A STUDY ON TRANSFORMING AGRICULTURE IN TANZANIA

Final Report

Submitted by:
TISCO Consultants and Associates Ltd.
2nd Floor, New Red Cross Building,
Morogoro Road/Bibi Titi Mohammed Street,
P.O. Box 2650
Tel-022 2126254, Mob: 0713-174340
Fax: 022 2126256
DAR ES SALAAM
October, 2009
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations &amp; Acronyms</td>
<td>1-5</td>
</tr>
<tr>
<td>0. EXECUTIVE SUMMARY</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>6-9</td>
</tr>
<tr>
<td>1.1 BACKGROUND</td>
<td></td>
</tr>
<tr>
<td>1.2 OBJECTIVES OF THE STUDY</td>
<td></td>
</tr>
<tr>
<td>1.3 OVERVIEW OF APPROACH/METHODOLOGY</td>
<td></td>
</tr>
<tr>
<td>1.4 LAYOUT OF THE REPORT</td>
<td></td>
</tr>
<tr>
<td>2. AGRICULTURAL POLICIES, STRATEGIES AND PROGRAMMES</td>
<td>10-20</td>
</tr>
<tr>
<td>2.1 THE ROLE OF AGRICULTURE SECTOR IN THE ECONOMY</td>
<td></td>
</tr>
<tr>
<td>2.2 AGRICULTURAL AND RELATED POLICIES</td>
<td></td>
</tr>
<tr>
<td>2.3 AGRICULTURE SECTOR DEVELOPMENT PROGRAMME (ASDP)</td>
<td></td>
</tr>
<tr>
<td>2.4 OTHER GOVERNMENT REFORMS</td>
<td></td>
</tr>
<tr>
<td>2.5 RECENT INITIATIVES</td>
<td></td>
</tr>
<tr>
<td>3. AGRICULTURAL PRODUCER ORGANIZATION</td>
<td>21-25</td>
</tr>
<tr>
<td>3.1 COOPERATIVE DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>3.2 COOPERATIVE DEVELOPMENT CONSTRAINTS</td>
<td></td>
</tr>
<tr>
<td>3.3 FARMERS ASSOCIATIONS</td>
<td></td>
</tr>
<tr>
<td>3.4 CROP BOARDS AND LEGAL REGULATORY FRAME WORK</td>
<td></td>
</tr>
<tr>
<td>3.5 TANZANIA DAIRY BOARD</td>
<td></td>
</tr>
<tr>
<td>4. AGRICULTURE SECTOR PERFORMANCE</td>
<td>26-39</td>
</tr>
<tr>
<td>4.1 AGRICULTURAL POTENTIAL</td>
<td></td>
</tr>
<tr>
<td>4.2 CROPS AND LIVESTOCK SUB-SECTOR PERFORMANCE</td>
<td></td>
</tr>
<tr>
<td>4.3 CONSERVATION AGRICULTURE</td>
<td></td>
</tr>
<tr>
<td>4.4 LIVESTOCK</td>
<td></td>
</tr>
<tr>
<td>5. AGRICULTURAL PRODUCTS STANDARDS, METROLOGY, TRACEABILITY AND QUALITY INFRASTRUCTURE</td>
<td>40-42</td>
</tr>
<tr>
<td>5.1 PRODUCT STANDARD</td>
<td></td>
</tr>
<tr>
<td>5.2 TRACEABILITY</td>
<td></td>
</tr>
<tr>
<td>5.3 METROLOGY</td>
<td></td>
</tr>
<tr>
<td>5.4 QUALITY INFRASTRUCTURE</td>
<td></td>
</tr>
<tr>
<td>6. MARKETING OF AGRICULTURAL AND LIVESTOCK PRODUCTS</td>
<td>43-53</td>
</tr>
<tr>
<td>6.1 CROP SUBSECTOR MARKETING</td>
<td></td>
</tr>
<tr>
<td>6.2 SUPPLY OF INPUTS</td>
<td></td>
</tr>
<tr>
<td>6.3 LIVESTOCK AND LIVESTOCK PRODUCTS MARKETING</td>
<td></td>
</tr>
<tr>
<td>6.4 LIVESTOCK MARKETING INFRASTRUCTURE</td>
<td></td>
</tr>
<tr>
<td>7. FACTORS HOLDING BACK AGRICULTURAL DEVELOPMENT</td>
<td>54-60</td>
</tr>
<tr>
<td>7.1 ADOPTION OF IMPROVED TECHNOLOGIES</td>
<td></td>
</tr>
<tr>
<td>7.2 INVESTMENT IN AGRICULTURE</td>
<td></td>
</tr>
<tr>
<td>7.3 FINANCING OF AGRICULTURAL PRODUCTION ACTIVITIES</td>
<td></td>
</tr>
<tr>
<td>7.4 LEGAL FRAMEWORK</td>
<td></td>
</tr>
<tr>
<td>7.5 GOOD GOVERNANCE</td>
<td></td>
</tr>
<tr>
<td>7.6 LAND RESOURCES MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>7.7 YOUTH MIGRATION TO URBAN CENTRES</td>
<td></td>
</tr>
<tr>
<td>7.8 MANAGERIAL AND ENTREPRENEURIAL SKILLS OF FARMERS</td>
<td></td>
</tr>
<tr>
<td>7.9 IMPACT OF CLIMATE CHANGE</td>
<td></td>
</tr>
<tr>
<td>8. ENABLING ENVIRONMENT (FINANCING THE AGRICULTURAL SECTOR)</td>
<td>61-65</td>
</tr>
<tr>
<td>8.1 BUDGET ALLOCATION</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>9.</td>
<td>LESSONS LEARNT, FROM PAST EXPERIENCE</td>
</tr>
<tr>
<td>9.1</td>
<td>IMPACT OF POLICIES, STRATEGIES AND PROGRAMMES ON AGRICULTURAL PERFORMANCE</td>
</tr>
<tr>
<td>9.2</td>
<td>CROSS CUTTING ISSUES</td>
</tr>
<tr>
<td>9.3</td>
<td>TRANSFORMING AGRICULTURE IN TANZANIA BASING ON FARMER ORGANIZATIONS</td>
</tr>
<tr>
<td>10.</td>
<td>ISSUES AND CHALLENGES</td>
</tr>
<tr>
<td>10.1</td>
<td>ISSUES</td>
</tr>
<tr>
<td>10.2</td>
<td>CHALLENGES</td>
</tr>
<tr>
<td>11.</td>
<td>CONCLUSIONS AND RECOMMENDATIONS</td>
</tr>
<tr>
<td>11.1</td>
<td>CONCLUSIONS</td>
</tr>
<tr>
<td>11.2</td>
<td>RECOMMENDATIONS</td>
</tr>
<tr>
<td></td>
<td>STUDY REFERENCES</td>
</tr>
<tr>
<td></td>
<td>APPENDIX 1 – FIELD QUESTIONNAIRES</td>
</tr>
<tr>
<td></td>
<td>APPENDIX 8A – GOVERNMENT EXPENDITURE ON SELECTED ITEMS</td>
</tr>
<tr>
<td></td>
<td>APPENDIX 9A – FIELD SURVEY DATA ANALYSIS</td>
</tr>
</tbody>
</table>
### Abbreviations & Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>Percent</td>
</tr>
<tr>
<td>ADIS</td>
<td>Agricultural Diversification and Intensification Study</td>
</tr>
<tr>
<td>AIC</td>
<td>Artificial Insemination Centre</td>
</tr>
<tr>
<td>AGITF</td>
<td>Agricultural Input Trust Fund</td>
</tr>
<tr>
<td>A-I</td>
<td>Artificial Insemination</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>AM COS</td>
<td>Agricultural Marketing Cooperative Society</td>
</tr>
<tr>
<td>ASDP</td>
<td>Agriculture Sector Development Programme</td>
</tr>
<tr>
<td>ASDS</td>
<td>Agriculture Sector Development Strategy</td>
</tr>
<tr>
<td>ASLM</td>
<td>Agriculture Sector Lead Ministries</td>
</tr>
<tr>
<td>ASU</td>
<td>Agricultural Sample Unit</td>
</tr>
<tr>
<td>BAIC</td>
<td>Butiama Artificial Insemination Centre</td>
</tr>
<tr>
<td>BF</td>
<td>Basket Fund</td>
</tr>
<tr>
<td>CBs</td>
<td>Crop Boards</td>
</tr>
<tr>
<td>CM EWU</td>
<td>Coop Monitoring and Early Warning Unit</td>
</tr>
<tr>
<td>CASCO</td>
<td>Co-operative Audit and supervision Corporation</td>
</tr>
<tr>
<td>CUZA</td>
<td>Zanzibar Union of Co-operatives</td>
</tr>
<tr>
<td>CRDB</td>
<td>Cooperatives and Rural Development Bank</td>
</tr>
<tr>
<td>CRMP</td>
<td>Cooperatives Reform Modernization Programme</td>
</tr>
<tr>
<td>DADPs</td>
<td>District Agricultural Development Plans</td>
</tr>
<tr>
<td>DDP</td>
<td>District Development Plan</td>
</tr>
<tr>
<td>DAGD</td>
<td>District Agricultural Development Grant</td>
</tr>
<tr>
<td>DEO</td>
<td>District Extension Officer</td>
</tr>
<tr>
<td>EAC</td>
<td>East African Community</td>
</tr>
<tr>
<td>DIDF</td>
<td>District Irrigation Development Fund</td>
</tr>
<tr>
<td>DIF</td>
<td>District Inputs Fund</td>
</tr>
<tr>
<td>ECGA</td>
<td>Eastern Cotton Growing Area</td>
</tr>
<tr>
<td>ERP</td>
<td>Economic Recovery Programme</td>
</tr>
<tr>
<td>ESAP</td>
<td>Economic Social Action Plan</td>
</tr>
<tr>
<td>E.U.</td>
<td>European Union</td>
</tr>
<tr>
<td>F.A.O</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>Ha</td>
<td>Hectare</td>
</tr>
<tr>
<td>HBS</td>
<td>Household Budget Survey</td>
</tr>
<tr>
<td>HBU</td>
<td>Heifer Breeding Unit</td>
</tr>
<tr>
<td>HH</td>
<td>Household</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immune deficiency Viruses</td>
</tr>
<tr>
<td>HMU</td>
<td>Heifer Multiplication Unit</td>
</tr>
<tr>
<td>IAS</td>
<td>Integrated Agricultural Survey</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Agency</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standards</td>
</tr>
<tr>
<td>KALIDEP</td>
<td>Kagera Livestock Development Project</td>
</tr>
<tr>
<td>KNCU</td>
<td>Kilimanjaro Native Co-operative Union</td>
</tr>
<tr>
<td>Kg</td>
<td>Kilogramme</td>
</tr>
<tr>
<td>KSE</td>
<td>Kagera Sugar Estate</td>
</tr>
<tr>
<td>LAMP</td>
<td>Land Management Programme</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Authorities</td>
</tr>
<tr>
<td>LGRP</td>
<td>Local Government Reform Programme</td>
</tr>
<tr>
<td>LIDA</td>
<td>Livestock Development Authority</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>LITI</td>
<td>Livestock Training Institute</td>
</tr>
<tr>
<td>LMU</td>
<td>Livestock Multiplication Unit</td>
</tr>
<tr>
<td>MAC</td>
<td>Ministry of Agriculture and Cooperatives</td>
</tr>
<tr>
<td>MAFC</td>
<td>Ministry of Agriculture, Food Security and Cooperatives</td>
</tr>
<tr>
<td>MALD</td>
<td>Ministry of Agriculture and Livestock Development</td>
</tr>
<tr>
<td>MATI</td>
<td>Ministry of Agriculture Training Institute</td>
</tr>
<tr>
<td>MFI</td>
<td>Microfinance Institution</td>
</tr>
<tr>
<td>MITM</td>
<td>Ministry of Industries, Trade and Marketing</td>
</tr>
<tr>
<td>MKUKUTA</td>
<td>Mipango wa Kukuza Uchumi na Kupunguza Umaskini Tanzania</td>
</tr>
<tr>
<td>MLDF</td>
<td>Ministry of Livestock Development and Fisheries</td>
</tr>
<tr>
<td>MWID</td>
<td>Ministry of Water and Irrigation Development</td>
</tr>
<tr>
<td>NAIC</td>
<td>National Artificial Insemination Centre</td>
</tr>
<tr>
<td>NAPB</td>
<td>National Agricultural Products Board</td>
</tr>
<tr>
<td>NARCO</td>
<td>National Ranching Company</td>
</tr>
<tr>
<td>NBS</td>
<td>National Bureau of Statistics</td>
</tr>
<tr>
<td>NDB</td>
<td>National Dairy Board</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
<tr>
<td>NMB</td>
<td>National Microfinance Bank</td>
</tr>
<tr>
<td>NSCA</td>
<td>National Sample Census of Agriculture</td>
</tr>
<tr>
<td>OIE</td>
<td>Office International des Epizootes</td>
</tr>
<tr>
<td>PCCB</td>
<td>Prevention and Combating Corruption Bureau</td>
</tr>
<tr>
<td>POPC</td>
<td>President’s Office – Planning Commission</td>
</tr>
<tr>
<td>PRSP</td>
<td>Poverty Reduction Strategy Paper</td>
</tr>
<tr>
<td>PSRP</td>
<td>Public Service Reform Programme</td>
</tr>
<tr>
<td>REO</td>
<td>Regional Extension Officer</td>
</tr>
<tr>
<td>SAACA</td>
<td>Savings and Credit Association</td>
</tr>
<tr>
<td>SACCOS</td>
<td>Savings and Credit Cooperative Society</td>
</tr>
<tr>
<td>SPS</td>
<td>Sanitary and Phytosanitary System</td>
</tr>
<tr>
<td>STABEX</td>
<td>Price Stabilization Fund for Export</td>
</tr>
<tr>
<td>TTA</td>
<td>Tanzania Tea Authority</td>
</tr>
<tr>
<td>TBC</td>
<td>Tanzania Business Council</td>
</tr>
<tr>
<td>TDDP</td>
<td>Tanga Dairy Development Project</td>
</tr>
<tr>
<td>TDV</td>
<td>Tanzania Development Vision</td>
</tr>
<tr>
<td>TIB</td>
<td>Tanzania Investment Bank</td>
</tr>
<tr>
<td>TLMC</td>
<td>Tanzania Livestock Marketing Company</td>
</tr>
<tr>
<td>TMPC</td>
<td>Tanzania Meat Processing Company</td>
</tr>
<tr>
<td>TPC</td>
<td>Tanganyika Planting Company</td>
</tr>
<tr>
<td>TPL</td>
<td>Tanganyika Packers Limited</td>
</tr>
<tr>
<td>TRDB</td>
<td>Tanzania Rural Development Bank</td>
</tr>
<tr>
<td>TShs</td>
<td>Tanzania Shilling</td>
</tr>
<tr>
<td>VAT</td>
<td>Value Added Tax</td>
</tr>
<tr>
<td>VEO</td>
<td>Village Extension Officer</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WCGA</td>
<td>Western Cotton Growing Area</td>
</tr>
<tr>
<td>WEO</td>
<td>Ward Extension Officer</td>
</tr>
<tr>
<td>WFP</td>
<td>World Food Programme</td>
</tr>
<tr>
<td>WUA’s</td>
<td>Water Users Associations</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

0.1 BACKGROUND

The Tanzania Development Vision 2025 (TDV) envisages transforming the economy from a predominantly agricultural one with low productivity to a diversified and semi-industrial economy with a modern rural sector and high productivity in agricultural production which generates reasonably high incomes and ensures food security and food self-sufficiency. Therefore to facilitate realization of the objectives and targets under the vision, a study was commissioned to identify means and ways of transforming agriculture from its backward position to a modern state characterized by high production capacity coupled with greater output, good quality products and high return to farmers and to the country as a whole. The report gives a diagnostic analysis of the status of agriculture in Tanzania, including its performance over the last thirty years. It examines the sector’s contribution to the economy, factors behind its poor performance and provides major strategic options for transforming current agriculture status.

0.2 LESSONS LEARNT FROM PAST EXPERIENCE

The country has implemented a wide range of policy regimes since 1972. Those affecting agriculture include the following;

- **Siasa ni Kilimo** of 1972 was formulated to protect individual small farmers whereby they produced in communal farms whereas land belonged to the state. This era passed through nationalization of properties including business enterprises. There are useful ideas in this policy that are still relevant today and can be adopted.

- Demonstration plots (Mashamba ya mfano) where demonstrations are given by agricultural extension officers on good husbandry and other recommended farming practices. Today these demonstrations are called Farmer Field Schools (Shamba Darasa). These are regarded as the best means of technology transfer to smallholder farmers.

- Farmers’ Organizations:
  The Ujamaa Villages were organized in such a way as to facilitate easy implementation of communal field works and empowerment to acquire necessary facilities. This system is likened to the Farmer’s Associations or Organizations established for the same purpose. These are necessary institutional setups to improve farmer’s bargaining power, access to credits and extension services.

