- Supporting dairy breeds improvement programmes and husbandry practices.

### **The beef industry**

About 70 percent of beef consumed in Zanzibar is imported from Mainland Tanzania (DLD, 2009). Likewise, Zanzibar has no improved beef breeds (and their crosses) and the industry is dominated by indigenous cattle that form the main source of beef in the country. Following increasing demands for beef meat and by-products due to the expansion of domestic market and tourism industry, there are great investment opportunities in the following areas:

- Improvement of genetic potential of the local herds for beef production,
- Establishment of beef feedlots using crossbred and zebu bull calves,
- Constructions of modern abattoirs, beef processing and packaging plants,

*Proposed packages to reach the potential yields include:* establishing modern meat processing facilities (cutting, grading and packaging); infrastructure development such as building or renovate market centers in every district and equip them with modern facilities, and upscale/strengthen market information centers (link with existing farmer fora)

### **The poultry industry**

Poultry production constitutes higher proportion in total livestock keeping in Zanzibar, and emerges as important livelihood option for the majority of people. The demand for poultry products is high in Zanzibar as compared to domestic production. Given the nature of poultry production system which requires only small area of land in comparison to other stock, and the fact that country is now experiencing land pressure, Zanzibar has higher potential to intensify poultry industry and adequately increase supply in meeting domestic demands. It is projected that the demand of poultry products (meat and eggs) will increase to more than 35 percent by the year 2015. Thus there is a room for large, medium and well as small scale investment in poultry industry especially in improved local stock for meat and eggs as well as for domestic production of poultry feeds and chicks to reduce cost of production that currently limit competitiveness of local poultry producers

*Proposed packages to reach the potential yields include:* investing in large scale poultry production including parent's stock farms and hatcheries; supply of quality poultry meat and eggs for the domestic market and sustainable supply of quality livestock feeds, day old chick and other related inputs, as well as poultry processing facilities comply with quality specifications of expanding domestic markets and for potential regional export markets.

### **(iii) Fishery and Aquaculture Sub-Sector**

Zanzibar islands are surrounded by the Indian Ocean waters richly endowed with *marine resources* made up of a wide variety of species of fish, and other sea product, such as snappers, groupers, rays, sharks, squids, pelagic shrimp lobsters, and deep water fish, tuna, as well as seaweed. All these form solid basis for primary and fish

processing industry for both local and export market. However these marine resources in both territorial and Exclusive Economic Zone-EEZ are still underutilized. **Zanzibar Agricultural Transformation** is set to support and facilitate investments in increased fish production and aqua culture, as well as in handling and processing activities such as; smoking, sun-drying, freezing and packaging.

#### **a) Fishery industry**

The demand for fish is increasingly high for the local consumption (include tourism sector) and international market. The most common fish species which are in high demand include lobsters, crabs, finfish, tuna salad, sardines and salmon, which find their main export markets in Europe. The high demand of fish to satisfy local demand and potential export markets justifies investment in fish industry; a priority intervention area promulgated in **Zanzibar Agricultural Transformation initiatives**. This will be fostered through enhanced private sector investment in deep sea fishing, fish processing and marketing. The thrust will further be directed towards providing investment and policy guides to local small-medium fisheries enterprises and creating conducive environment for investment through provision of specific support services such as research & development, information on stocks and markets, credit and other form of financial support.

The *Deep Sea* provides substantial investment opportunity in fisheries development towards promoting capacity in production, processing and marketing through investing in semi-industrial vessels capable of fishing for deep water pelagic in contiguous Exclusive Economic Zone (EEZ) waters; establish suitably equipped fish collection/icing centres in more remote areas, investing in onshore fish processing establishment compliant with international requirements.

#### **b) Aquaculture**

Seaweed farming is the most leading fisheries activity attended mainly by women. The economic importance of seaweed farming is increasingly envisaged given its significant growth in exports and potentials for value-addition. In recent years the Government (through the implementation of various projects and programmes) has put more efforts on supporting seaweed production and as such livelihoods of the coastal population through addressing the challenges of poor quality and limited availability of varieties with higher market potential.

#### **Potential for investment in aquaculture development**

There is a great potential for private sector to invest in aquaculture sub sector in order to increase fish production and improve its share in boosting national economy and livelihoods. For seaweed, key areas worth for investment include: (i) research and development, (ii) secondary and tertiary processing of seaweed and (iii) improving post-harvest handling techniques such as drying, packaging and storage. As for fish

farming potential areas for investment includes establishment of small ponds and aquarium for economic fish farming (e.g. oysters and cockles) and pearl farming.