- **Agricultural and Livestock Policy 1997**

  Despite the efforts to implement the policy, goals and objectives have not been fully realized due to:
  - Ineffective provision of new technologies from research institutions to farmers.
  - Extension services have been insufficient particularly in disseminating useful technical information to farmers and availing of important market information.
  - Farmers’ produce has not adhered to quality and required standards thus products from Tanzania have been inferior compared to those from other countries.

The above shortcomings are still to be addressed sufficiently by the Government. The policies should focus on commercializing agriculture so as to increase income levels, meet national food security and improve standards of living in rural areas.
• **The Land Policy (1997) and 2002**

The implementation of the land policies caused problems in village land utilization. Village land has not been surveyed making disposal of land for development difficult. Because of lack of land ownership rights by village farmers; it has been difficult for these farmers to access credit from financial institutions by way of mortgaging land as collateral. Also financial institutions refuse to accept customary right of occupancy as security to credit. To this effect there has been hoarding of land and large scale commercial farmers in need of land are unable to obtain land in villages.

• **Cooperative Development Policy 1997 and 2002**

Despite the existence of the above policies, problems inherent in cooperative development have persisted. Cooperatives have been unable to operate under liberalized market situation where they have to compete with private buyers and traders. Thus policies have not adequately addressed issues pertaining to the free market economy, environment, gender, roles of different stakeholders and the globalization phenomenon. However, the role of cooperatives (including farmers groups or associations) is still relevant especially for smallholder producers.

• **Water and Irrigation Policy 2006**

The government has made progress towards changing public irrigation development into farmers oriented public irrigation development. Further steps need to be taken to empower farmers to own the irrigation schemes through village water committees and water users association.

• **National Micro-finance Policy 1997**

The policy recognizes Savings and Credit Cooperative Societies (SACCOS) as among the key providers of micro-finance services to the community especially in rural areas. The policy envisages SACCOS evolving into community banks and eventually joining to form cooperative banks. The policy provides for adequate framework for improving availability of credit for agricultural production although there are still challenges in the implementation especially in funding, institutional linkage, human resource etc.

• **The Local Government Reform Programme**

Under the reform programme, political, financial and development planning authority was transferred from the central government ministries to the district councils. The reforms affect implementation of the Agricultural Sector Development Strategies (ASDS) and programmes especially in the delivery of extension services to smallholder farmers and rural infrastructure development. The district councils are responsible for formulating agricultural policies, funding and implementation of the agricultural projects that are selected, providing regulatory services, monitoring the performance, promoting farmer organizations as well as promoting the role of the private sector in the commercialization of agriculture in the district. The district council also promotes good governance in the rural sector and sustainable management of natural resources. The challenge facing the LGAs is in the capacity to effectively supervise all the above-mentioned activities implemented in the district.
Observations and findings in this study show that Tanzania Agriculture is backward and is characterized by the following factors:

i) **Dependence on rainfall**
   Smallholder farmers mostly depend on rainfall in the production of crops and production of improved pasture. In case of failure in rainfall, there is no production.

ii) **Low production levels, productivity and quality**
   Yields of both food and export crops are low compared to those obtained at research or demonstration plots. This is due to low scale of application of recommended crop husbandry or livestock practices, i.e. the present peasantry cassava yields are 6-10 tons per hectare compared to 20 tons per hectare obtained on well maintained field, the present yield of maize averages 8-10 bags per hectare compared to higher yields of up to 30-35 bags per hectare. Comparison of average maize yield with other African countries is given below:

<table>
<thead>
<tr>
<th>Country</th>
<th>Yield/ha kg</th>
<th>Approximate number of bag/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanzania</td>
<td>1196</td>
<td>12</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>1556</td>
<td>16</td>
</tr>
<tr>
<td>Kenya</td>
<td>1893</td>
<td>19</td>
</tr>
<tr>
<td>Zambia</td>
<td>1660</td>
<td>17</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>2066</td>
<td>21</td>
</tr>
<tr>
<td>Malawi</td>
<td>1900</td>
<td>19</td>
</tr>
</tbody>
</table>

**Low level of Mechanization:**
Most of the farmers are small holders, who posses few acres of land and mostly use hand-hoe for production. Few farmers use improved implements like ox-ploughs, power tillers and tractors. Mechanization is a necessary productive factor for the agriculture sector growth. Use of animal draught power, power tillers and tractors will empower farmers to manage production process with efficiency and effectiveness.

**Low level of use of technology**
Farmers have limited access to technology adoption from researchers and extension workers. Farmers need to adopt use of new improved seeds, proper levels of fertilizers and time of application and control of pests and diseases. Extension agents are supposed to transfer new technologies to farmers through demonstrations and by use of farmer field schools.

**Access to agricultural credits**
Farmers have limited access to agricultural credits due to their being not credit worth. Until recently, land could not be used as collateral, a situation which formed a big bottleneck to farmers to obtain credits. Nevertheless, commercial banks which are the biggest lenders are reluctant to approve investments in the agriculture sector owing to its high risk.

**Poor Infrastructure**
Poor rural roads, produce storage facilities, communication network and utilities hamper growth of agriculture sector. This is a common feature in rural areas where the majority of farmers are located. Good infrastructure helps in raising productivity and lowering unit cost in the production activities.
Tax burden
Although the Government has abolished several taxes including motor vehicle license on tractors and VAT on locally made sacks from sisal, the outstanding tax burden on agriculture sector remains on produce cess of 5% and VAT on spare parts and tools. Tax burden to a large extent reduces the profitability on produce.

0.4 CONCLUSIONS, RECOMMENDATIONS, MEASURES AND STEPS

0.4.1 Conclusion
The agriculture sector has been facing a number of constraints in achieving growth targets. In order for the country to achieve the desired development in agriculture, deliberate interventions need to be taken without delay to move forward with concrete steps towards the transformation of the agriculture sector into a Green Revolution. The following are recommendations towards achieving the intended targets to transform agriculture in Tanzania.

0.4.2 Recommendations
Basing on the foregoing information and analyses contained in the study review towards intended transformation of agriculture in Tanzania, the report gives the following recommendations

1. The Legal Framework and Policies
The study recommends that while the formulated legal and policy framework are in line with intended objective to transform agriculture, the Government should strengthen their implementation and allowing private sector participation in speeding up changes towards transformation of agriculture in Tanzania. The Ministry of Agriculture, Food Security and Cooperative should coordinate the lead ministries in laying down strategies to implement policy statements geared towards attaining improved agriculture. In addressing land ownership, the government should establish land registry offices in villages that will have the power to issue land ownership titles to farmers.

2. Producer Organizations
The government should encourage formation; development and support producer organizations with a view to transforming agricultural undertakings along all value chains. Such organizations include producer organizations, Farmers Associations, Cooperative Societies, farmer groups etc. Farmers should be trained on importance of producer organizations. The government should also build capacities and skills of cooperative institutions to enhance performance in production; processing and marketing. Additionally, there is need to strengthen farmer training initiatives through farmer school system and to strengthen exchange of best practice with large commercial farmers, processors or large buyers etc.

3. Improvement of Research and Extension Services
The Government in collaboration with the private sector should strengthen research institutions and ensure that information on developments reaches farmers promptly. The extension services should ensure that the research findings are disseminated to farmers and should provide appropriate training and motivation by way of demonstrations. The study recommends public/private sector partnership to:
- Invest in research and development, extension services and training.
- Provide adequate funding to enable research and extension services to function well in providing the required services. This will entail vertical integration.

4. **Infrastructure Development**
   An enabling environment for agricultural development requires good roads, railway, water and air transport network. Together with transport, other requirements are communication network and power connections and water supply. Also important are health, education and other social services. The issue of storage facilities is crucial particularly in villages to mitigate the post harvest loss of produce. The Government should facilitate planning and construction of storage facilities in rural areas.

5. **Investment and Finance**
   The Government should strengthen and support agriculture as Kilimo Kwanza by ensuring that the budget allocation meant for agricultural development is adequate and specifically used for agricultural activities. The Government should also improve access to credits for farmers investing in agricultural activities by establishing the Agricultural Bank and strengthening micro-finance institutions such as SACCOS.

6. **Input Supply and Environmental Protection**
   There should be timely supply of appropriate farm inputs to farmers and the designated input stockists should be supported in order to provide the services as required. Farmers should be educated on proper use of inputs. Adoption of the Input Voucher System should be strengthened to support farmers in increasing production.

7. **Quality and Standards, Traceability and Metrology**
   The Government should see to it that testing laboratories are established that would measure/determine standards of products to meet international requirements. There is need to improve capacity on inspection of products at entry points and check points i.e. customs and immigration officers. The roles of TBS, TPRI should be strengthened and improved. Adherence to international standards should be strengthened i.e. ISO, OIE and WTO. The Government should ensure that the country complies with the requirements of EU on traceability and weight measures to protect farmers.

8. **Produce Markets**
   Encourage and promote collaboration between smallholder farmer and processors to ensure market outlet. Establish good environment for contract farming/out-grower schemes. Encourage contract farming (out-grower schemes linking smallholders with processors e.g. sugarcane and tea, large farm participation) through review of policy and regulatory environment (laws relating to trade, labour, environmental, contracts, land laws, and intellectual property). Commercialize production to produce more for food and for sale. There should be a price stabilization mechanism. Contractual arrangements will provide farmers access to production services, credit and gain knowledge on new technologies.

9. **Insurance Cover**
   Commercialization of peasant farming brings with it high bankruptcy risks in case of crop failure. The government should explore the feasibility of introducing insurance schemes to cover risks by banks on extending loans to farmers. More research is needed before giving concrete recommendations on the modalities for operating such scheme.
1. INTRODUCTION

1.1 BACKGROUND

Tanzania’s vision is to become a middle income country by 2025; the equivalent of what Malaysia, Indonesia and South Korea are today. This study covers crops farming and livestock keeping in Tanzania mainland. Agriculture is a sector of primary importance in the Tanzania’s economy because of the strategic role it plays and the great potential and opportunities it has that wait to be tapped. Agriculture provides a means of livelihood to approximately two thirds of the population. In terms of exports by major commodity groups during 2007, exports of major cash crops fetched a total of TShs 371.4 billion accounting for 15 percent of the total export earnings of TShs 2475 billion. The contribution of agriculture to Gross Domestic Product (GDP) between 2002 and 2007 (at 1992 constant prices) was an annual average of nearly 20 percent.

Tanzania is also well endowed in terms of natural resources like land and water as well as labour that are essential for agricultural activities.

In view of the above, agriculture is a sector that has greater potential for contributing to the implementation and realization of the goals and objectives of the Tanzania Development Vision (TDV 2025).

Despite the current high position agriculture occupies in the economy, its overall performance is below expectation in terms of levels of production, quality of output and overall contribution to the national socio-economic goals, objectives and targets such as provision of employment, eradication of poverty, achieving food security, etc.

Since independence, agriculture has been, and still is, characterized by serious underutilization of available resources like arable land, water and labour, resulting into poor returns especially to farming households.

However, agriculture has great potential for a faster and sustainable growth as well as high potential for equitable distribution of the growth benefits to a wider population in the country. Promotion of modernized agriculture becomes a necessary strategy in order to exploit fully the sector’s potential and achieve high performance and benefits.

For this to happen, and in order to change the status of agriculture in the country, it is imperative that factors holding back agricultural development be thoroughly understood. It is only through comprehensive research that the factors holding back agricultural performance as well as the requirements for a green revolution can be properly identified and analyzed. Past research efforts undertaken for purposes of facilitating such understanding and consequent strategies and actions have so far proved inadequate.

Bearing the above in mind, the President’s Office, Planning Commission (POPC) has commissioned this study with the objective to finding means and ways of raising agriculture from its current backward position to a modern state characterized by high production capacity coupled with greater output, good quality product and high returns to those who rely on agriculture directly and the country as a whole. The main issue to be addressed is how to transform agriculture given the existing understanding and status of the sector. The study should dwell on lessons learnt, utilizing success cases of countries like Malaysia, Israel and others.
1.2 OBJECTIVES OF THE STUDY

1.2.1 Overall Objective

The objective of the study is to have a study report that shows means and ways of raising/transforming agriculture from its current backward position to a modern state characterized by high production capacity coupled with greater output, good quality product and high return to those who rely on it directly, and the country as a whole. In this study agriculture sector includes also the livestock industry sub-sector. Thus the study is expected to produce a comprehensive and analytical report based on reliable data/information related to specific Terms of Reference.

1.2.2 Specific Objectives

Specific Terms of Reference highlight the specific outputs expected from the study. POPC expects TISCO to come up with results of review, identification and analysis of the following issues:

- Policies, strategies and programs relating to agricultural development in Tanzania with the view of examining actual and potential resources utilization; and examine existing gaps and weaknesses that need serious mitigation measures to harness the potential national-wide;
- Agricultural producer organizations (crop and livestock cooperatives, associations, partnership, private sector, etc.);
- Agriculture sector performance profile over the last three decades in the country including investment levels (acreage, access and use of credit), production technology (research, access and use of equipments and tools and extension services), production costs, production levels (quantity), product mix, productivity (labour, capital, land);
- Agricultural product standards, metrology, traceability, and quality infrastructure in place;
- Product markets, market structure and marketing channels, market prices and profitability for various categories of actors and technical barriers to trade (TBT), sanitary and phytosanitary (SPS) measures; focusing on the major crops (including food crops - oil seeds, maize, paddy, wheat, beans, millet, cassava, sweet potatoes, bananas, groundnuts, simsim and soya; and cash crops - cotton, tobacco, sugar, tea, pyrethrum, cashew nut, coffee and sisal) and livestock;
- Review the country’s agriculture development initiatives (policies and plans, etc) and their implementation over the past three decades (starting early 1970’s to 2000’s);
- Identify and analyze the factors holding back agricultural development in Tanzania;
- Draw any useful lessons from past experiences in favour of agricultural modernizations covering initiatives undertaken, their implementation and performance;
- Identify and recommend measures and steps to be taken in order to achieve agriculture modernization in Tanzania.
1.3 OVERVIEW OF APPROACH/METHODOLOGY

1.3.1 Survey Instruments

The study was conducted through formal questionnaires which were developed by the consultants in line with the Terms of Reference. The questionnaires were organized under four categories:

i) Individual farmers;
ii) Farmers Association/organizations;
iii) Cooperatives;
iv) Other stakeholders: Ministries, Business, Research Institutions, Regional and District Development Officers.

In addition the study is also based on review of reports and interviews conducted with all crop boards.

1.3.2 Regions and Sampling

Eight regions were visited as part of the fieldwork (Kilimanjaro, Arusha, Morogoro, Mbeya, Rukwa, Singida, Dodoma and Mtwara regions). In addition interviews were conducted in Dar es Salaam. This report focuses on results derived from the interviews and questionnaires in the eight regions and Dar es Salaam.

The selection of regions was based on their agricultural importance as well as the associated key agents and stakeholders in the value chain, i.e. agro-processors. The regions differ from one another in terms of production activities, market access, land resources, socio-economic factors and structure of private sector activity. Some of these features for the regions selected include:

**Kilimanjaro**
- Presence of large coffee estates and smallholder coffee farmers for many years,
- Social economic factors which are pegged on production of coffee,
- Strong cooperative union, the KNCU, and existence of well organized primary societies,
- Headquarters of Tanzania Coffee Board,
- Presence of Lyamungu Research Institute which among others deals in coffee research,
- Coffee Curing Plant (as processor),
- Presence of Coffee Auction Floor for export,
- Various farmers associations.

**Morogoro**
Sugar and tobacco growing area with well established agro industrial processing companies and dominated with the following stakeholders:

- Tanzania Tobacco Cooperative Apex Limited,
- Tanzania Leaf Tobacco Company,
- Tanzania Seed Company,
- Tanzania Tobacco Board Headquarters,
- Tobacco Auction Floor,
- Sugarcane Growers in Mtiwa and Kilimbero,
- Outgrowers of sugar cane in Mtiwa and Kilombero,
- Giant sugar processing factories at Mtiwa Estate Co Ltd and Kilombero Sugar Company,
- Farmer associations which include Kilombero Cane Growers Association, Ruembe Outgrowers Association and Mtiwa Outgrowers Association. All three are under the apex of Tanzania Sugarcane Growers’ Association.
Mtwar and Lindi Regions
- About 60% of cashew nut production comes from the regions,
- Headquarters of Tanzania Cashewnut Board,
- Masasi Mtwara Cooperative Union,
- Cashewnut Processors Association,
- Presence of cashew nut processing factories,
- ARI Naliendele which caters for cashew nut research,
- Mtwara port which facilitates exports of processed and raw cashew nuts,
- Livestock being introduced in the region, harmonious relationship between livestock keepers and crop farmers.

Mbeya and Rukwa Regions
- Among the big six grain producers in the country,
- Uyole Agricultural Research Centre,
- Tea, coffee and pyrethrum growing,
- Tea processing factories,
- Kyela rice farmers.

Dodoma and Singida Regions
- Kongwa Ranch,
- Mpwapwa Livestock Training Institute,
- Dodoma Abattoir,
- Meat Training Institute,
- Small scale agro-processors, i.e. sunflower and simsim,
- Combined crop farming and livestock keeping.

Information from the rest of the crops was compiled through secondary data obtained from the Ministry of Agriculture, Food Security and Cooperatives, Chief Executives of the crop boards, Government agents, farmer associations, cooperatives and other stakeholders like traders/buyers, processors and exporters.

1.4 Layout of the Report

The report contains ten chapters with the executive summary highlighting the report findings in the foreground. Chapter 1 gives the introduction to the report. Chapter 2 reviews policies, strategies and programmes relating to agricultural development in Tanzania and their implementation over the past three decades. Chapter 3 gives overviews on agricultural producer organizations (crop and livestock cooperatives, farmer associations and private sector). Chapter 4 examines the agricultural sector performance over the last three decades. Chapter 5 examines standards, metrology, and traceability and quality infrastructures. Chapter 6 reviews product markets, market structures and marketing channels, market prices and profitability for major crops. The factors holding back agricultural development in Tanzania are identified and analyzed in chapter 7. Finally, chapters 8 and 9 describe the study findings and field observations while chapter 10 gives study conclusions and recommendations.
2. AGRICULTURAL POLICIES, STRATEGIES AND PROGRAMMES

2.1 THE ROLE OF AGRICULTURE SECTOR IN THE ECONOMY

Tanzania’s Development Vision (TDV) envisages that by 2025 the economy will have been transformed from low productivity agricultural economy to a semi-industrialized economy led by modernized and highly productive agricultural activities which are effectively integrated and cushioned by supportive industrial and service activities in the rural and urban areas.

This chapter reviews the major contribution of the agriculture sector to the national economy since 1972. The agriculture sector comprises crops, livestock, hunting, forestry and fisheries. In this study we have considered crops and livestock sub-sectors only. The agriculture sector is one of the most important sectors in Tanzania and there are indications that it will continue to be so in many years to come. The sector plays very important role in the economy of the country. In summary the agriculture sector contributes to:

- The Gross Domestic Product (GDP),
- National Food Security,
- Employment (formal and informal),
- Production of raw materials (for medium and large-scale industries),
- Poverty Reduction.

The sector has strong forward and backward linkages with other sectors of the economy. The following economic indicators in Table 2.1 give proof of the important role the sector plays in national development.
Table 2.1  Agricultural Sector Growth Indicators

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Population (million)</td>
<td>13.3</td>
<td>15.8</td>
<td>18.4</td>
<td>21.1</td>
<td>24.3</td>
<td>28.0</td>
<td>32.3</td>
<td>37.3</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>National population growth rate</td>
<td>3.3</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.9</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Gross Domestic Product (mill. TShs)</td>
<td>8,529.0</td>
<td>9,715.4</td>
<td>11,624.2</td>
<td>233,797.8</td>
<td>1,203,009.8</td>
<td>1,355,024.0</td>
<td>1,663,791.0</td>
<td>5,922,886.4</td>
<td>1,312,625.4</td>
</tr>
<tr>
<td>4</td>
<td>GDP per capita (TShs)</td>
<td>597</td>
<td>615</td>
<td>632</td>
<td>10,545</td>
<td>49,571</td>
<td>48,418</td>
<td>51,511</td>
<td>158,790.5</td>
<td>45,811.4</td>
</tr>
<tr>
<td>5</td>
<td>Agricultural contribution to GDP (mill. TShs)</td>
<td>3,425</td>
<td>3,649</td>
<td>5,380</td>
<td>112,124</td>
<td>577,677</td>
<td>674,663</td>
<td>805,866</td>
<td>1,474,207</td>
<td>522,427.3</td>
</tr>
<tr>
<td>6</td>
<td>Crops contribution to GDP (mill. TShs)</td>
<td>1,760</td>
<td>2,751</td>
<td>3,127</td>
<td>37,894</td>
<td>380,878</td>
<td>502,513</td>
<td>604,667</td>
<td>1,583,942</td>
<td>445,361.7</td>
</tr>
<tr>
<td>7</td>
<td>Livestock contribution to GDP (mill. TShs)</td>
<td>400.1</td>
<td>725</td>
<td>1,613</td>
<td>20,246</td>
<td>81,250</td>
<td>92,197</td>
<td>106,076</td>
<td>143,856</td>
<td>60,909.0</td>
</tr>
<tr>
<td>8</td>
<td>% Contribution to GDP (Agriculture)</td>
<td>40.1</td>
<td>37.5</td>
<td>46.3</td>
<td>50.0</td>
<td>48.0</td>
<td>50.0</td>
<td>48.0</td>
<td>24.9</td>
<td>43.5</td>
</tr>
<tr>
<td>9</td>
<td>% Contribution to GDP (Crops)</td>
<td>22.0</td>
<td>25.0</td>
<td>26.1</td>
<td>34.1</td>
<td>31.6</td>
<td>37.0</td>
<td>36.0</td>
<td>26.7</td>
<td>34.1</td>
</tr>
<tr>
<td>10</td>
<td>% Contribution to GDP (Livestock)</td>
<td>4.5</td>
<td>5.8</td>
<td>6.1</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
<td>6.3</td>
<td>4.1</td>
<td>6.7</td>
</tr>
<tr>
<td>11</td>
<td>Real GDP growth %</td>
<td>2.5</td>
<td>3.2</td>
<td>1.7</td>
<td>1.8</td>
<td>3.3</td>
<td>6.2</td>
<td>6.2</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>12</td>
<td>Real Agricultural GDP growth %</td>
<td>0.7</td>
<td>1.0</td>
<td>1.2</td>
<td>1.7</td>
<td>0.4</td>
<td>1.5</td>
<td>4.9</td>
<td>4.1</td>
<td>2.2</td>
</tr>
<tr>
<td>13</td>
<td>Real Crops GDP growth %</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.6</td>
<td>1.7</td>
<td>5.3</td>
<td>5.6</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td>14</td>
<td>Real Livestock GDP growth %</td>
<td>0.7</td>
<td>0.7</td>
<td>1.6</td>
<td>2.1</td>
<td>2.8</td>
<td>2.4</td>
<td>3.2</td>
<td>4.1</td>
<td>2.5</td>
</tr>
<tr>
<td>15</td>
<td>TOTAL EXPORTS (US$ mill.)</td>
<td>172.60</td>
<td>176.21</td>
<td>289.60</td>
<td>365.27</td>
<td>540.25</td>
<td>624.60</td>
<td>831.53</td>
<td>956.72</td>
<td>562.68</td>
</tr>
<tr>
<td>16</td>
<td>Agricultural Exports (US$ mill)</td>
<td>63.27</td>
<td>64.00</td>
<td>52.70</td>
<td>67.30</td>
<td>170.81</td>
<td>302.68</td>
<td>327.30</td>
<td>356.30</td>
<td>200.62</td>
</tr>
<tr>
<td>17</td>
<td>Agriculture contribution to Forex %</td>
<td>36.6</td>
<td>36.6</td>
<td>18.2</td>
<td>18.4</td>
<td>31.6</td>
<td>48.5</td>
<td>39.4</td>
<td>37.2</td>
<td>36.6</td>
</tr>
</tbody>
</table>

Source:    National Bureau of Statistics and authors computations
Note:        Figures are five year cumulative averages starting from 1973 to 2007
            - Data not available
2.1.1 Contribution to the National GDP

Table 2.1 indicates that during the period under review (i.e. 1972-2007), the agriculture sector has contributed on average 43.5 per cent to the GDP. The sector has been the single sector contributing more than other economic sectors. Other sectors, all together, contributed about 56.5 per cent to the total to the GDP (i.e. including mining, transport, construction, communication etc). The contribution of crops accounted for an average of 34.1 percent and livestock sub-sector contributed an average of 6.7 percent to the GDP during the period under review.

The agriculture sector contribution to foreign exchange, over the years averaged about 36.6 per cent of the total exports confirming yet its role in the national economy. Through the period under review, total exports have average about US$ 562.68 million, out of which US$ 200.62 million were agricultural exports.

2.1.2 Contribution to Food Security

According to reports, production of food to meet national demand has been adequate when weather conditions permit, although there are localized areas which suffer from food shortages due to existence of inadequate rainfall in such areas. Food crops production is dependent to a large extent on rainfall especially for major staple crops like maize, cassava and bananas. Other food crops such as pulses and sorghum can be grown despite changes in weather conditions.

The need to promote irrigation agriculture to enhance sustainable food production is therefore important to such localities.

2.1.3 Contribution to Employment

More than 70 percent of Tanzanians live in rural areas. The majority of these people depend on peasantry agriculture for their livelihood. Agriculture sector is therefore the biggest employer of the Tanzanian population. The data provided in Table 2.2 confirm the fact. Population census conducted in 2002 revealed that the country has 34.6 million people, with an annual growth rate of 2.8 percent, putting the current population (2007) at about 39.4 million people. Population has thus tripled over the years from 1967.

| Table 2.2: Tanzania Population Growth and Agricultural Labour Force 1978 – 2007 |
|---------------------------------|--------|--------|--------|--------|
| Total population (million)      | 17.5   | 23.1   | 34.6   | 39.4   |
| Growth rate (%)                 | 3.2    | 2.8    | 2.8    | 2.8    |
| Total labour force (million)    | 7.6    | 10.6   | 16.4   | 18.7   |
| Agriculture labour force (million) | 6.3    | 8.3    | 11.7   | 14.4   |
| As % of total labour force      | 82.4   | 78.0   | 83.5   | 81.2   |


The above table indicates that from 1978 to 2007, total labour force in Tanzania has grown from 7.6 million to about 18.7 million. It is also established that on average over 70 per cent of the labour force is involved in agriculture. Furthermore, women constitute 54 percent of the agricultural labour and men’s share is 46 percent.

An improvement of the operations and performance of the agriculture sector through capacity building to enhance skills of the farmers and other stakeholders will have significant impact on the vast majority of the population particularly through increased incomes. The move will
have a multiplier effect on both the agriculture and non-agriculture sectors through increased demand for goods originating from agricultural activities.

### 2.1.4 Contribution to Poverty Reduction

Higher and sustained agricultural growth is needed to meet Tanzania’s National Strategy for Growth and Reduction of Poverty (NSGRP, also called MKUKUTA in Kiswahili) and Millennium Development Goals of halving poverty and food insecurity by 2015 for three main reasons: (i) about 80 percent of the poor live in rural areas and agriculture accounts for 75 percent of rural household incomes, hence significant reductions in overall poverty levels, particularly rural poverty, will require raising agricultural incomes; (ii) agriculture accounts for about 46.2 percent of Tanzania’s GDP (2004) and for about 50 percent of exports, with agricultural growth having a larger direct impact on GDP growth than comparable growth in other sectors; (iii) agriculture stimulates economic growth indirectly through larger consumption linkages with the rest of the economy than other sectors.

Poverty reduction is closely linked to the economic growth of the country. Tanzania experienced weak economic growth in the early 1990’s when economic growth rate was lower than population growth rate. In the middle of the period (mid 1990’s) the situation reversed and the country experienced higher economic growth rates, increasing from the average 4.0 percent before 2002 to 5.8 per cent in 2004. In 2007 the economic growth rate was 7.1 percent which exceeded the targeted level of 6.0 percent. The challenge the country is now facing is how to sustain this growth rate while at the same time ensuring the consequent benefits are broadly shared by the population.

### 2.2 Agricultural and Related Policies

Evaluation and analysis of the policies and how they have affected agriculture industry in Tanzania is considered here. This underscores the overall effect on agricultural incentives of macroeconomic policies and sector policy reforms undertaken since mid 1980’s. A look is cast on the period after independence, giving the whole evaluation process and how sector policies have affected the agriculture sector in the country to date.

Policy environment is the key to agricultural development, and it is true that at all levels of Government machinery there is a general consensus that agriculture sector growth is an important instrument in poverty alleviation, particularly in an agricultural dependency economy like Tanzania. Policies highlight on macroeconomic environment in general and on agriculture sector in particular. In about four decades since Tanzania became independent, the country has implemented economic policies which brought about many changes in agricultural development and affected the sector's economic performance in general. The country has implemented a wide spectrum of policy regimes, from unregulated grain markets to cooperative based marketing to centralized crop authorities and back to relatively unregulated markets. It is difficult to interpret current policy debates and recent agricultural performance without understanding of the evolution of public policies affecting agriculture in Tanzania.

#### 2.2.1 Agricultural and Livestock Policy 1997

The policy sought to ensure that the direction and nature of agriculture and livestock sector development met social objectives, key public goods were provided, markets were competitive and the negative consequences of growth on the environment were mitigated. They recognized the central role of the agriculture and livestock sectors in the national economy, and the Government’s responsibility to oversee their implementation.

The ultimate goal has been the improvement of the wellbeing of the people, whose principal occupation and way of life is based on agriculture (crop production and livestock keeping).
Most of these people are smallholder farmers and livestock keepers who do not produce surplus for markets. Therefore the focus of the policy is to commercialize agriculture so as to increase income levels.

The policy sets national food security as the primary objective and aims to improve national standards of nutrition by increasing outputs, food quality and availability. Embodied in this general goal are nine specific objectives which are summarized below:

- Assure national food security, including improvement of national standards of nutrition;
- Improve standards of living in rural areas; through increased income generation from agricultural and livestock production, processing and marketing.
- Increase foreign exchange earnings;
- Produce and supply raw materials and expand the role of the sector as a market for local industrial outputs;
- Develop and introduce new technologies for land and labour productivity;
- Promote integrated and sustainable use and management of natural resources;
- Develop human resources; few officers in research, extension services and low capacity skills;
- Provide support services; low level of research necessitating entry of private sector
- Promote access of women and youth to land, credit, education and information.

Limitations or failures to implement Agriculture/Livestock Policy

Despite the Government efforts to implement the policy instruments, goals and objectives of the policy have not been fully reached to turn around agricultural performance in Tanzania. For example:

- Collection and dissemination of market information has not been sufficient, to date farmers are complaining of lack of market information on their produce.
- Observation of quality, hygienic and sanitary standards has generally been low leading to products from Tanzania being of inferior quality compared to those from other nations in the market.

The Government’s legal and regulatory framework is not implemented in accordance with the policy. For example, the regulatory roles of crop boards are weak and some important produce like horticultural products or cut flowers are not regulated at all. Control of vermin and epidemic pests and diseases are still a threat to the crop sub-sector.

Until recently taxation on agricultural products has been a nuisance to farmers and consumers.

2.2.2 The Land Policy (1997)

The overall aim of a National Land Policy is to promote and ensure a secure land tenure system, to encourage the optimal use of land resources, and to facilitate broad-based social and economic development without upsetting or endangering the ecological balance of the environment. The specific objectives of the National Land Policy are to:

- Promote an equitable distribution of and access to land by all citizens,
• Ensure that existing rights in land especially customary rights of smallholders (i.e. peasants and herdsmen who are the majority of the population in the country) are recognized, clarified and secured in law;
• Set ceilings on land ownership which will later be translated into statutory ceilings to prevent or avoid the phenomenon of land concentrations (i.e. land grabbing);
• Ensure that land is put to its most productive use to promote rapid social and economic development of the country;
• Modify and streamline the existing land management system and improve the efficiency of land delivery systems;
• Streamline the institutional arrangements in land administration and land dispute adjudication and also make them more transparent;
• Promote sound land information management; and
• Protect land resource from degradation for sustainable development.

As a result of changes in national macro-economic environment that encouraged large investments on land, two Acts were formulated. The village land Act No. 4 and 5 of 1999 giving powers of ownership of land to villages. Act No. 4 grants issuance of title deeds to village land while the Village Act No. 5 recognizes the customary law of land ownership in villages.

Implementation of these Acts has caused problems in village land utilization. First, the land belonging to villages has not been surveyed to ascertain the size of land available causing problems in the disposition of land for development. Village Governments have not been able to access credit from financial institutions by way of mortgaging land as collateral. Moreover, financial institutions refuse to accept customary right of occupancy on securing credit for development. As such there have been practices of hoarding land with no productive development. This necessitated the formulation of a new land policy in 2002.

The Policy provides for individuals to obtain titles for areas within village land not designated for other uses. It calls for the undertaking of land use planning as a tool for land development and as a framework for formulation of extension service packages. Community land use management is expected to be the key to address the problems of land degradation, equitable resource allocation and the resolution of conflicts between various land users. The rights of pastoralists are addressed through protection of common property regimes from encroachment from other users.

The new policy has led to the formulation of Land Use Planning Commission responsible for planning on proper land use in villages. With this move, villages can be in position to lease land for large scale investors in agriculture and agro-industry.