#### **(iv) Forestry Sub-Sector**

The Zanzibar forestry policy places special emphasis on protection and conservation of mangrove ecosystems as they greatly contribute to the sustainable production of fish, honey and wax from bees and recreational facilities that provide useful income generating activities for rural people. The increasing population and substantial expansion of socio economic activities expense an increasing demand from existing forests for wood fuel, materials for building and handcrafting, medicinal plants, indiscriminate hunting, fire, land for agriculture and road networks, settlements and tourist hotels. As such there is an increasing need for provision of effective regulatory and service delivery system towards development, management and conservation of the forestry sector which is comprised of natural forests (mangroves, coral rag forests) and farm forests. Zanzibar Agricultural Transformation is placing priority on capacity development, resources mobilization, planning, monitoring & evaluation, research & development, facilitation and compliance of forestry policy and regulatory frameworks.

Potential areas for **Zanzibar Agricultural Transformation** interventions in forestry sub-sector are categorized into four main groups as follows:

*(i) Mangroves Conservation and Management.* The thrust in **Zanzibar Agricultural Transformation** will be directed towards conservation and management of mangroves forestry particularly in the areas of research, dissemination of information and adoption of best management practices on mangrove production and utilization. Special emphasis will be given in promoting investment in production of wood from woodlots and plantations; and in advocating for development and implementation of Integrated Coastal Zone Management (ICZM) plans emphasizing eco-friendly enterprises, control of pollution, and beach erosion. In addition, particular focus will be set in raising the profiles of coastal forests as integral part of ICZM and Climate Change frameworks.

*(ii) Management and Conservation of Coral Rag Forests:* The **Zanzibar Agricultural Transformation initiative** is set to improve and conserve the coral rag forests as integral part of natural ecosystem of Zanzibar. The potential interventions include; introduction and implementation of sustainable wood energy saving programmes; promoting research on alternatives and substitutes to wood fuel; support improvement of nursery and plantation infrastructure including roads and buildings; facilitate coral rag based research and information dissemination and enhance adoption of best management practices such as alternative farming systems and agro-forestry.

*(iii) Management and Development of Farm Forests:* The potential areas for **Zanzibar Agricultural Transformation** intervention in farm forests include; supporting investment in promotion, establishment and improvement of gene banks; promotion of



organic farming and agro forestry; development and execution of participatory land restoration plans; searching, promotion and adoption of improved technologies for wood conversion; building capacity in wood conversion technologies; and adopting alternative uses of wood materials.

*(iv) Beekeeping Management:* This sub component will attract a focused attention in **Zanzibar Agricultural Transformation** implementation through strategic promotion of investment both from public and private sectors in beekeeping industry for the purpose of transforming it to profitable commercial enterprise that endeavors for improvement of quality and quantity of honey, bee wax and other bee products to satisfy domestic and export market demands. The interventions as envisaged in **Zanzibar Agricultural Transformation** will be targeted to ensure sustainable supply of honey and its by-products; promote research, training and extension services on beekeeping; facilitating financial support services for tools and equipment for beekeeping; and linking honey and its by-products to potential domestic and export markets.

### 6.2.2 Proposed modalities for smallholders commercialization

The **Zanzibar Agricultural Transformation initiative** will be piloting two models of commercial farming targeting smallholders through contract farming and medium and large scale through joint venture schemes.

*Contract Farming model for Smallholders:* The commercialization of smallholder farming will be piloted through organisation of smallholders into up scaled commercial production units through associations, cooperatives and organised farmer's groups such as graduated Farmer Field Schools and SACCOS. The **Zanzibar Agricultural Transformation initiative** will facilitate collaboration of these groups with prospective investors through contract farming. It is envisaged that such collaboration will enable smallholder farmers to access a comprehensive package of support and services that are based on market focussed partnership where farmers will be empowered to specialise in a production of specific commodities of high quality in accordance with market needs. For farmers, contract farming will be a means to manage risks in production and marketing in the following ways:

- Inputs will be provided by the Contracting Firm (CF), thereby reducing the uncertainties associated with input availability, quality and costs,
- Technological assistance will be offered by the CF, favoring the production of higher valued, often riskier crops and livestock,
- Farm production and management skills are enhanced by the technical assistance provision, and spill-over effects might happen if farmers also engage in non contracted crops and livestock enterprise activities,
- A market outlet is secured for the contracted production, such that the uncertainty and the transaction costs involved in the search for markets are

reduced. Small-scale farmers in particular will benefit from the reduction of marketing risks, as they often have more limited market access,

- The uncertainty about sales price is often reduced, since contracts typically specify at the beginning of the growing cycle the prices to be paid at product delivery,
- With the reduction of product and market risks, income stability is favored. If the contract has a long term continuation, farmers can benefit from the more foreseeable and stable income streams, especially via better planning of consumption and investment decisions,
- Access to credit is enhanced. Under a resource provision contract, working capital credit is typically supplied in kind, via input provision, by the CF.