22.3 National Livestock Policy 2006

National Livestock Policy for the livestock sub-sector was completed in 2006, which coincided with the commencement of ASDP. The policy is yet to be popularized, and challenges remain in promoting and educating the livestock keepers and other stakeholders on its implications in driving the growth for the livestock sector.

2.2.4 Cooperative Development Policy 1997

The Cooperative Development Policy is based on the Cooperative Act of 1991. It marks a change of cooperatives from state controlled institutions to autonomous member-controlled institutions, and provides the framework for the restored cooperatives to operate on an independent, voluntary and economically viable basis. The objective of the policy is to ensure that cooperatives develop into centres for provision and dissemination of agricultural
inputs, implements, technologies and information to empower farmers to enhance their bargaining position in the market.

The 1997 Cooperative Development Policy was a result of changes in national macro-economic environment that introduced free market and trade liberalization. However, the policy did not adequately take into account the importance of creating a conducive environment for cooperatives to operate in and be able to compete under the new economic environment. The Policy also did not recognize farmers/people’s economic groups initiatives, which are being established due to new relations in production forces (cash economy), as the basic foundation for cooperative development under the free market economy. It is also important to note that the 1997 Policy did not provide directions as to the internal management of cooperatives, most of which are still being operated under the old paradigm of state-led economy. Issues such as gender, environment, conflict of interest in cooperative leadership and the free market economy were not adequately covered. Further, the policy did not address some of the critical problems of cooperatives such as misappropriation of cooperative resources, mismanagement and dishonesty. Some of these concerns are clearly noted in the report of the Presidential Special Committee on the Revival, Strengthening and Development of Cooperatives, of 2000. While it is important for the Cooperative Development Policy to emphasize on cooperatives operating as independent business entities, it is equally important for the policy to address past facts that operated as barriers to achieving the desired goals.

Tanzania’s new Cooperative Development Policy was thus issued in 2002 for the purpose of enabling cooperatives to get back onto the development path and at the same time become more responsive to the needs of their members. The general goal or vision of Tanzania’s cooperatives as defined in the 2002 Cooperative Development Policy Document is to have: “Improved and sustainable cooperatives that are capable of fulfilling members’ economic and social needs”.

The cooperative vision has to be contextualized in terms of the country’s Development Vision 2025 which identifies cooperatives among the major tools for attainment of sustainable human development.

The milestones or mission which will indicate the achievement of the desired vision is to evolve cooperatives that:

- Are member-based,
- Work for the betterment of members’ economic and social needs, and communities in which they are situated,
- Operate competitively as independent economic entities, and
- Reflect concern for present and future members.

Consequently the 2002 Cooperative Development Policy specifies a number of objectives and activities which will guide the implementation of the new Policy. Among other issues, the Policy restates the Government’s commitment to International Cooperative Principles and Values; suggests changes in the structural framework of the country’s cooperative movement; presents measures of improving performance of cooperative leadership and management; underscores the importance of education and training for cooperative members, leaders and the general public; revisits the importance of cooperative financing; and defines the roles of key policy implementers. It is nevertheless noted in the policy document that effective realization of the intended objectives hinges on two main prerequisites;

(i) Having appropriate legislations, and
(ii) Formulation of implementation strategies.
2.2.5 Agricultural Marketing Policy 2008

This is the most recent policy document for the sector, completed during the second year of ASDP. The policy is yet to be popularized and challenges remain in promoting and educating the stakeholders on its implications in driving the improvements in the agriculture sector marketing.

2.2.6 Water and Irrigation Policy 2006

The government has made some effort towards changing government-oriented irrigation development into farmer-oriented irrigation development, aiming at the final target of the self-reliant irrigation development. Some progress has been achieved, but should be further accelerated. The policy framework requires strengthening or modification to create the enabling environment toward the self-reliant irrigation development by the private sector: The Water Policy focuses mainly on domestic water supply and proposes to encourage the construction of dams and chacos and the integration of livestock water requirements in the design of rural water supplies. On recognition of the importance of irrigation in agriculture, Irrigation Policy has recently been formulated aiming at strengthening and enhancing irrigation agriculture in the country.

2.2.7 National Micro-Finance Policy (1997)

The Policy is based on the Banking and Financial Institutions Act of 1991 as a basis for evolution of an efficient and effective micro-financial system in the country. The policy, among other things, recognizes Savings and Credit Cooperative Societies (SACCOS) as among the key providers of micro-finance services. SACCOS are administered under the Cooperative Act of 1991. The policy envisages that by affiliating with professionally managed institutions, the SACCOS will evolve into community banks, and eventually join together to form cooperative banks.

The above policies, strategies and programmes provide adequate framework for improving agricultural production and productivity. The challenge lies in the implementation for example funding, institutional linkages, human resources etc.

2.2.8 Strategies and Programmes


The key reform elements of ASDS include the following:

- To achieve sustained growth rate of 5% per annum primarily through the transformation from subsistence to commercial agriculture
- Transformation is to be private sector -led through an improved enabling environment for enhancing the productivity and profitability of agricultural with the removal of constraints to private sector involvement
- Sector development to be facilitated through strengthening public/private partnership, including increased contract farming (vertical integration), with a marking out of public/private roles.
- Implementation of on participatory planning and implementation, using the framework of the District Agricultural Development plans (DADPs), which are part of the District
Development Plans (DDPs) and as a comprehensive tool for agricultural development at District level.

- To create a favorable environment for commercial activities.
- Improve the delivery of supportive services with a delineation of public/private roles.
- Improving the functioning of output and input markets and strengthens the institutional framework governing the sector.

Therefore the Agricultural sector Development programme (ASDP) framework and process document provides the overall implementation of ASDS. The line strategic plans while the local Government Authorities (LGAs) are to implement activities at district level based on District Agricultural Development Plan (DADPs).

In this respect the Local Government Authority at district levels, the Agribusiness community, crop boards and farmer association are key role players in the envisaged public/private sector partnership.

**Agricultural Sector Development Programme (ASDP) (2003)**

The Government of Tanzania adopted the Agricultural Sector Development Strategy (ASDS) in 2001 which sets the framework for achieving the sector objectives and targets.

The Agricultural Sector Development Programme provides the overall framework and processes for implementing. The activities at national level are to be implemented by line ministries while activities at district level are to be implemented by Local Government Authorities (LGAs), based on District Agricultural Development Plans (DADPs). The DADPs are part of the broader District Development Plans (DDPs).

The Agricultural Sector Development Programme (ASDP) Framework and Process Document (2003) identifies five key operational components as a focus for implementation, namely:

i) The policy, regulatory and institutional arrangements,
ii) Agricultural services (research, advisory and technical service and training).
iii) Public investment,
iv) Private sector development, market development and agricultural finance,
v) Cross-cutting and cross-sectoral issues.

The Government has also adopted a decentralization policy, which provides a framework for governance and investment at the local level. The Local Government Reform Programme (LGRP) includes shifting from centrally planned to locally planned activities, including agricultural development.

Over the last two years, substantial progress has been made within the area of fiscal decentralization. The Government has endorsed a strategy for reform of the recurrent grants. Modality for discretionary development funding at LGA level has also been developed in the form of the Local Government Capital Development Grant.

### 2.2.9 The Key Principles of the ASDP

**1) Increasing control of resources by beneficiaries:** ASDP stresses the importance of increasing the voice of farmers in local planning processes and in increasing their control in the design and implementation of investments and over the kinds of services that they need. The ASDP aims to empower farmers through placing greater control of resource allocations in the hands of groups and communities to improve the relevance and responsiveness services.
2) **Pluralism in service provision:** ASDP aims to provide a wider choice in service providers to increase cost-effectiveness and competition. The private sector will be enabled to compete for sector service provision contracts with a de-linking of public funding from delivery.

3) **Results-based resource transfer:** Resources allocations to LGAs will be more transparent and equitable through adopting and extending the local government grants system. The incentive for LGAs to use their funds effectively will be promoted through annual assessments, while support will be given to assist those LGAs that perform poorly to build their capacity in key areas of management.

4) **Integration with government systems:** existing government financing and planning systems (the MTEF, DADP, grant transfers) will be used and through increasing integration will build sustainability, strengthen alignment with government priorities and avoid un-harmonized project-based approaches with parallel implementation mechanisms.

5) **National scope:** the ASDP Basket Fund operations are national in scope. All LGAs are eligible to qualify for a full range of additional development, operational and capacity building funding after demonstrating adequate performance and capacity to use funds. However, late disbursement of funds from the national level causes implementation of district development programmes. This is a big challenge taking into account most of agricultural activities in the country are done during the first and second quarters of the year. Most of the LGAs have complained of inadequate funds to implement plans. This has resulted into failing to complete some intended investments.

### 2.2.10 The Local Government Reform Programme (LGRP) 2001

The Programme has been implemented in phases by the President’s Regional Administration and Local Government, and it involves the following:

- The transfer of political, financial and development planning authority from the Government Ministries to the District Councils,
- District Councils taking responsibility for the delivery of social and economic services,
- Empowerment of local people in the decision-making on local development initiatives,
- Promotion of local people’s participation in ownership of local development activities,
- Implementation of sector-specific policies formulated by the central ministries.

Accordingly, these reforms are particularly critical to the implementation of options as stipulated in the agricultural sector development strategies and programmes that directly deal with the delivery of supporting services to smallholder farmers, rural infrastructure development, and farmers’ capital and access to financial services. The local authorities and the local communities will be largely responsible for implementing these strategies. Therefore there is need to forge a formal technical coordination between LGAs and technical ministries to ensure regular flow of information among the players, and foster joint planning, implementation, monitoring and evaluation of rural development activities.

Consistent with the LGRP reforms, the role of the Ministry of Agriculture, Food Security and Cooperatives versus the District Councils has been redefined to focus on the following core functions:

- Formulate policies;
- Funding and implementing selected agricultural projects;
- Providing regulatory services;
• Monitoring the performance of agricultural sector programmes in the districts;
• Promoting farmer organizations
• Promoting the role of the private sector in the commercialization of agriculture;
• Promoting good governance in the rural sector; and
• Promoting sustainable management of natural resources.

2.2.11 The Public Service Reform Programme (PSRP) 2000

The Programme has introduced the following changes in the Civil Service:

• Making public personnel better resource managers and more accountable through training;
• Improving transparency and accountability of public service through performance monitoring and evaluation;
• Improving service delivery under tight budget constraints;
• Restoring ethics and professionalism of the public service;
• Improving structures, systems, work environment, compensation packages and behavioral attitude and culture.

The reforms will involve all the Government Ministries and will determine the management environment under which Government as the major stakeholder will implement the formulated Agricultural Development Strategies and Programmes. Successful implementation of the PSRP will enhance the successful implementation of the agricultural development plans in rural areas under the District Councils.

2.3 RECENT INITIATIVES

2.3.1 “Kilimo Kwanza” (2009)

“Kilimo Kwanza” is an initiative by the Government to modernize and commercialize agriculture

According to the Tanzania National Business Council (TNBC) in order for Tanzania to realize its green revolution, she must now view agriculture and not just through the prisms of poverty alleviation, but through the lenses of wealth creation. The strategy must aim at eradicating peasantry practices by bringing small scale farmers into the main stream of a modern and commercial agricultural economy.

To achieve this, the Government must invest in rural infrastructure as this is the key to unlocking the potential of the agricultural sector. Improving rural roads and other transport facilities will make it easier and cheaper to take produce to national regional and international markets.

Funds allocated to agriculture sector and rural infrastructure development under LGAs in the 2009/10 reflects the high priority accorded to agriculture as stipulated in “Kilimo Kwanza” philosophy.
3. AGRICULTURAL PRODUCER ORGANIZATIONS

In this report, agricultural producer organizations consist of cooperative societies/ unions, associations and regulatory bodies in the agriculture sector inclusive of livestock sub-sector. A review of these organizations is provided in the following sections.

3.1 COOPERATIVES DEVELOPMENT

Prior to early 1970s the cooperative movement was very strong, with unions like Kilimanjaro Native Cooperative Union, Nyanza Cooperative Union, and Bukoba Cooperative Union playing vital economic and development roles not only for respective localities but also for the nation at large. This cooperative fabric was dismantled when the regional cooperative unions were established.

Table 3.1 depicts the number of Cooperative Unions, Agricultural Marketing Cooperatives (AMCOS), Savings and Credit Cooperative Societies (SACCOS) and Livestock Cooperatives in mainland Tanzania as at 31st December, 2004.

Table 3.1: Status of Cooperative Societies in Mainland Tanzania as at 31st December 2004

<table>
<thead>
<tr>
<th>S/N</th>
<th>REGION</th>
<th>UNIONS</th>
<th>AMCOS</th>
<th>SACCOS</th>
<th>LIVESTOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arusha</td>
<td>1</td>
<td>42</td>
<td>77</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Dar es Salaam</td>
<td>3</td>
<td>22</td>
<td>223</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Dodoma</td>
<td>-</td>
<td>1</td>
<td>99</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Iringa</td>
<td>2</td>
<td>122</td>
<td>116</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Kagera</td>
<td>4</td>
<td>223</td>
<td>151</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>Kilgoma</td>
<td>-</td>
<td>52</td>
<td>34</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Kilimanjaro</td>
<td>3</td>
<td>130</td>
<td>122</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>Lindi</td>
<td>1</td>
<td>76</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Manyara</td>
<td>1</td>
<td>45</td>
<td>43</td>
<td>7</td>
</tr>
<tr>
<td>10</td>
<td>Mara</td>
<td>4</td>
<td>144</td>
<td>86</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Mbeya</td>
<td>6</td>
<td>134</td>
<td>159</td>
<td>23</td>
</tr>
<tr>
<td>12</td>
<td>Morogoro</td>
<td>3</td>
<td>81</td>
<td>70</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Mtawa</td>
<td>2</td>
<td>135</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>Mwanza</td>
<td>1</td>
<td>287</td>
<td>171</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Pwani</td>
<td>1</td>
<td>113</td>
<td>43</td>
<td>13</td>
</tr>
<tr>
<td>16</td>
<td>Rukwa</td>
<td>1</td>
<td>11</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>Ruvuma</td>
<td>3</td>
<td>113</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>Shinyanga</td>
<td>2</td>
<td>514</td>
<td>66</td>
<td>13</td>
</tr>
<tr>
<td>19</td>
<td>Singida</td>
<td>2</td>
<td>55</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>Tabora</td>
<td>2</td>
<td>239</td>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Tanga</td>
<td>2</td>
<td>49</td>
<td>47</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: The Cooperative Reform and Modernization Program 2000-2004
The chronology of historical events pertaining to the development of cooperatives in Tanzania is outlined in Table 3.2.

Table 3.2: Chronology of Historical Events on Cooperatives

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>Union of Cooperative Societies (UCS) formed</td>
</tr>
<tr>
<td>1979</td>
<td>Act passed recognizing the Union of Cooperative Societies (UCS) and its incorporation as a mass organization of the Ruling Party (CCM). The law applies to both the Tanzania mainland and Zanzibar.</td>
</tr>
<tr>
<td>1980</td>
<td>Government Commission on cooperatives recommends the reinstatement of the disbanded Cooperatives Unions for both the mainland and Zanzibar.</td>
</tr>
<tr>
<td>1982</td>
<td>Cooperative Societies Act No. 14 reinstating Cooperative Unions and Rural Primary Societies passed for the Tanzania mainland.</td>
</tr>
<tr>
<td>1983</td>
<td>The Ruling Party (CCM) Executive Committee appoints the Secretary General of WASHIRIKA – Cooperative mass organization affiliated to the Party.</td>
</tr>
<tr>
<td>1986</td>
<td>The Cooperative Societies Act, No. 4 reinstating Cooperative Unions and Rural Primary Societies in Zanzibar.</td>
</tr>
<tr>
<td>1991</td>
<td>The Cooperative Societies Act, No. 15 was passed for the Tanzanian Mainland establishing a four-tier structure for cooperative societies.</td>
</tr>
<tr>
<td>1992</td>
<td>The Tanzania Cooperative Alliance (TCA) and interim cooperative enterprise was formed to enhance the formation of the Tanzania Federation of Cooperative (TFC).</td>
</tr>
<tr>
<td>1994</td>
<td>The Tanzania Federation of Cooperative Ltd (TFC) was formed as the cooperative apex body for the Tanzanian mainland.</td>
</tr>
<tr>
<td>1995</td>
<td>The Zanzibar Union of Cooperative Ltd (CUZA) was formed as a cooperative apex body for cooperatives in Unguja and Pemba.</td>
</tr>
<tr>
<td>1997</td>
<td>Amendments to the Cooperative Act No. 15 of 1991 were passed enhancing the accountability of cooperatives on Tanzania mainland.</td>
</tr>
<tr>
<td>1997</td>
<td>First Cooperative Development Policy formulated.</td>
</tr>
<tr>
<td>1998</td>
<td>Amendments to the Cooperative Act No. 4 of 1986 were passed enhancing the accountability of cooperative in Zanzibar – Cooperatives Societies Act, No. 3 of 1998.</td>
</tr>
<tr>
<td>2000</td>
<td>Presidential Committee submits its report in which 10 key problems for the cooperative movement are identified and 10 strategies for addressing them are proposed. The findings of the Commission are accepted by the Government.</td>
</tr>
<tr>
<td>2001</td>
<td>In the Tanzania mainland the Department of Cooperatives within the Agricultural Ministry is upgraded to the status of a separate Ministry of Cooperatives and Marketing.</td>
</tr>
<tr>
<td>2003</td>
<td>Declaration Order is signed by the President transforming The Cooperative College into Moshi University College of Cooperative and Business Studies (MUCCoBS) of Sokoine University of Agriculture (to operate as campus of that University until it attains full university status in future).</td>
</tr>
</tbody>
</table>

Source: The Cooperative Reform and Modernization Programme 2000-2015

The Cooperative Development Policy is based on the Cooperative Societies Act of 1991. The first Cooperative Development Policy in Tanzania was adopted in 1997 to provide the overall objectives and strategies necessary to ensure that disadvantaged groups and the poor in the society have a reliable vehicle for attaining their economic and social development goals. However, this Policy did not adequately address issues pertaining to the free market economy, environment, gender, roles of different stakeholders and the globalization phenomenon. Hence these factors, among others, necessitated the revision of the 1997 Policy culminating into the Cooperative Development Policy of 2002.
The new policy marked a change of cooperatives from state controlled institutions to autonomous member-controlled institutions, and provides the framework for the restored cooperatives to operate on an independent, voluntary and economically viable basis. The objective of the policy was to ensure that cooperatives develop into centres for provision and dissemination of agricultural inputs, implements, technologies and information to empower farmers to enhance their bargaining position in the market. The policy required that agricultural marketing infrastructure and facilities support the development of processing of produce for value addition, and off-farm activities to augment farmers’ incomes and provide employment during off season periods.

3.2 COOPERATIVE DEVELOPMENT CONSTRAINTS

Despite the 1997 and 2002 Cooperative Development Policies and the Cooperative Societies Act of 1991, problems in cooperative development have persisted.

The main constraint has been the inability of cooperatives to operate under a liberalized economy. Cooperatives were in a weak structural and financial position at the start of the trade reform process, and have not been able to recover in their performance of activities since that period in the face of competition from the better prepared private traders. They have been unable to provide adequate services to their members who resorted to do business with private traders.

The second main constraint has been weak institutional management. Professional management is lacking in many cooperatives and some primary cooperative societies operate as agents of private traders and rent out their facilities. Also, unions operate facilities whose financial viability is questionable such as transport facilities and hotels.

Increasing events of misappropriation of cooperative society’s resources by dishonest managers and management committee members is another bottleneck to cooperative development. Thus the cooperatives have seen their role in input supply, crop marketing and processing reduced if not eliminated.

However, without cooperatives, small producers have been left with no form of collective organization to operate at the grassroots level. In the current economic environment the individual small farmer is left in a weak position.

3.3 FARMER ASSOCIATIONS

In a liberalized market economy, farmers need strong bargaining power. This may be achieved through the farmer associations/organizations. Table 3.3 shows some of farmer associations with corresponding membership:
### Table 3.3: Major Farmer Associations

<table>
<thead>
<tr>
<th>SN</th>
<th>Name of Association</th>
<th>Crop</th>
<th>Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Smallholder Tea Growers Association</td>
<td>Tea</td>
<td>22,000</td>
</tr>
<tr>
<td>2.</td>
<td>Tea Association of Tanzania</td>
<td>Tea</td>
<td>21 processors, 7 tea blenders</td>
</tr>
<tr>
<td>3.</td>
<td>Tanzania Sugar Cane Growers Association</td>
<td>Sugarcane</td>
<td>145,000 out-growers</td>
</tr>
<tr>
<td>4.</td>
<td>Smallholder Sisal Growers Association</td>
<td>Sisal</td>
<td>28 members</td>
</tr>
<tr>
<td>5.</td>
<td>Tanzania Cotton Association</td>
<td>Cotton</td>
<td>43 members made up of 35 Ginners, traders and 1 export, 4 cooperative unions and 2 farmers</td>
</tr>
<tr>
<td>6.</td>
<td>Sisal Association of Tanzania (Estates)</td>
<td>Sisal</td>
<td>30 members</td>
</tr>
<tr>
<td>7.</td>
<td>Association of Coffee Exporters</td>
<td>Coffee</td>
<td>15</td>
</tr>
<tr>
<td>8.</td>
<td>Coffee Growers Association (Primary Societies)</td>
<td>Coffee</td>
<td>67</td>
</tr>
<tr>
<td>9.</td>
<td>Coffee Growers under KNCU</td>
<td>Coffee</td>
<td>68,000 members</td>
</tr>
<tr>
<td>10.</td>
<td>Tanzania Tobacco Cooperative Apex</td>
<td>Tobacco</td>
<td>6 cooperative unions, 344 Primary Societies</td>
</tr>
<tr>
<td>11.</td>
<td>United Peasants of Tanzania Cashew nut</td>
<td>Cashew nut</td>
<td>3150 members</td>
</tr>
<tr>
<td>12.</td>
<td>Cashew nut Processors Associations</td>
<td>Cashew nut</td>
<td>9 members</td>
</tr>
</tbody>
</table>

Source: TISCO

### 3.4 Commodity Boards

#### 3.4.1 Crop Boards

The traditional export crops are managed by crop boards which were formed to replace their predecessors, the marketing boards in the 1990’s. The crop boards are designed to implement regulatory, reporting and service activities of the former marketing boards, but do not engage directly in marketing or production activities. There are 8 crop boards in Tanzania namely: cashew nut, coffee, cotton, pyrethrum, sisal, sugar, tea and tobacco boards.

After several years of marketing in a more liberalized environment, stakeholders expressed a number of concerns, which led the Government to institute additional interventions. Concerns included reported uncompetitive behaviour of private buyers (e.g., coffee auction, and cashew), the tendency to export without adding value (e.g., cashew), a perceived decline in product quality (e.g., cotton and coffee), high local taxation including crop cess and licensing, and a breakdown of input supply systems that had previously been sustained under a single marketing system channel.

Since 2003, the Government undertook to reform the Crop Boards to enable them perform regulatory, promotional and shared functions. The general objective of the crop board reforms was to increase farmers’ income and contribute to poverty reduction. Regulatory function and administrative roles of the crop boards are financed 100 percent by the Government while promotional and shared functions such as research are financed by the Government, stakeholders and Development Partners for some crops.

Following the general economic reforms during the 1986-1995 macro economic adjustments improved agricultural incentives and led strong agricultural GDP growth as farmers then responded to improved incentives.

Further to improving agricultural productivity, evolution of crop board started way back in 1990s which changed several laws and regulations governing operations of these boards and...
delegation of some responsibilities to cooperative unions, societies and growers. The aim was to ensure these boards become efficient and effective bodies able to deliver services and support traditional agricultural export crops.

3.4.2 Dairy Board

The first National Dairy Board was established in 1965 charged with the responsibility of promoting, organizing, regulating, and developing the production, processing, marketing and distribution of milk and milk products. However, the Board became moribund as no new Board members were appointed after 1973.

The enactment of the Dairy Industry Act 2004 provided for the establishment of a new Diary Board, and currently it has been established with essentially the same functions as it was for the first Board.

3.4.3 Meat Board

The Government of Tanzania is in the process of establishing the meat Board to oversee all activities on meat production, processing and quality assurance.
4. AGRICULTURE SECTOR PERFORMANCE

4.1 AGRICULTURE POTENTIAL

4.1.1 Land Resources

The most recent estimate made in 1997 puts the land area of mainland Tanzania at 86.9 million hectares. The same estimates show that land under some sort of cultivation including pasture and fallow covers about 10 million hectares or approximately 12% of the land area. However, the area actually planted with crops each year is less than 4 million hectares. Land that is suitable for grazing is estimated to be about 50 million hectares but only 50% of this is actually used for grazing. Further, per capita land under crop cultivation averages only 0.16 ha. Kagera region has the lowest level at only 0.02 ha per capita. The highest level is found in Lindi with 0.28 ha per capita. These figures indicate that in physical terms Tanzania is not short of land for agricultural expansion.

Physical availability is not a good indicator since most of the land is not accessible or cannot be used because of poor technologies for effective exploitation and management. A good example of this is the current low level of agricultural development in the very fertile alluvial plains found in the major river basins. In general there are about nine constraints reducing the effective utilization of the physically available land i.e.

- Shortage of adequate moisture in the soil,
- Low soil fertility,
- Poor drainage,
- Steep slopes,
- Tsetse infestation estimated to cover about 13 million hectares,
- Poor accessibility,
- Potential and actual degradation of land already under cultivation,
- Shortage of farm power.

In relation to land resources, Tanzania has two options for increasing agricultural production, either through “horizontal” expansion into additional land or through intensified use of land already under cultivation or grazing. Taking the option of expansion especially into the alluvial plains where tracks of land remain unexploited will require tackling of the constraints related to accessibility, drainage, farm power, and tsetse infestation. The intensification option will demand attention to the constraints related to soil-moisture, soil-fertility, steep slopes and land degradation.

4.1.2 Water Resources

Water is a major input to plant growth which is taken for granted as God-given and little effort is exerted to judiciously utilize it. This negligence leads all the agricultural practices applied to result in no significant yield increases.

All agriculture is based on plant (crop or pasture) growth. The amount of water in the root zone is one of the most important determinants for agricultural production and productivity. Rainfall is the ultimate source of water for plant growth and on average the most renewable of the natural resources. The main problem in Tanzania is not the amount of rainfall but rather the poor utilization of rainwater that falls on cultivated land or rangeland as a result of several constraints, of which the most important are:

- Extreme fluctuations in amount and distribution (temporal and spatial) of rainfall where the coefficient of variation can be as high as 190% ;
• High potential evaporation rates that lead to as high as 50% loss of the rainwater through evaporation from the soil surface;
• Poor cultivation practices (e.g. surface scratching with hand hoe) which result in low water infiltration and thus high water run-off from crop fields. This leads to low amount of water in the root zone as well as soil degradation through erosion;
• Low water storage capacity of the soil due to damaged structure or reduced depth of soil.

Therefore, failure to effectively manage rainwater at all levels, from individual farm/field to basin level, is the main water problem facing the agriculture sector and the economy in general. The trend has been to experience swings from one extreme of drought to another extreme of floods in the same area at different times. For example, it is estimated that variation in rainfall is the cause of over 70% of disasters recorded in Tanzania between 1972 and 1990. About 38% of the disasters have been flood related while 33% have been related to drought.

In general the main concern in the sector has been directed to droughts without paying attention to the amount of rain that is lost unutilized through evaporation and surface run-off. Rain-fed agriculture can be made drought-proof by ensuring that most of the rain falling directly on crop or pasture fields is retained and used effectively. The Land Management Project (LAMP) operating in Arusha and Singida regions has proved that through sub-soiling and ripping, the soil capacity to absorb and store rainwater can be increased by several folds. As a result, a trial on 5000 ha in Babati led to doubling of yield of maize from about 900kg/ha to 2000kg/ha. Most importantly the productivity of rainfall was increased from about 1.5 kg/ha/mm to 4 kg/ha/mm. This is an indication of how much can be achieved by simple management of the rainwater. Similar projects (i.e. on conservation agriculture) are currently being run in Ulanga and Tanga with commendable sustainable success.

The strategy for drought-proofing would ensure that farmers practice land management approaches which capture optimum amount of rain falling on their fields. Where this is found to be adequate the strategy will include rainwater harvesting using farm and village level structures for capturing and storing run-off and flood flows for supplementary irrigation. Conventional irrigation drawing water from rivers and groundwater will be used to maximize productivity where utilization of direct rainfall has been optimized. This approach is sometimes called tail-to-mouth approach to irrigation development and management.

The strategy should be a holistic agricultural water approach that includes soil and water conservation, rainwater harvesting, irrigation, and drainage as an integrated continuum. The sector target will be to increase the productivity of water in crop and livestock production while optimizing water use efficiency in agriculture. A indicator of progress in effective water utilization will be, for example, value of agricultural produce per unit of water as comparable to value produced when the water is used in another economic sector. In relation to efficiency, an indicator of progress will be, for example land under agriculture has positive effects on catchments water balance (quantity and quality) comparable or better than land under forestry.

Total planted area under irrigation is 214,054 ha whereas land potential for irrigation is 29.4 million hectares with targeted development of 1 million ha by 2010. Irrigated land is about 2.7 percent of land cultivated.
4.1.3 Irrigation

Tanzania has a potential for attaining sustainable irrigation development in order to assure basic food security, improve national standards of living and also contribute to the economic growth of the country. Given the unpredictable weather conditions and an increasing global warming, which also continue to affect weather conditions, shifting of agriculture practice from rain-fed dependency to Irrigation is an economic solution which has to be accorded the highest priority and adequate resource allocation. In September 2002, the Government completed the National Irrigation Master Plan (NIMP). Irrigation technology, despite its potential in raising production, and its subsequent contribution in reducing poverty, is still underdeveloped. The country has 29.4 million hectares of land suitable for irrigation. Out of these 2.3 million hectares have a high development potential, 4.8 million hectares medium and 22.3 million hectares low irrigation development potential. Currently, the total developed irrigation area has reached 289,000 Hectares from 264,000 Hectares in 2006. Therefore, for the last two years there was an increase of 9.5% in development of irrigation land in the country. However, this is short of target to reach 1 million Hectares by year 2010.

The irrigation interventions at district level are financed through District Agricultural Development Grant (DADG), District Irrigation Development Fund (DIDF) and National Irrigation Development Fund (NIDF) all under the ASDP. Being, in its third year of operations the programme is yet to finance fully the available demand for irrigation projects at the districts level. Large potential irrigation land is yet to be utilized in most areas of the country to support sector growth. Studies conducted by the Ministry of Agriculture Food Security and cooperatives show that the average utilization of the potential irrigation land was only 29% of land available. This shows that still the potential irrigation land is very large in the country and irrigation should continue to be a strategic initiative under ASDP and a factor for sector growth in medium and long-term.

4.1.4 Soil Fertility

Sustainable agriculture requires approaches that optimize efficient utilization of nutrients by plants, and also ensure replenishment of nutrients to the soil. The current rate of application of organic and chemical fertilizers in Tanzania is very low i.e. Tanzania was 9.3kg/ha of nutrients compared to 260kg/ha for China. At this rate, most crop fields experience negative nutrient balances because the system is taking more nutrients out than what is being returned to the soil. This leads to rapid deterioration of soil fertility because most of the cultivated land has soils of low nutrient capital. Fertile soils are confined to volcanic soils around Mt. Meru and Mt. Kilimanjaro, alluvial soils in the flood plains of the major rivers, and the Mbuga (vertisols) found in central and western semi arid areas of the country.

4.1.5 Conservation Agriculture

In conventional agriculture, which is becoming common practice among famers, is said to conserve soil. Soil losses of up to 30tonnes/ha have been reported in Kilimanjaro region in land with a slope of 5 per cent (Kahura et al, 1998). On the contrary, conventional agriculture involves use of hand hoe, mouldboard and ox-ploughs, tractor driven disc ploughs and harrows, being preceded by burning of straw during land preparation. The practice causes decline in soil organic matter which is important in water-retention, water infiltration and promotion of biological activity (bacterial and worms). Soil inversions subsequently lead to soil compaction, deterioration is soil physical properties and biological degradation. With fine soil (dust) on the surface and a pan below, a lot of soil is washed away with the first rains.
Moreover under conventional agriculture, the costs of ploughing, land preparation, and weeding are on the rise, affecting profitability of the agricultural enterprises. Also as a result of rural to urban labour migration, depletion of active labour force due to HIV/AIDS and malaria pandemics, the price of farm labour is on the rise. This means that land degradation coupled with shortage of efficient farm-power, low level of improved technology utilization and management lead to low productivity. The impact of the low productivity and production give rise to not meeting adequate income growth to stand and sustain food security for the growing population. As the need to redress land degradation phenomenon it has become imperative and urgent the use of environmentally friendly production technology

The Food and Agricultural Organization introduced the “Water-proofing” or Conservation Agricultural techniques in Sub-Saharan Africa in 1998. The concept targets enhancement of agricultural production on a sustainable and environmentally friendly basis through technology that conserves the land resource and therefore promotes soil-fertility, moisture retention and biological activities land reverses land degradation process. The concept also restores soil nutrients, regeneration and maintenance of good vegetative cover and rooting system/depth.