### 6.2.3 Proposed modalities for medium to large scale investment

The large areas of land owned by Government agencies and defunct private firms represent a relatively developed land and enterprises which can immediately be utilized to meet the food needs and increased export earnings of the country. These include land owned by rubber plantations, sugar plantations, RAZABA, MAFUNZO, JKU, and Ministry of Agriculture, livestock and Environment in Unguja and Pemba (Defunct poultry farms; Langoni and Mtoni) and livestock farms at Tunguu, Hanyegwa Mchana, Pangenji (Unguja) and Chamanagwe (Pemba) as well as underutilized plantations at Bungi in Unguja and Makuwe in Pemba). These institutions holds collectively about 20,000 ha of fertile land suitable for commercial farming and livestock keeping. Zanzibar Agricultural Transformation initiatives will take an extensive assessment of these farms that will include analysis of their performance and potentials for specific commercial enterprises and subsequently instigate for optimization and adequate utilisation of these land resources through promoting joint-venture schemes between the Government agencies and prospective business firms. The modalities for engagement of business firms will require the public sector support in two areas vis-avis improvement of investment climate and removing bottlenecks for medium and large scale development along the agricultural value chains.

#### *Improving the investment climate*

Zanzibar Agricultural Transformation initiative advocate for favourable investment climate in four main components as follows:

- Ensure sounding macro policy environment,
- Provide public goods such as infrastructure,
- Have a legal and regulatory framework that fosters competition, business integrity, and fair practices,
- Have access to private financial services, risk-sharing institutions, and business development services.

Other rules and regulations affecting issues of intellectual property rights, employment conditions, contracting, and product standards will be smoothed under Zanzibar **Agricultural Transformation initiative** to positively impact on the profitability of agro-enterprises and the distribution of benefits from agribusiness development.

### *Addressing bottlenecks*

Experience shows that the lack of finance, poor infrastructure, and inadequate business and public services are the main bottlenecks that limit efficiency and optimization of production potentials in large scale commercial farming. Instruments to address the bottlenecks to medium and large agro-enterprise development include promotion of matching grants, preferential access to finance, partial loan guarantees, tax breaks, and assistance in the formation of agro-industrial networks.

## **6.3 Increased agro processing and value addition**

The aim of this component is to encourage, promote and support public and private sectors to invest in agro processing and value addition activities to increase competitiveness of locally produced agricultural products to satisfy domestic and export markets. Subsequently, the sub sector will be enabled to play a driving role in the economic development of Zanzibar, add greater value to raw materials, and generate employment, wealth and foreign exchange.

Although the Zanzibar's agro processing sub sector is currently small and underdeveloped, it has the potential to be a key driver of development. The country has significant untapped potential to add value to existing raw materials, agricultural and marine products and draw upon the strong brand associated with the image of "Zanzibar". A generally poor investment climate, coupled with a weak entrepreneurship culture has meant that Zanzibar is yet to fully take advantage of the existing domestic, regional and international market opportunities for high quality value added products. Basically the raw materials for agro processing and value addition in Zanzibar can be sourced from crops, livestock and marine products.

In terms of *crops*, food crop commodities such as cassava, sweet potatoes, banana, mangoes, oranges, pineapples and tomatoes can potentially be produced to the amounts sufficient for processing and value addition. In the cash crop category (cloves, coconut, spices and herbs), there is high potential for primary and secondary processing especially with cloves and clove by-products such as clove stem and clove leaves (distillation of essential oils), spices and herbs (dry processing and distillation of essential oils) and coconuts and coconut by-products (wood and timber products, oil extractions, coir making, handcrafts, juice and milk etc). On and above these possibilities, there are also unexploited potentials for secondary and tertiary processing in medicinal, cosmetic and fragrance industries using primary and processed products from cloves, spices and herbs.