Conservation agriculture involves the following:

- No soil inversion and reduction or elimination of mechanical soil disturbance expect to inject seed by direct drilling or introduction of seedlings into channels obtained by soil ripping.
- Maintenance of complete soil cover consisting of cover crops and/or crop residues.
- Use of crop rotation technique, judiciously selected to enhance the soil fertility, water retention, biological activity and avoid build-up of pests and diseases.
- Eliminates ploughing and weeding, thus lowering labour and machinery utilization costs.
- Increasing infiltration of rain and surface water, enhancing water retention and resilience to drought.
- Promoting crop yields at decreased costs and less time allowing for labour use in diversification activities or planted area expansion.
- Improving river stream flows and regularity.
- Reducing soil-structural damage due to run-off.

Conservation Agriculture (CA) Projects have been implemented since 1998 in Karatu, Babati, Arumeru, Bukoba, Mvomero, Kilosa and Mbeya districts. Direct seeding equipments like hand jab planters, animal drawn direct seeders, rippers, knife-rollers and Zamwipe herbicide applicators have been made available to farmer groups in these districts for training and adoption. The concept is growing in popularity due to discernible increase in productivity i.e. in Babati maize production doubled as a result of adopting the CA techniques.

The major obstacle to CA promotion and adoption is access to locally manufactured equipment, as local manufacturers are reluctant to produce them given the current low-volumes demanded

4.1.6 Biodiversity

Preservation of genetic resources is vitally important to competitiveness and adaptation of agriculture to changing market conditions. Genetic resources are an important source of natural methods for managing pests, environmental stress and improving quality of agricultural products. Biodiversity exists at three levels: genetic, species and ecosystems.

Tanzania is lagging behind in both technological i.e. tissue culture, gene banks and field (e.g. botanical gardens) methods for preservation of genetic diversity.
4.1.7 Mechanization

Tanzania has large potential arable land for agriculture expansion that will enhance growth of the sector output in terms of quantities and values. However, one of the main challenges has been the low level of technology used in agriculture activities. Most of the farmers are smallholders, who possess few acres of land and mostly use hand-hoe for production. Being large population involved in agriculture sector using low level of technology. Mechanization will have significant impact in increasing production and productivity in the agriculture sector. Land holdings average 0.2 to 2 hectares per household.

Limitation in availability and access to modern technology is a major obstacle to expansion of land under cultivation. For example, 70% of farmers still use a hand hoe for tilling land, 20% use animal draught ploughs and only 10% use tractors. Mechanization is a necessary productive factor for the agriculture sector growth. It enhances the human resources with increases production and productivity through timely and faster planting, weeding, spraying, harvesting, storage and post-harvest handling. Use of animal draught power, power tillers and tractors will empower farmers to manage production process with efficiency and effectiveness.

Despite the Government’s attempt in recent years of modernisation of the agriculture sector, the agricultural system is still today predominantly a traditional, smallholder production system. For example, in 1994 the Government through the Parliament Act No 9 of 1994 established Agriculture Inputs Trust Fund (AGITF). Since FY 1995/06 AGITF has been issuing short term soft loans to agro-inputs suppliers, farmers, SACCOS, District Inputs Funds (DIF) and other institutions involved in agriculture production or render agro-inputs services to farmers. During the FY 2006/07 a total of 358 requests for tractors rehabilitation and purchase of new tractors were received and assessed. Out of 358 requests, 10 for tractor rehabilitation and 255 for new tractors were recommended to get loans after fulfilling the conditions to Agricultural Input Trust Fund (AGITF).

According to reports from studies carried out in some districts in the country, the level of funding in mechanization through AGITF has been very small and not adequate to create impact in growing the agriculture sector. The reports further testify that there are significant differences in use of mechanization. The visited districts have managed to cultivate only 50% of their arable land, and some of them are below 30%. Based on number of tractors, power tillers and animal power available in districts an analysis was done to determine the level of mechanization. The analyses on the basis of tractors only show that on average each tractor is supposed to cover 6,040 hectares per district. This indicates very few tractors are available when compare to arable agriculture lands. However, significant improvement is shown when mechanization includes tractors, power tillers and animal draught power.

4.2 CROPS AND LIVESTOCK SUB-SECTORS PERFORMANCE

In this section the study reviews the performance of crops and livestock production over the last three decades (i.e. from 1970s to 2000s). Data from various sources of information have been used including; MAFC; National Bureau of Statistics (NBS), and from Agriculture Sector Lead Ministries (ASLM) and the Planning Commission (PC).

Tanzania has historically treated agriculture as the “backbone of its economy”. The country’s 80 percent of the population, and its leadership, at all levels, has throughout directed energies as well as resources towards the transformation of agriculture.

Generally performance of agricultural sub-sectors (i.e. food crops, cash crops, livestock, production over the years has been mixed, but with some encouraging signals of growth during some periods.
Table 4.1 (page 14) gives indication to the performance of the sector over the period from 1972 to 2007. The indicators are provided at five year intervals.

The sector has performed well in relation with population growth in the country. The sector’s contribution to the Gross Domestic Product (GDP) has an average of about 45%, with fluctuations over the years as indicated. The sector growth has fluctuated since the 1970’s ranging from 0.7 per cent to the current 4.0 percent, higher than the population growth rate of about 3 percent. More importantly, the sector is the main source of food supply and raw materials for the industrial sector in the country. The sector has high potential for fast growth.

Food crops production dominates the agricultural economy averaging about 35% of the GDP and livestock accounting for an average contribution of 6.7%.

4.2.1 Production of Food Crops

Cereals form the main crops grown for food in Tanzania. In 2002/03 smallholder agricultural survey showed that cereal production occupied 61 per cent of 4,798,071 hectares under cultivation, followed by roots and tubers (14 percent), oil seeds (7 percent), and cash crops (5.1 percent). Table 4.1 is the summary of major food crops production.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>1623</td>
<td>1690</td>
<td>1780</td>
<td>2210</td>
<td>2,483</td>
<td>2,413</td>
<td>2557</td>
<td>3085</td>
</tr>
<tr>
<td>Paddy</td>
<td>275</td>
<td>262</td>
<td>276</td>
<td>760</td>
<td>822</td>
<td>925</td>
<td>1081</td>
<td>805</td>
</tr>
<tr>
<td>Cassava</td>
<td>1244</td>
<td>1330</td>
<td>1420</td>
<td>1260</td>
<td>1824</td>
<td>2048</td>
<td>2058</td>
<td>2052</td>
</tr>
<tr>
<td>Wheat</td>
<td>54.5</td>
<td>57</td>
<td>60</td>
<td>76</td>
<td>62</td>
<td>53</td>
<td>67</td>
<td>109.5</td>
</tr>
<tr>
<td>Millets</td>
<td>292</td>
<td>387</td>
<td>400</td>
<td>600</td>
<td>827</td>
<td>721</td>
<td>757</td>
<td>941</td>
</tr>
<tr>
<td>Pulses</td>
<td>238</td>
<td>247</td>
<td>281</td>
<td>300</td>
<td>427</td>
<td>650</td>
<td>574</td>
<td>1049</td>
</tr>
<tr>
<td>Oil Seeds</td>
<td>200</td>
<td>201</td>
<td>207</td>
<td>334</td>
<td>348</td>
<td>429</td>
<td>500</td>
<td>607</td>
</tr>
</tbody>
</table>

Source: Economic Surveys (Since 1970-2007)
Note: Units are expressed in 5 years cumulative averages

Maize

Maize is the main staple food in Tanzania (mainland). Its production is higher than any other cereal in the country. According to Household Budget Survey (2003), production of maize in 2002 was equivalent to 74% of the total cereal production. However, although the above average production figures show significant increase, annual production has been fluctuating in accordance with the effects of weather and other technical factors.

At farm level, productivity of maize in terms of yield has shown a mixed picture. Annual growth in maize production has been 2.7 per cent during the 1990’s and dropped to 2.4 percent and slightly rising again to about 2.6 percent in the last 5 years (2002-2007). As will be noted from Table 4.1, there was a marked increase in production of maize attributed to Government subsidy on inputs to farmers.

Study analysis indicates that in the recent years, in terms of production output, maize was overtaken by several produce such as cassava and was nearly the same level with potatoes and bananas. Yield of maize on smallholder farmers averages 1.1 tons per hectare.

However, there is significant potential for yield potential in cereal cultivation in Tanzania. When a comparison is made on average maize yields with countries of comparable potential, with similar peasant-based production systems, there is indication for potential indicated in Table 4.2.
Table 4.2: Comparison of Average maize yields with other African countries.

<table>
<thead>
<tr>
<th>SN</th>
<th>Country</th>
<th>Yield/ha (kg)</th>
<th>App. No. of bags</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tanzania</td>
<td>1196</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Ethiopia</td>
<td>1556</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>Kenya</td>
<td>1893</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Lesotho</td>
<td>1867</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>Zambia</td>
<td>1660</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>Zimbabwe</td>
<td>2066</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>Malawi</td>
<td>1905</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: World Bank / Government of Tanzania (Country study)

Productivity in Tanzania is lowest compared to other African countries. Main constraint, among others, in maize production has been availability of fertilizers. Use of chemical fertilizers in maize production has declined considerably over the last ten years due to price increase. And although input voucher system has been introduced in the country, most of smallholder farmers cannot afford the top up prices to the vouchers. Late arrival and distribution of fertilizers has also contributed to the decline in use of the input.

**Paddy**

Paddy is second most important cereal after maize in the country. Production of paddy has increased almost four fold, averaging over 11% annual growth rate. Of the total area under paddy cultivation, 74% is rain-fed lowland, 20% is rain-fed upland, and only 6% is irrigated land.

Productivity is highest in Kilimanjaro, Mbeya, Shinyanga and Morogoro. Average yields range between 1.7 tonnes per hectare obtained in 1992/93 and 0.9 tonnes per hectare for 1998.

The main production constraint is lack of proper water management. Unreliable water availability on smallholder farms makes rice production very risky and reduces profitability of using fertilizers, herbicides, insecticides and improved varieties. Most farmers are unable to cover production costs.

**Cassava**

Cassava is growing in importance as food crop in the country. It grows well in poor soils, requires little rainfall and can be stored underground until needed. Production growth rate during the years between 1985 and 1998 was 3.8 percent per annum, and average production was about 1,500,000 tonnes per year. The main producing areas are in Mtwara, Mwanza, Coast, Tanga, Lindi, Rukwa, Shinyanga, Tabora and Kagera regions.

Cassava is the only root crop with an increase in planted area since 1986, corresponding cultivated land increased from 80,000 hectares in 1986 to 800,000 hectares in 2002/03. However, yield averaged 4.7 tonnes per hectare, which is below the recommended level of 20 tonnes per hectare. Availability of reliable data is a problem with cassava compared with other regular crops due to intermittent harvesting. Other problems associated with cassava production include its perish ability and low value bulk ratio; which limits its potential for long distance marketing. The importance of cassava for food security in the local market cannot be overemphasized.

Prospects for industrial cassava processing are limited. A processing plant used to operate closed down in 1980’s due to difficulties in finding reliable source of raw material. Trade with Europe ceased in 1994/95 due to competition from other cheaper suppliers (e.g. Thailand,
Indonesia, and Vietnam). Furthermore, there is competition from cheaper cereals for animal feeds. All these factors work against the export market prospects for cassava.

Other cassava production constraints include:

- Widespread cultivation of varieties with limited genetic potential, limited pest and disease resistance varieties. Average yield is 2,300 per hectare against experimental indications of up to 21,430kg per hectare.
- Lack of improved planting materials.
- Low priority of cassava production by researchers, extension staff and farmers because cassava is seen as secondary crop.
- Storage and post harvest losses; weevil attack during storage and high incidence of mould contamination lead to quality deterioration.

Wheat
The productivity of wheat in terms of yields per hectare is largely below potential. The former Hanang wheat complex, which used to produce 20% of total national wheat demand, yields dropped during 1994/95 down to 2,500kg/ha and further down to 1500 kg/ha during 1996/97. However private farms have achieved yields of up to between 4000 and 6000 kg/ha. The main constraints to wheat production include:

- Reduced soil fertility on small farms; in Karatu farmers achieve only 50% of the potential yields because of declining soil fertility.
- Poor seed quality; recycling of seed from year to year has resulted in reduced productivity. Farmers are aware of the problem but supplies of new varieties are not available.
- Low farm gate prices; due to low world prices, farmers in Tanzania are affected by the low trend and get discouraged to continue with wheat production.

Millets
These include sorghum, finger millet and bulrush millets. They are mainly grown in the low rainfall areas of Tanzania i.e. Dodoma, Singida, Shinyanga and Mwanza. Annual average of 900,000 tonnes was produced in period from 2002-2007. Low prices and low yields imply that returns are below those of maize. However, because of drought resistance, its returns are less subject to weather-related variations.

Analysis of production trends show fluctuations in production of sorghum and millets. For example, introduction of new varieties known as Tegemeo and Serena in 1990s has increased the production. Averaged yield fluctuated between 793kg/ha and 1,278kg and 1,235kg/ha during 1992/93 to 1998/99.

Farmers’ attitudes towards growing sorghum and millet vary from place to place. In Dodoma for example, area under sorghum has increased because of the high yield Tegemeo variety, and area under millets cultivation is stagnating due to absence of new technologies. In Singida, sorghum production is falling as farmers experience losses due to heavy destruction by harmful birds whilst in the field, or otherwise need labour to guard the maturing fields for scaring away the birds. The area under cultivation is falling. In general also millet is losing popularity as a crop because of low yields and low prices.

Pulses
Pulses, which include beans, cowpeas, pigeon peas and chick peas, are grown throughout Tanzania. Results of agricultural survey (1993/94-2002/03) show that average annual production of pulses in Tanzania (Mainland) was 404,553 tonnes annually, with beans taking the largest share of production, i.e. 333,308 tonnes per annum, representing 82 per cent of total pulse production. The agricultural survey show that total area planted with pulses has
been 942,000 ha, or 12 percent of the total area planted with annual crops. Beans occupied about 79 per cent of area planted with pulses (or 745,900 hectares). Since the mid 1980’s production of pulses has followed a gradual upward trend, though with considerable fluctuations. Since pulses have a higher value to bulk ratio, they are more easily commercialized than cassava, sweet potatoes and cooking bananas.

### 4.2.2 Oil Seeds Production

Oil seeds include groundnuts, sunflower, simsim, soya beans and castor seed. Table 4.1 shows that production of oil seeds have shown an upward trend with averages ranging from 200,000 tons in 1970s up to 607,000 tons in 2000-2007.

At smallholder farm level, Dodoma region has the largest planted area of groundnuts of the oil seed planted area followed by Tabora and Shinyanga.

### 4.2.3 Horticultural Products

Tanzania has a high potential for production of both tropical and temperate fruits and vegetables to satisfy local demand as well as for export. Horticultural crops include vegetables such as tomatoes, spinach, cabbage, eggplant, onions and carrots; fruits such as mangoes, oranges, pineapples, pears, apples, plums; and cut flowers. Concentration of production of horticultural crops is in Arusha, Tanga, Mbeya, Iringa, Morogoro, Singida, Dodoma and Coast regions.

A common problem of horticulture production is that during peak season, markets fail to absorb supply, forcing prices to go down and thus lowering income to the farmers. The major set-back characterizing horticultural production is lack of processing facilities and marketing infrastructure. For instance, 20 per cent of the horticulture production in Tanga region is wasted due to lack of agro-processing facilities. The productivity of vegetables depends on many factors, and varies from farmer to farmer, and from place to place. Generally, yields are low due to low application of inputs, disease and pest control and post harvest crop losses.

### 4.2.4 Production of Traditional Export Crops

Analysis of export crops performance shows considerable variation in the three decades of the study coverage period. During the early 1970’s and mid 1980’s, these crops displayed an upward trend with coffee leading the overall contribution to the crops subsector. Variations in production were recorded during the period from mid 1980’s to about mid 1990’s with indications of downward trend mostly caused by world market prices and a change in the climatic conditions. The decline was severe for sisal and cashew nuts. All in all, export crops account for 9 per cent of the value of agricultural output or 12 per cent of the value of crop production. Table 4.3 is the summary of production for traditional export crops.
Table 4.3: Export Crops Production ‘000’ Tonnes

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>49.7</td>
<td>55.0</td>
<td>55.0</td>
<td>41.5</td>
<td>48.0</td>
<td>44.3</td>
<td>37.5</td>
<td>52.0</td>
</tr>
<tr>
<td>Cotton</td>
<td>225.0</td>
<td>155.5</td>
<td>133.1</td>
<td>216.9</td>
<td>148.7</td>
<td>202.2</td>
<td>152.4</td>
<td>130.6</td>
</tr>
<tr>
<td>Tea</td>
<td>22.0</td>
<td>15.0</td>
<td>15.5</td>
<td>14.1</td>
<td>19.5</td>
<td>19.8</td>
<td>27.6</td>
<td>30.7</td>
</tr>
<tr>
<td>Cashew nut</td>
<td>145.0</td>
<td>140.0</td>
<td>44.3</td>
<td>16.5</td>
<td>41.2</td>
<td>63.0</td>
<td>92.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Tobacco</td>
<td>9.0</td>
<td>16.1</td>
<td>16.6</td>
<td>16.5</td>
<td>23.3</td>
<td>35.4</td>
<td>55.5</td>
<td>58.1</td>
</tr>
<tr>
<td>Sisal</td>
<td>120.0</td>
<td>105.0</td>
<td>66.5</td>
<td>36.0</td>
<td>33.7</td>
<td>26.7</td>
<td>20.9</td>
<td>26.0</td>
</tr>
</tbody>
</table>

Source: MAFC reports and Crop Boards
Note: Units are expressed as 5 year cumulative averages.