The fisheries sub sector has recently recorded a significant increase in fish catch thanks to increased government efforts on conservation of marine and coastal environments. In addition, the recent report (DFSP, 2008) showed that Zanzibar is producing 7573 to 7896.6 tons of dry seaweed annually while its quota in the world market is only 7500 tons per years, meaning that 300 to 500 tons remain un-sold every year. The potential solution for solving this cumbersome quota system designed for raw seaweed exports is through promoting investments in seaweed processing and value addition. Recent study on the post harvest losses of crops, livestock and fish (XXXX, 2009) estimated that post harvest losses of fish in processing, preservation and notably in storage averages 10 percent while the overall loss in the whole value chain is estimated at 25 percent per year. When translated into quantity and monetary values, the annual loss of fish accounts for about 5 thousand tonnes of fish worth more than Tshs 8.6 billion. The study further revealed that there is no large scale commercial fish processing facility in Zanzibar. Most of the processing is done either at retail level or at home where the fish is cleaned, gutted, cooked and eaten or sold as fried fish on the streets and markets. It is therefore evident that the fisheries sub sector has potential for further expansion especially in the areas of investment in deep sea fishing and post catch handling and processing.

The Zanzibar animal production sub sector includes mainly keeping of dairy, beef, goats and poultry. The dairy products have a highest potential for processing since they are produced in sufficient amount as a result of increased number of crossbreed cows and per head milk productivities. Recent figures showed that the number of cross bred cows is currently close to 29,000 and milk productivities has recently registered an upward trend from an average of 7-11 lts/cow/day to 14lts/cow/day. This is partly a result of successful eradication of tsetse fly (1997) and thereafter, introduction of a national project (Post tsetse eradication, Livestock Development Project) that aimed at increasing milk production through improved animal breeding, nutrition and veterinary services. Despite this exciting achievement, sensitized more people to opt into dairying business and subsequently began to experience difficulties in disposing their products. The recent development in the tourism industry has not impacted positively in creating the market linkages for the domestic livestock products such milk, eggs and beef, mainly because of the inferior quality and unstable supply base. Thus investment in agro-processing and value addition in livestock industry as envisaged in Zanzibar Agricultural Transformation implementation could be the ultimate solution in creating and exploiting new market opportunities for the domestic livestock products.

#### **6.4 Enhanced market linkages and trade**

The aim of this component is to increase share of local agricultural products in domestic market, capitalize on opportunities for external market for products with competitive advantages. The Zanzibar Food Balance Sheet is characterized by a high dependence on importation of basic food stuffs. An estimated 41 percent of Zanzibar's annual food

requirements are accounted for by food imports. This is exacerbated by increased tourism industry that imposed enhanced demands of fresh fruits, vegetables, fish and livestock products. Apparently about 80 percent of fresh vegetables and 20 percent of fresh fruits consumed in this market segment are imported. On the other side, the perceived comparative advantages in the production of cloves, tropical fruits, spices and essential oils for export markets are not yet fully exploited. The purpose of **Zanzibar Agricultural Transformation** is therefore to increase share of local agricultural products in domestic market and to capitalize on opportunities for external markets for products with competitive advantages. Farmers and agro- entrepreneurs in Zanzibar are facing formidable challenges in marketing and trade of agricultural commodities. These includes; lack of access to domestic and export markets, weak technical capacity in production and value addition to comply with specific market requirement on quantity and stability of supply, poor compliance to quality specifications, inadequate experience in collaborative and contractual arrangements inherent in commercial farming, and high risks involved in agribusiness investments. These challenges will be adequately addressed during **Zanzibar Agricultural Transformation** implementation through collaborative commitment of both public and private sectors whose possible roles in tackling these challenges are highlighted in Table 4 below:

**Table 4: Public and Private Options for linking farmers to Markets**

Issue	Public Sector		Private Sector
	Public Investment	Policy Environment	
Lack of access to markets	Invest in education; rural infrastructure (roads, markets, electricity, irrigation, market information); support formation of producer organizations	Liberalize domestic trade; foster development of input and credit markets	Assist farmers in forming producer organizations, participate in investment in value addition
Weak technical capacity	Support market-oriented extension	Foster environment for private extension to emerge	Provide extension and key inputs to farmers
Meeting quality standards	Support farmer training on good agricultural practices for quality enhancement and food safety	Establish grades and standards	Supply inputs and train farmers on quality management and food safety
Meeting contract conditions	Train firms in contract design and management; train farmers on their rights and obligations	Foster institutions for dispute resolution; strengthen producer organizations	Foster trust; develop contracts that are self-enforcing
Farmer exposure to risk	Foster development of commodity and futures exchanges; train firms on use of market instruments to evade risk	Create enabling environment for insurance market	Use contracts that share risk equally among parties; assist farmers to access insurance

## 6.5 Cross cutting issues

Aim: Enhance dialogue and advocacy amongst relevant stakeholders towards addressing the following key cross cutting issues

### **Enhancing environmental sustainability:**

Zanzibar like other small island is being faced by the problem of land shortage. This situation will become worse due to high population growth rate accompanied with increasing immigration and new investments in development issues and other sector of the economy. This has negative impact not only on employment opportunities but also on resource utilisation and land degradation. Thus there is a need to establish appropriate measures to rescue the situation hence increase sustainability of resources. Areas that need immediate attention include:

- Marine coastal area protection,
- Management of rural and urban settlement,
- Encroachment of agricultural land for human settlement,
- Soil fertility management,
- Management of non-renewable resources.

### **Promoting youth involvement in agriculture:**

The current proportion of youth population engaged in agricultural activities is very low. This makes agricultural labour force being dominated by women and old aged population. Youth involvement/engagement to the sector is constrained by low production and productivity embedded in the sector, high risks and uncertainty, low returns and declining terms of trade as compared to the other sectors of the economy. To facilitate agricultural transformation, it is critical that this trend is reversed. This trend therefore, necessitates for targeted interventions to promote youth participation in agriculture as well as provide specific incentives to the youth for entry into the agriculture sector.

Under **Zanzibar Agricultural Transformation initiative** the focus will be on encouraging youth to realize their potential through investing in agriculture and count agriculture as a productive way of life whilst benefiting from employment opportunities. Special efforts will be undertaken to place youth confined in a range of viable agricultural enterprises where they will be exposed to operations, practical skills and processes, farm management skills.

## **7. CREATING CONDUCIVE ENVIRONMENT FOR IMPLEMENTATION OF ZANZIBAR AGRICULTURAL TRANSFORMATION**

At the heart of **Zanzibar Agricultural Transformation** is a sector-wide approach that changes the functions of central government from an executive role to a normative one in addressing the constraints and exploiting opportunities for agriculture and rural development in Zanzibar. This will limit the role of central government to policy,

legislation, regulation and supervision. The approach focuses on productive and gainful agriculture, where subsistence agriculture would be replaced by profitable agriculture and where both the spotlight and resources switch from public institutions to farmers and agri-business in an effective, transparent, impartial and accountable manner.

The **Zanzibar Agricultural Transformation initiative** is the operational framework that stresses on the need to change the way things are done in the agricultural sector. It is a long-term process designed to forge connections both between the Agricultural Sector Lead Ministries (ASLMS) themselves, in reinforcing public-private partnership in service provision.

## **7.1 Coordination Mechanisms**

**Zanzibar Agricultural Transformation** embraces a wide range of agricultural and rural development interventions, hence involves a large number of sectoral related institutions and stakeholders. For meaningful coordination mechanism the following are considered as important:

### **7.1.1 Framework for institution coordination**

A strong institutional and human capacity that is central to planning, managing and monitoring the Zanzibar Green Revolution is essential to capture the needs of various stakeholders: policy makers, producers, input and output traders, processors, consumers and other stakeholders.

1. At the high level, there will be an effective Inter-Sectoral Consultative Mechanisms (ICM) that will be responsible for coordination between Tanzania mainland and Zanzibar.
2. At the national level, inter-sectoral coordination and reviews would be undertaken through the Inter-Sectoral Technical Committees (ITC) drawing its membership from linked line Ministries (MALE, MTTI,) and representatives of the Private Sector (ZNCCIA).
3. There will be a Kilimo-Kwanza secretariat that will be adequately staffed with enough resources to manage routine services, creation of a data base for Kilimo-Kwanza intervention profiles, and updating the ITC and ICM accordingly.

### **7.1.2 Institution capacity building**

A number of formal and informal institutions exist in the rural areas. These institutions have a major role to play particularly in areas where climatic, economic, social and demographic stresses are severe and seriously impact on the livelihood system of the

community. Yet, most of these institutions (Government, NGOs, traditional association and community organizations, etc) are constrained by a number of factors. To improve their efficiency in service delivery and control vulnerability to disasters, a lot of capacity building works in terms of manpower training, budgeting, building efficient management structure, legalizing some of them (traditional ones), reorganization and empowerment (for community and traditional organizations and association), logistic supply, establishing and strengthening a system that focus on grass root development approaches and vulnerability eradication and control, improving the early warning, monitoring, and evaluation capacity of the organizations etc. These recommendations are too general. Specific and detail recommendations on capacity building could be made depending on the nature, type, activities, duties and responsibilities of the institutions under consideration.