**Coffee**

Coffee production declined over the past two decades by an average of 1.7 per cent per annum. The rate of decline in the post-liberalization period has been higher than before liberalization. This indicates that the liberalization of the coffee market has not brought about the expected response from farmers. Some of the reasons behind this decline are that coffee plantations are not well maintained, and improvements are costly for the farmers and generally coffee production as profitable. Low productivity has been recorded and is said to result from low yields per tree and per hectare, as well as high losses caused by pests and diseases.

According to studies conducted by the coffee sub-sector, there are low returns from coffee crop are attributed to high costs in the marketing chain reflected by a taxation system which does not encourage investment in coffee production and the coffee not reaching the potential quality expected. Area expansion on coffee production is on the minimum. In fact the area has increased in the southern coffee zone but in the north, the area under coffee is declining.

**Cotton**

Cotton ranks second after coffee as a major export crop in Tanzania. Unlike coffee, tea and sisal, cotton is exclusively grown under smallholder farm production on areas of between 0.5 and 1.0 hectare; farms of up to 10 hectares exist but very rare. Farm labour is mostly provided by the family members. The crop is grown in areas South of Lake Victoria known as Western Cotton Growing Area (WCGA) and includes, Mwanza, Shinyanga, Mara, Tabora, Kigoma, Kagera and Singida regions. Mwanza, Shinyanga and Mara account for about 80% of the crop production. Another area is the Eastern Cotton Growing Area (ECGA) comprising Iringa, Kilimanjaro, Coast, Morogoro and Tanga regions.

Through the period from 1977/78 to 2006/07, production levels have been responsive to price and production technologies. The cotton sub-sector passed through hurdles in production caused by a number of factors including lack of funding, coordination among industries related to the crop, removal of subsidy on farm inputs, loss of commitment by players like cooperative unions, and poor linkage in research and extension services. To some extent political influence has had undesirable impact on the development of the crop.

According to available data, production levels have been fluctuating, recording on all time high production of 376,591,000 kilogrammes for 2005/06 season and the lowest production of 92,579,000 kilogrammes in mid 1980’s.

Returns on labour for cotton crop farming are generally lower than for alternative crops such as rice, maize or legumes.

In addition to constraints causing low production, other constraining factors include:
- Poor seed cotton quality at farm level implying that grading has disappeared at this level;
- Most ginneries have machines which are dilapidated thus producing poor quality lint;
- Low quality seed;
• Absence of fertilizer use because of low affordability by the farmers;
• Low use of pesticides and insufficient follow of agronomic practices like sufficient weeding;
• Absence of important link between research and extension services for farmers to be informed early on new development in technology;
• Fluctuating production levels make it difficult for the ginning sector to plan capacity optimally, there is under utilization of ginning capacity during years of low production.

**Tea**

Up until independence, tea production was exclusively undertaken by foreign farmers on large estates. Villagers surrounding the estates mainly provided labour. Indigenous smallholder tea growers started after independence. Most of these were those who had been providing labour on the large tea estates.

Tanzania Tea Authority (TAT) provided technical support services that included extension services and marketing. In the advent of economic reforms which took place in 1980’s to early 1990’s, marketing of the crop was liberalized and TAT was replaced by the Tea Marketing Board.

Today the area under smallholder tear production has expanded to about 11,000 hectares, spread in Mbeya, Iringa, Tanga and Kagera regions. New areas with potential for tea production are being opened up in Dabaga (Iringa), Kasulu (Kigoma) and Tarime (Mara).

Smallholder production system follows similar pattern as estate production but less intensive. Yields among smallholder farm reach 500 kilogrammes of green leaf per hectare as compared to estate yields of about 2500 kilogrammes of green leaf per hectare. In contrast Kenya yields go up 3000kg/ha.

Key players in the tea industry include the Tea Board of Tanzania (replacing Tanzania Tea Authority), Tanzania Tea Research Institute (TRIT), Smallholder Tea Growers Agency and Tea Farmers Associations, transporters, processors and marketers. The crop board is involved in regulatory roles while crop promotion and development is the responsibility of the Agency.

**Tea Production at Smallholder Farms**

There is good potential for smallholders to develop the crop with support from the Agency through improved husbandry. Smallholder farmers need to transform the production and increase yields from the current 500kg/ha to at least 900kg/ha.

Tea farmers have been using seedlings to grow the crop but the current recommendation is to use clones materials. The new planting materials coupled with proper husbandry should raise production of made tea from 3 to 4 kilogramme per plant per annum (translated to 3000 - 4000 kg of made tea/ha per annum. However, use of clone materials is capital intensive.

Tanzania Smallholder Tea Growers Agency works in collaboration with District Council staff in advisory service delivery to farmers.

**Cashew nut**

An all time high production of 145,000 tonnes for cashew nut was obtained in the 1973/74 season. Production of cashew nuts declined steadily, reaching the lowest low level of 17,000 tonnes in the late 1980’s due to decline in prices, marketing problems and poor husbandry practices for the crop. However, the exchange rate reform has had an effect of increasing the producer price. Liberalization in the marketing of agricultural produce also increased competition among cashew nut buyers to the benefit of the farmers. Production recovery took place in the most suitable production areas in the southern part of the country, while that in
the least suitable areas (Coast and Tanga regions) continued to decline. Production in Mtwara, Lindi and Ruvuma (Tunduru) is back to the level of the early 1970’s.

However, since 1996 real producer prices have fallen and buyers are alleged to be colluding to reduce competition. If this is allowed to continue, production may fall again in future. Much of the cashew nut produce is exported in raw form despite the Government having invested in processing capacity in the 1970’s and 1980’s. Although some factories have been acquired by the private sector, minimum processing is being done in the country.

**Tobacco**
There are three types of tobacco grown in Tanzania; these are flue cured, fire cured and burley tobacco. The area under flue cured tobacco has increased since 1973/74, with a short break in 1982/83. The average cultivated land has ranged from 14,511 hectares to 55,549 hectares. Average yields per hectare range between 528kg/ha to 916kg/ha for flue cured tobacco while that of fire cured tobacco the range has been from 266kg/ha to obtained in 1983/84 to 670kg per hectare in 1996/97.

The area cultivated and production for burley tobacco is much less, ranging from 20ha in 1973/74 to 290 hectares in 1984/85. Yields for burley tobacco have been declining from a high figure of 571kg/ha in 1974/75 to a low figure of 104kg/ha in late 1980’s. Burley tobacco is not common now; no wonder there are no figures for production, area cultivated and yields or purchases since the year 2000. Production of burley tobacco was undertaken in Handeni, M orogoro, Bharamuro and Liwale.

**Productivity**
Gross margin analysis carried out for fire cured tobacco in 1996/97 came up with return of TShs 53,880 per hectare and TShs 126 per manday. A producer of flue cured tobacco for the same year obtained a negative margin of TShs 8830 per hectare, incurring a loss of TShs 15.60 per manday.

These figures imply that costs of production for flue-cured tobacco produced in Tabora are higher than those in Songea where fire cured is produced. Productivity is determined by factors like varieties planted, soil fertility, availability of fuel (curing), remoteness of area and levels of other costs.

The competitiveness of Tanzania tobacco is an issue to be looked into given the world market situation with other big producers like China, USA, India, Brazil, Turkey and Zimbabwe.

4.3 LIVESTOCK

Livestock farming is one of the major agricultural activities in the country that is contributing towards achieving development goals of the MKUKUTA. About 37 per cent of households are involved in livestock farming i.e. 1,745,776 households out of the total 4,901,837. Tanzania is the leading country in the SADC region, having large numbers of livestock units, followed by South Africa, Zimbabwe, Namibia, Angola, Botswana and Zambia. Similarly, Tanzania ranks third in Africa after Sudan and Ethiopia.

The official statistics show that, there are about 18.8 million cattle, 13.6 goats and 3.6 million sheep. Other livestock species kept in the country include 1.4 million pigs, 20 million improved chicken, 33 million indigenous poultry and other species.

Livestock sub-sector is currently contributing on average 17 per cent of agricultural sector GDP and about 4.7 per cent of the national GDP. Table 4.4 shows livestock sub-sector contribution to GDP from 1998 to 2007.
Table 4.4: Livestock sub-sector growth indicators for the last 10 years from 1998 to 2007

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Sector Contribution to GDP (%)</td>
<td>29.6</td>
<td>29.4</td>
<td>29.3</td>
<td>29.0</td>
<td>28.4</td>
<td>27.4</td>
<td>26.9</td>
<td>26.1</td>
<td>25.4</td>
<td>25.8</td>
</tr>
<tr>
<td>Livestock Contribution to GDP (%)</td>
<td>5.3</td>
<td>5.2</td>
<td>5.1</td>
<td>5.0</td>
<td>4.8</td>
<td>4.6</td>
<td>4.5</td>
<td>4.4</td>
<td>4.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Livestock sub-sector growth rate</td>
<td>2.7</td>
<td>2.7</td>
<td>3.5</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
</tbody>
</table>


The contribution of the livestock sub sector has been very minimal. For example, despite the large stock of livestock in the country, the export of livestock has been very low at 0.01 per cent of the live animals over the last seven years. The industry’s contribution to GDP is made up of 40 per cent from beef, 30 per cent from dairy, and 30 per cent from other stock. The contribution of livestock is not limited to its share in the total GDP only, but also livestock play other important roles such as contribution to national food supply (meat, milk and eggs), food security, source of cash income, employment and inflation free store of value. It also provides manure and draught animal power, thus contributing to sustainable agriculture.

**Meat Production**

The production of meat has been increasing over the years although per capita consumption is put at 9kg per annum. For example beef production increased from 140,000 tonnes in 1993/94 to 155,000 tonnes in 2000, mutton and goat meat increased from 40,000 tonnes to 64,000 tonnes, poultry meat increased from 30,000 tonnes to 268,000 tonnes and pork increased from 9,000 tonnes to 9,500 tonnes during the same period.

Research studies show that the meat industry has registered further growth in production which increased from 388,294 tonnes in 2005/06 to 410,706 tonnes in 2007/08, an increase of 5.7 per cent.

**Development Initiatives in the Meat Sub-Sector**

Development initiatives to improve the meat sub-sector over the years have involved improvements of Tanzania short horn Zebu. The components of the improvement programme included breeding, nutritional research, pasture farming systems and general management aspects.

**Hides and Skins**

Hides and sins are raw material for the leather industry. In Tanzania these are the major livestock products, which are exported. 85% are exported in raw form and the remaining 15% in semi processed or finished form. Collection of hides and skins was increased from 335,400 pieces of cattle, 1999,400 and 73,000 skins of goat and sheep in 1985/86 to 2,500,000 pieces of cattle, 1,900,000 and 1,500,000 pieces of goats and sheep respectively. However, the figures seem to be relatively low considering the total ruminant livestock population in this country.

The hides, Skins and Leather Industry in Tanzania is one among important sectors of the economy that has a great potential to contribute towards economic development of this country. The leather sector industry in Tanzania consists of three key sub-sectors namely, the tanning, footwear and leather goods industries. It involves processing of hides and skins into semi-finished and finished leather, footwear and leather goods respectively. The sector is so
far less developed, the situation which results into massive exportation of raw hides and skins. If value addition is promoted up to finished leather, footwear and leather goods, it may provide backward and forward linkages in the value chain thereby benefiting primary producers, manufacturers and consumers; expectantly this will promote multiplier effect to stakeholders.

**Tanneries**

There are six tanneries in the country at present with capacity to process 34 million square feet of hides and skin per annum. Due to exports of raw hides and skin from the country only three out of the six tanneries are operating. In order to curb rampant exportation of raw hides and skin the Government has imposed a 20% export duty to discourage such trade, aiming at promoting local tanneries’ ability to process locally.

**Milk Production**

Milk from indigenous breed increased over the years to reach 390,000 litres in 1993/94, and 437,000 litres in 1999/2000; an increase of about 12 per cent over the six year period. During this period, milk from exotic breed increased from 200,000 litres to 250,000 litres; an increase of about 25 per cent, per year, and the number of eggs increased from 390 million to 430 million representing an increase of 10 per cent over the period.

During the period 2005/06 to 2007/08, annual milk production increased from 1.4 billion litres to 1.5 billion litres, an increase of 7.1 percent; and 66 per cent of milk production was from the traditional livestock keeping sector.
5. AGRICULTURAL PRODUCT STANDARDS, METROLOGY, TRACEABILITY AND QUALITY INFRASTRUCTURE

Adherence to product standards, metrology, traceability and quality assurance amongst farmers/producers, processors and sellers of agricultural commodities is vital in the transformation of agriculture. The following sections provide a review of these issues.

5.1 ADHERENCE TO SANITARY AND PHYTOSANITARY (SPS) REQUIREMENTS

Sanitary and phytosanitary measures are actions taken by a member country of the World Trade Organization (WTO) like Tanzania, and that are necessary for the protection of human, animal or plant life or health provided that such measures do not constitute a disguised restriction on international trade. This report will not go to the details of SPS standards but it suffices to say that they are very important issues in world trade.

Meeting these standards facilitates the safe movement of plants and plant products thereby enhancing trade within the region and beyond. However, most Tanzania producers and agro-processors are not aware of current trade requirements related to SPS measures and their implications for the export of agricultural of plant and animal origin.

The practices in the field management have shown good improvement through education provided to farmers in respective crops. There have been deliberate strategies taken in improving crop production by following requisite practices to attain high quality production while maintaining productivity. Such steps include use of screened and unified planting materials free from diseases or other disorders. Tanzania has continued to observe and enforce international standards in order to protect economic activities in the agricultural and livestock sectors from the dangers of exotic pests through SPS measures.

**Plant Health Services (PHS)**

To ensure clean and disease free seeds and planting material, there is a Plant Health Services (PHS) in the Plant Health Department of the MAFC and Tropical Pesticide Research Institute (TPRI) has 165 inspectors based on 28 entry points in the country. We also need to have accredited of laboratories throughout the country to build consumer confidence in the safety of Tanzania Products and minimize the Costs involved in repeated testing by importing countries.

**Veterinary Services**

Trade in livestock and livestock products require an efficient veterinary system that addresses compliance to OIE, WTO sanitary and phytosanitary requirements. The structure of veterinary services in Tanzania meets these requirements. Control and eradication of animal diseases has enabled Tanzania to be an eligible trade partner in livestock and meat products. The country has been declared Rinderpest free by OIE in 2005.

Zoosanitary inspectorate services have been strengthened in order to control livestock movements and thereby prevent the spread of livestock diseases. Currently there is a network of 36 border posts distributed along all official points of entry/exits, 19 quarantine stations, 381 internal check points, 56 primary markets and 12 secondary/terminal markets.
5.2 TRACEABILITY

Traceability is the ability to follow the movement of food or feed through specified stages of production, processing and distribution. It also involves stages of handling of food or feed and their ingredients from production to consumption (farm-to-fork). Broadly speaking traceability refers to the ability to trace a substance through all stages of the supply and manufacturing chains.

Traceability is a system to trace products originating from one country right from the farm to the customer that ensures the products comply with international standards. For example in case of food stuffs, consumers need to be assured on its safety, who is producing it, where it is produced what type of food, how is it handled and moved up to the market. Traceability has become an important market access issue because suppliers who are unable to fulfill the traceability requirements may be denied access to markets especially to the European markets, irrespective of the quality or price competitiveness of their products based on European food laws.

The Tanzania Coffee Board has installed a global traceability network system which will enable the country to track down coffee from the primary producer to the export end. Tanzania coffee sub-sector will be able to comply with EU Food Laws and USA Bioterrorism Act which places the onus on exporters to make all food and feed products traceable back to origin. With the system in place, Tanzania will be able to increase earnings by verifying Fair Trade or Organic products, prove the quality and safety of its coffee to customers and investigate quality and grading disputes quickly.

During the year 2006/07 Tanzania Industrial Research and Development Organisation (TIRDO) embarked on implementation of a traceability project and international accreditation of its laboratories as a way to support entrepreneurs in product quality improvement for market access. Awareness seminars were conducted in the spices sub-sector in Mtwara and Tanga and for cut flowers in Arusha. Documents on Traceability in the tea, coffee, and cashewnut sub-sectors were prepared and submitted to the crop boards for implementation. Meat and honey were also added to the traceability programme and sensitization seminars were held for Ministry of Livestock Development and Fisheries (MLDF). The documents provide guidelines on traceability and hygiene requirements for handling, processing, processing as well as storage of plant and animal products. Traceability is essential to Tanzania for market access. It is a tool to add value to Tanzanian products.