## **7.2 Main actors and responsibilities**

### **7.2.1 Public Sector institutions**

The government will facilitate the process and continue to develop and maintain a favorable macro-economic policy environment conducive for private sector participation in the proposed interventions. These will focus specifically on the provision of support services required for increasing and sustaining agricultural production and productivity, growth of real farm incomes, and household food security.

### **7.2.2 Private Sector institutions**

The private sector comprises of various entrepreneurs, traders, farmers, fisher-folk and livestock keepers, and other individuals and organizations that are motivated by profit to undertake investment in the sector, including provision of rural financial services to farmers. The private sector will be responsible for undertaking commercial activities such as production, processing and marketing. Effective private sector participation requires conducive environment that includes incentives and operating rules that facilitate private sector involvement.

### **7.2.3 Farmers organization**

These are grass-root organizations, which are important for development and change in the rural areas. They provide services such as credit, extension, input supplies and market channel for agricultural produce. They will be encouraged to support increased production and productivity, processing, marketing and credit mobilization. The involvement of communities and their organizations is essential to ensure success in the implementation of the policy.

### **7.2.4 NGOs and CBOs**

These are essential partners in fostering development as they play an important role in the provision of knowledge and mobilization of resources at the grass-root level. They



just require an enabling environment for NGOs/CBOs interventions. A strong partnership with NGOs/CBOs in fostering rural development in will be encouraged.

### 7.3 Financial arrangement

Absence banking and insurance services seriously affects the investment and saving potential of the area. Such institutions are important, particularly banking services to boost the investment activities of the area. A potential availability of resources for investment opportunities, the strategic location, the predominance of the farming communities who need annually large amount of agricultural credits make the existence of banking services necessary.

As part of the implementation of the Green Revolution a series of financial arrangements are required. These include:

- Increased government budget for agriculture to 10 percent of the national budget,
- Encourage local and international investments through medium and large-scale investors, NGOs, CBOs and Civil Societies. These will play a big role in financing agriculture in the rural communities,
- Financial institutions including commercial banks, co-operative banks, and development finance institutions will be encouraged to provide investment and operating capital to farmers, traders, artisans and agro-processors. Micro financial services are very crucial for the development of agriculture and the rural sector,
- Seeking support and strong collaboration with international development partners (multilateral and bilateral) will be sought for the implementation of the **Zanzibar Agricultural Transformation initiative.**



## 8. DETAILED ACTION PLAN FOR ZANZIBAR AGRICULTURAL TRANSFORMATION IMPLEMENTATION 2010- 2020

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
<b>Increased public sector investment</b>						
To improve Infrastructure Development for enhancing domestic and foreign investment in agricultural sector	Rural feeder roads rehabilitated	50% of rural feeder roads rehabilitated by 2015	1. Build and Rehabilitate feeder roads	MoFEA, MALE, MTC	Financial	Medium term
	Irrigation infrastructure rehabilitated	Increase land under irrigation from 640 ha (2009) to 2550 ha by 2020	1. Build and rehabilitate irrigation infrastructure (irrigation canals, drainage canals, reservoirs, etc) in the irrigation schemes; 2. Build water harvesting infrastructure in the rain-fed areas (bundling, drainage canals, etc); 3. Upscale use of drip-line irrigation systems for potential high value crops.	MoFEA, MALE,	Financial	Medium and long term
	Livestock infrastructure rehabilitated	Main central slaughter houses /abattoirs improved by 2015	Rehabilitate and construct new slaughter houses /abattoirs and equip with essential facilities;	MoFEA, MALE, Municipal	Financial	Medium term
		Cottage processing infrastructure and facilities for livestock products established by 2015;	1. Establish modern meat processing facilities (cutting, grading and packaging); 2. Establish cottage processing and packaging plants for milk and milk products.	MoFEA, MALE, MTTI	Financial, technical support	Medium term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
	Market infrastructure improved	50% of district market centers improved by 2020	<ol style="list-style-type: none"> <li>1. Build/renovate market centers in every district and equip them with modern facilities</li> <li>2. Upscale/strengthen market information centers (link with existing farmer fora)</li> </ol>	MoFEA,MALE, MTTI, Municipal	Financial, human resources	Medium and long term
	Storage facilities improved	Adequate storage facilities put in place by 2020	<ol style="list-style-type: none"> <li>1. establish and rehabilitate cold storage facilities for fish and livestock products</li> <li>2. promote use of small scale cold storage facilities for fish, vegetable and livestock products</li> </ol>	MoFEA,MALE, , Municipal	Financial and human resources	Medium and long term
	Fishing docks and landing site	<ol style="list-style-type: none"> <li>1. Build one fishing dock</li> <li>2. improve facilities of 40 existing landing sites by 2020</li> </ol>	<ol style="list-style-type: none"> <li>1. facilitate construction of fishing dock</li> <li>2. install watering and electricity utilities and necessary sanitation facilities</li> <li>3. equip landing sites with cold storage facilities</li> </ol>	MALE, MWCEL	Financial	Long term
To strengthen the provision of support services for increase production and productivity in agricultural sector	Access to agricultural inputs enhanced	Access to agricultural inputs enhanced by 2020	<ol style="list-style-type: none"> <li>1. support research institutions to produce quality seed and planting</li> <li>2. build capacity of farmers in multiplication of quality seed/planting materials</li> <li>3. facilitate private sector involvement in procurement and distribution of fertilizers, agro-chemicals and fishing gears</li> <li>4. facilitate availability and access of quality livestock</li> </ol>	MALE, Private sector and farmers	Financial, Human Resources and	Long term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
			<p>breed stock including day-old chicks, heifers and small ruminants;</p> <p>5. facilitate and empower local entrepreneurs on production of quality animal feeds using local available resources</p>			

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
	Efficiency in support services provision increased	Efficiency in support services provision increased by 2020	<ol style="list-style-type: none"> <li>1. establish credit guarantee and insurance schemes to facilitate access to formal credit by micro, small and medium entrepreneurs</li> <li>2. establish lending corridors in commercial bank for farmers and micro-entrepreneurs</li> <li>3. facilitate establishment of rural development bank</li> <li>4. scale up Farmer Field School (FFS) approach as a model for technology transfer ;</li> <li>5. strengthen adaptive research and enhance farmer - research extension linkages</li> <li>6. strengthen the existing framework for delivery unified extension services</li> <li>7. advocate use of appropriate mechanization and empower private sector services providers</li> <li>8. strengthen delivery of proximity livestock services such as veterinary and artificial Insemination</li> </ol>	MALE , MoFEA, Financial institutions (Banks and SACCOs)	Financial, Human Resources and technical support	long term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
To improve Policy and regulatory environment	Enhanced quality compliance with local regional and international standards	compliance with national/international standards and quality for agricultural products achieved by 2020	<ol style="list-style-type: none"> <li>1. Facilitate establishment of Zanzibar National Bureau of Standards;</li> <li>2. Build capacity of the Zanzibar Government Chemist laboratories to achieve accreditation by international standards;</li> <li>3. Strengthen the functions of the Zanzibar Food and Drugs Board;</li> <li>4. Strengthen quarantine services for plants and animals at entry points;</li> </ol>	MTTI, Government chief Chemist MALE, MoHSW, Zanzibar Food and Drug Board	Financial, Human resources	Long term
	Promoting Private Sector Investment	Incentive package for promoting private sector investment in agriculture established by 2015	<ol style="list-style-type: none"> <li>1. initiate business incubation for investment in the area of agricultural production and value addition</li> <li>2. provision of tax incentive for agricultural investment</li> <li>3. promote agricultural investment in Export Processing Zones (EPZ) especially for value addition</li> <li>4. prioritise promotion of agriculture investment in Zanzibar Investment Promotion Agency (ZIPA)</li> </ol>	MTTI, MALE, MoFEA and other financial institution	Financial, Human resources	Long term
	Strengthen PPP	1. Public, Private partnership for agricultural investment strengthened by 2015	<ol style="list-style-type: none"> <li>1. Create agricultural forum in Zanzibar Business Council</li> <li>2. strengthen participation of Chamber of commerce industry and agriculture in agricultural oriented</li> </ol>	MTTI, MALE, Zanzibar Chamber of Commerce	Financial, Human Resources and technical support	Long term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
			initiatives and events,			
To strengthen human and institution capacity	Human resource capacity enhanced	Human resource development plan implemented by 2015	Formulate and implement effective training plan in addressing human resource capacity gaps;	All ministry inline with Zanzibar Agricultural Transformation	Human resources	Medium and long term
	Human capital adequately motivated	Incentive and reward system established by 2015	1. Initiate and implement incentive system for technical and professional workers; 2. Established reward schemes for outstanding scientists;	All ministry inline with Zanzibar Agricultural Transformation	Human resources	Medium term
	Trade unions, representative producer organizations and farmers groups strengthened	Active trade unions, representative producer organizations and farmers groups exist by 2015	1. Activate and support establishment of effective trade unions, producer organizations and farmers' groups; 2. Strengthen capacity of trade unions, producer organizations and farmers' groups; 3. Enhance active participation of trade unions, producer organizations and farmers' groups in implementation of Zanzibar Agricultural Transformation ;	MALE, MTTI, farmer groups, Private sector	Technical support, Human resources	Medium & long term
	capacity of institutions in agriculture line	Institutional capacity in agriculture line ministries strengthened by 2020	1. Strengthen the institutional capacity for managing agricultural development;	All ministry inline with Zanzibar Agricultural Transformation	Human resources	Medium and long term



OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
	ministries enhanced		<ol style="list-style-type: none"> <li>Put in place an effective system of coordination, monitoring and evaluation;</li> <li>Provide the relevant institutions with adequate human resources and working facilities;</li> </ol>			
<b>Commercializing agricultural production</b>						
To enhanced private sector investment in identified priorities areas to increase agricultural output	Commercial activities in crops, livestock and fisheries promoted	Increased commercial activities by 30% (by aggregate) by 2020	<ol style="list-style-type: none"> <li>Organize smallholder farmers into viable commercial production units for all prioritized crops and sea weed;</li> <li>Organize smallholder livestock keepers into marketing groups;</li> <li>Organize commercialized fishing groups to access fishing gears and markets;</li> <li>Initiate and support partnership between smallholder groups (for crops, fisheries, livestock) and private entities through contract farming;</li> </ol>	MALE, MTTI	Human resources	Medium and long term
To promote adequate utilisation of productive land and industrial resources	Large scale state farms and agro-based firms adequately optimized	Private sector investment in large scale farming and agro-based firms enhanced by 2020	<ol style="list-style-type: none"> <li>Review performance of large state farms and agro-based firms;</li> <li>Develop investment plan for attracting private sector;</li> <li>Establish dialogue with potential investors;</li> </ol>	MALE, MoFEA, local and foreign investors	Financial resources	Long term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
Increased agro processing and value addition						
To enhance competitiveness through agro-based industries and value addition throughout the supply chain	Quality requirement for local agricultural products at national, regional and international markets met;	local agricultural products are competitive at national, regional and international markets by 2020;	<ol style="list-style-type: none"> <li>1. Facilitate development of organic farming and organic branding for Zanzibar's Agricultural Products;</li> <li>2. Increase diversity in the utilization of agricultural products (crops, livestock, fisheries) through agro-processing and value-addition;</li> <li>3. Establish anchor processing plants to absorb excess produce during periods of glut and help to stabilize the price of perishable items;</li> </ol>	MALE,MTTI,Private sectors,	Technical support, Human resources and financial	Medium and long term
Enhanced market linkages and trade						
To increase share of local agricultural products in domestic markets	Share of local agricultural products in domestic markets Increased	Market share of local agricultural products in domestic markets increased from 59 to 75 percent for general market; and from 20 to 50 percent for tourist market by 2020	<ol style="list-style-type: none"> <li>1. Facilitate intensification of local products to establish a strong supply base for agricultural products;</li> <li>2. Ensure quality of local grown products to satisfy market requirements;</li> <li>3. Ensure wide diversity of locally grown products all the year round;</li> <li>4. Advocate low cost technology to reduce cost of production and ensure price competitiveness;</li> </ol>	MALE, MTTI, Farmers	Technical support, Human resources and financial	Medium and long term

OBJECTIVE	OUTPUT	TARGETS	ACTIONS	RESPONSIBILITIES	RESOURCES	TIME FRAME
To capitalize on opportunities for external market for agricultural products with competitive advantages	Export of primary and value added agricultural products increased	Export volume of primary and value added agricultural products increased by 2020	<ol style="list-style-type: none"> <li>1. Facilitate intensification of export potential products to increase export volume;</li> <li>2. Empower and support potential exporters of agricultural produce;</li> <li>3. Facilitate diversification to expand the scope of exportable commodities;</li> <li>4. Strengthen export support services;</li> </ol>	MALE, MTTI, Farmers	Technical support, Human resources and financial	Technical support, Human resources and financial
	Range of exportable agricultural products diversified	Scope of exportable agricultural products increased by 2020	<ol style="list-style-type: none"> <li>1. Initiate specific commodity export development plans;</li> <li>2. Enhance technological adaptation to reduce costs of production and ensure product quality;</li> <li>3. Exploit possibilities (R&amp;D) for value addition for potential exportable products;</li> </ol>	MALE, MTTI, Farmers	Technical support, Human resources and financial	Technical support, Human resources and financial