5.3 METROLOGY

Smallholder farmers need known weights of lots of their produce offered for sale in order for them to set and compare prices. The commonly used standard units for selling produce include bags (100kg and lumbesa) mainly for grain, wooden boxes and (matenga) for fruits and vegetables. There is a need to introduce packaging standards and weighing facilities at marketing centres to protect farmers from unscrupulous traders.

The Weights and Measures Agency is responsible for ensuring strict adherence to specifications based on weights and measures.

5.4 QUALITY INFRASTRUCTURE

Tanzania faces many challenges with respect to standards namely:
- Alignment of national with international standards,
- Building capacity for enforcement and development of the culture of observing the standards of main international trading partners in major export products,
- Conformity to WTO agreements on SPS/TBTs based on building capacity for scientific analysis and risk assessment,
- Building capacity on issuance of internationally recognized accreditation certificates,
- Setting up internationally recognized testing laboratories.

There is a need to establish a central repository unit for information and data management as the current method of using hard copies bring difficulties in tracking and tracing of all the information on standards.

Tanzania Bureau of Standards (TBS) is the national institution responsible for setting standards, testing and certification of products.
6. MARKETING OF AGRICULTURAL AND LIVESTOCK PRODUCTS

6.1 INTRODUCTION

Efficient markets require good governance and public policy: infrastructure, institutions and services that provide market information, establish grades and standards, manage risks, and enforce contracts.

Small holders on the other hand need to build their bargaining power through their producer organizations assisted by public policy.

Improving and modernizing the marketing system can increase market efficiency, foster competitiveness with imports and reduce losses and risks. Market modernization, beyond improving basic transport, includes marketing information system, commodity exchanges and price-risk management.

Inadequate transport infrastructure and services in rural areas push up marketing costs, undermining local markets and exports. Transport costs account for over 50% of total marketing costs. Improving road connections is thus critical to strengthening the links of farmers and the rural economy to local, regional and international markets.

Market Information keeps farmers and traders attuned to the demands and changing preferences of consumers, guiding farming, marketing and investing. Market information timely and accurate prices, buyer contracts, distribution channels, buyer and producer trends, import regulations, competitor profiles, grade and standards specifications, post harvest handling advice, and storage and transport recommendations.

This chapter assesses marketing of major agricultural and livestock products during the period under review and based on data availed to the Consultants. Other issues covered include level of profitability for various categories of actors, technical barriers to trade, marketing channels, sanitary and phytosanitary measures, problems and recommendations. Trend of production for major crops has been covered in Chapter 4 of this report.

6.2 CROP SUBSECTOR MARKETING

6.2.1 Market Prospects for Tanzania’s Agricultural Produce

International Markets and Prospects for Traditional Agricultural Exports

Tanzania still relies on traditional export for 45 to 50 percent of export revenue. While their share in total export revenue has declined from highs 70% in the mid 1980’s exports of coffee, cotton, tea cashew nuts, tobacco, sisal and pyrethrum still play an important role. Over the past three years, prices for these commodities have remained lower than they have been in any similar period during the last thirty years. Prospects for price increases are not that good. In no case does the forecast show prices’ returning to the levels of the 1970s. How much importance should Tanzania give to increasing production for commodities facing inelastic world demand, and a secular deterioration in world prices?

More background on the international market situation is necessary to answer these questions. International prices for coffee, cotton and tea, have dropped considerably since the 1970s and 1980s. Coffee and cotton prices are below 50% of what they were in 1980 in real terms.

The prospects for traditional export commodities are not good. But the shift into the new markets, especially for high value produce such as vegetables, fruit or flowers, is neither easy
nor quick, especially for countries in sub-Saharan Africa where infrastructure is poor, communications are difficult and financial markets are thin.

Tanzania has started to implement an export promotion policy based on these principles. It has the potential for being a low-cost producer in most of the traditional commodity markets it competes in. Transport costs, while high can be brought down and the country has its own ports and hence controls it shown export routes, unlike the landlocked countries to the west. At the same time, efforts to develop new, nontraditional agricultural exports have been fairly successful over the past few years.

Regional Markets

For many of the countries in East and Central Africa, access to the sea is via Tanzania. Some of these countries, on occasion, suffer from shortages of food. Malawi, Rwanda, and Burundi, for example, have exhausted their high-potential land. With rapidly increasing populations, they are chronically food deficit countries. Tanzania, due to the wide geographic spread of its productive areas, and the variety of its agro-ecological climates, rarely suffers drought across the whole country. It could make better use of food production in its southwestern regions by servicing the markets of the countries on its western border. From the Southern Highlands regions, Tanzania could produce and supply maize and other food products to Malawi or Burundi considerably more cheaply than imports through Dar es Salaam or Tanga. This policy would help maintain the maize market for those producers, far from Dar es Salaam.

Trade with Tanzania’s neighbours has been growing rapidly. While food is an obvious candidate for trade, other commodities are also being sold. There has been a rapid increase in the value of exports to Zambia, DRC, Uganda, Rwanda, Kenya, Burundi and Malawi. Tanzania maintains a net trade surplus with all these countries. Further expansion should continue to be explored.

Domestic Markets

The domestic market absorbs all but 10 percent of Tanzania’s agricultural output. About one-third of total food consumption is produced on the family farm. The ratio is 42 percent for rural families, and 18 percent for urban.

The demand for livestock products, while quite weak at present, should increase more rapidly than the demand for cereals and staple food. The income elasticity of demand for livestock products is normally well above 1 and possibly as high as 3, which will provide a needed boost to the dairy, beef and poultry industry.

The domestic economy also absorbs agricultural raw materials. Purchase of cotton lint by the local textile industry have been between 10,000 and 16,000 metric tons during the 1980s, and can be expected to increase as the demand for cotton goods increases with income growth. Tobacco is another domestically consumed agricultural raw material. About 5,000 tons of processed tobaccos are absorbed annually by the local market, between 30 and 40 percent of the crop.
Marketing Liberalization

Marketing of crops, especially food crops has been progressively liberalized since 1984. In 1987, weight limits and permit requirements for grain trade between regions were lifted, minor crop exports were liberalized and domestic marketing of inputs was opened to the private sector. Marketing of sorghum, millet and other food crops was decontrolled at the Cooperative Union level beginning with the 1988/89 season. In 1989, cassava, beans, oilseeds and all grains except wheat were decontrolled at the primary society level. Wheat marketing was liberalized in 1990. Implementation of this set of reforms appears to have been thorough. The removal of restrictions on maize marketing, coupled with good weather and improved road networks, has led to a reduction in real market price of maize.

6.2.2 Decontrol of Marketing of Crops

From the mid 1980s and early 1990s as part of the process of Structural Adjustment Programme, the Government undertook a series of major reforms. These reforms included the decontrol of marketing of non-traditional export crops in 1986 followed by a decontrol of marketing of crops in 1989 and finally decontrol of marketing of traditional export crops in 1993/94 marketing season.

The objective of this decontrol measure was to pave the way for participation of cooperatives and private traders in the marketing aspects of all agricultural crops in a competitive marketing environment.

Crops Boards ceased to perform commercial roles but they assumed regulatory and partly promotional roles.

The anticipated gains from this reform have not been fully realized particularly for non-traditional exports and food crops because the adopted policy changes did not put in place an orderly marketing system for the crops.

In view of the above, during the month of December 2008, the Ministry of Industry, Trade and Marketing produced a document on Agricultural Marketing Policy. It suffices to state that the major outcome of the policy is to put in place an integrated and coordinated mechanism for marketing of agricultural products.

6.2.3 Producers Price Determination

Knowing the cost of production is crucial for efficient price negotiation and determination. Farmers have not been able to establish their cost of production. The cost of production for each crop differs from region to region. In the case of sugar, farmers association has established the cost of producing a ton of sugar.

Although, farmers interviewed have indicated that they do not get a fair deal in the negotiations, the situation is complicated by their lack of production costs data. There are needs for extension officers to assist farmers in establishing their costs of production which may form as basis for effective negotiations.

Cases of Farmers Negotiation Skills with Buyers and Processors on Setting Indicative Prices

Farmers have formed associations whose representatives negotiate on their behalf. The farmers’ representatives are gradually gaining the skills required as they continue to negotiate with buyers and processors. To increase their negotiation skills, farmers should have documented production cost estimates. Their confidence to bargain together with evidence of
costs will enable their negotiation skills grow as they sit together more often with buyers and processors to chart out indicative prices for the benefit of all concerned.

Improvement in negotiation skills is reflected in the results obtained during negotiations as shown below covering sugarcane, cashew nut and tea. For example in sugar, the farmers are represented by the Tanzania Sugarcane Growers Associations (TASGA) which was formed in the year 2000. For tea, the farmers are represented by Tanzania Smallholder Tea Growers Association formed recently.

For cashew nut the percentage of farmer’s price to FoB price rose from 73% in 2003/04 to 78% in 2007/08. In sugar the Farmers Association is aiming at raising the farmers’ price from the present 53% of the market price of sugar to 60%.

In tea farmers associations are aiming at all farmers getting not less than TShs 150/= per kilogramme for their green leaf tea from the present average of TShs 105/= per kilogramme of green leaf.

Apart from the above improvements farmers associations’ representatives are educated and qualified. Most of them are farmers themselves and would not weave in the negotiations as they are also interested parties. As a result, farmers have great confidence in them e.g. in sugar industry where a good proportion of farmers have been workers of the sugar estates and now have their own farms.

The farmers’ representatives negotiating skills are also improving as they meet with other national and international organizations to discuss the plight of the farmer in better farming methods, such as seed improvements, disease resistance seeds and infrastructural development to improve and reduce costs of production to the farmer.

**Cashew nut**

For cashew nut, the recent introduction of Warehouse Receipt System in the cashew nut growing areas has assisted the farmers to fetch good price on raw cashew nuts. Under this system all cashew nuts are sold to primary societies hence eliminating the buyers and their middlemen to go to the villages. The cashew nuts purchased are tested for quality and graded before farmers are paid advance payment of 60% of the indicative price. Thereafter these cashew nuts are sent to registered warehouses for storage and later on to be sold to processors and exporters by auction. The price fetched for these cashew nuts through this system has been increased hence, second payment to farmers has also been increased and finally improved their standard of living. Under this system in 2007/08 season the National Microfinance Bank (NMB) extended TShs.18 billion as loans to primary cooperative unions under the Government guarantee for the purpose of purchasing cashew nuts and 60% advance payment to farmers.

The above cases indicate how the warehouse Receipt System can be effective in transforming agriculture where farmers associations are strong.

### 6.2.4 Product Standards

Standardization, quality assurance, metrology and testing of products are important in the facilitation of interchangeability of products, promotion of trade, investment and consumer protection.

Technical Barriers to Trade (TBTs), such as Sanitary and Phytosanitary (SPS) measures and other standards, are used as instruments of trade policy to authenticate the quality and
specification of imports and exports in conformity with international safety requirements and regulations that aim at consumer protection.

Tanzania has developed a number of standards locally through TBS and some have been adopted from ISO Standards.

6.2.5 Crop Marketing Infrastructure

Crop marketing infrastructure is not conducive and is characterized by the following factors:

- **Limited/Lack of Information on Markets**

  Producers/farmers lack information on available markets on their products making it difficult for them plan production of the same (crops) and implement market penetration strategies.

  Agricultural marketing information is essential in the development of the agricultural sector as it provides signals especially to the farmers to minimize their efforts and help on how best to allocate resources. Knowledge about market needs and requirements is crucial to guide production, processing and marketing strategies and equally to enhance farmers bargaining power in the market transactions.

- **Weak Farmer Organizations**

  Weak farmer organizations within the marketing system partly hinder transformation of agriculture. Most of the farmer organizations are weak and hence unable to access credit and markets on outputs on behalf of the members.

  An integrated strong farmer association or cooperative enables small holder farmers among others, deal with the issues of production, transportation, processing and marketing collectively. When doing so they create bargaining power with regard to marketing of the produce.

- **Poor Rural Marketing Infrastructure**

  Poor state of rural markets, storage cattle holding grounds, stock-routes, etc. levels to limited access to markets, availability of inputs is limited and expensive, increased losses of crop and livestock, in the final analysis inefficiency marketing of inputs and outputs.

  The above factors are caused by under-developed and under maintained rural infrastructure, i.e. rural roads, water supply, transportation, storage facilities, cattle dips, rural markets, electrification, communication, water management schemes, chacos, stock holding grounds, stock auction markets, stock routes and abattoirs. All these need to be developed or improved to stimulate increased agricultural/livestock production.

  Not only is stock of rural infrastructure in poor condition and inadequate for development of the rural economy, it is also unevenly distributed, leaving some high agricultural potential areas with little or no coverage.

  Poor rural infrastructure reduces market access and substantially increases marketing costs.
6.3 SUPPLY OF INPUTS

6.3.1 Status/Supply of Tractors/Implements

The status of Sales/Importation of tractors for year 1982-2008 is shown in Table 6.1. The country has about 7,200 tractors in operation, and needs about 1,000 to 1,500 new tractors for normal replacement instead of the current level of 250 – 300 tractors per annum. Moreover, of all the implements owned by households, 92 per cent are hoes, 8 percent are other implements of which 50 per cent is ox-ploughs. Only 3 percent of crop growing households own tractors. Tractors still contribute very little to the overall exploitation of the land resources. Promotion of tractor use will need a concerted support in extension and credit schemes. National Sample Census of Agriculture (2002/2003) indicates that finance for implements acquisition is mainly from farm produce sales.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>210</td>
<td>263</td>
<td>495</td>
<td>1143</td>
<td>407</td>
<td>289</td>
<td>536</td>
<td>3338</td>
<td>241</td>
<td>369</td>
<td>273</td>
<td>180</td>
<td>73</td>
</tr>
<tr>
<td>No.</td>
<td>58</td>
<td>49</td>
<td>309</td>
<td>665</td>
<td>440</td>
<td>431</td>
<td>375</td>
<td>274</td>
<td>246</td>
<td>272</td>
<td>356</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>2006</td>
<td>2007</td>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>580</td>
<td>733</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TISCO-AGITF Study and TRA

6.3.2 Fertilizer Demand and Availability

Fertilizer availability since 1995/96 compared to estimated demand is shown in Table 6.2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand</th>
<th>Supply</th>
<th>Supply Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995/96</td>
<td>280,000</td>
<td>157,588</td>
<td>122,412</td>
</tr>
<tr>
<td>1996/97</td>
<td>187,000</td>
<td>148,238</td>
<td>38,762</td>
</tr>
<tr>
<td>1997/98</td>
<td>187,000</td>
<td>158,691</td>
<td>28,309</td>
</tr>
<tr>
<td>1998/99</td>
<td>180,000</td>
<td>128,050</td>
<td>51,950</td>
</tr>
<tr>
<td>1999/2000</td>
<td>170,000</td>
<td>137,697</td>
<td>32,303</td>
</tr>
<tr>
<td>2000/01</td>
<td>170,000</td>
<td>112,343</td>
<td>57,657</td>
</tr>
<tr>
<td>2001/02</td>
<td>188,367</td>
<td>138,935</td>
<td>49,432</td>
</tr>
<tr>
<td>2002/03</td>
<td>185,550</td>
<td>111,025</td>
<td>74,525</td>
</tr>
<tr>
<td>2003/04</td>
<td>185,550</td>
<td>125,653</td>
<td>69,987</td>
</tr>
<tr>
<td>2004/05</td>
<td>384,900</td>
<td>195,062</td>
<td>189,838</td>
</tr>
<tr>
<td>2005/06</td>
<td>385,000</td>
<td>241,753</td>
<td>144,247</td>
</tr>
<tr>
<td>2005/06</td>
<td>385,000</td>
<td>78,870</td>
<td>306,130</td>
</tr>
<tr>
<td>2006/07</td>
<td>385,000</td>
<td>82,529</td>
<td>302,471</td>
</tr>
<tr>
<td>2007/08</td>
<td>385,000</td>
<td>179,363</td>
<td>205,637</td>
</tr>
</tbody>
</table>

TISCO-AGITF Study and TRA

Smallholder farmer response (National Sample Census of Agriculture-2002/2003) shows that:

- Most of smallholders obtain inorganic fertilizers from local market/trade stores.
- Access to fertilizer is not the major source of poor adoption but cost plays a major part. 12 percent of farming households have access to inorganic fertilizers.
If cost was made affordable, and access is guaranteed, demand for fertilizer would increase.

A very small number of households use inorganic fertilizers; less than 500,000 (10%) households use inorganic fertilizers.

Lack of subsidy and/or credit is the major factors limiting use of fertilizers thus impairing chances for increased productivity.

### 6.3.3 Demand/Availability of Improved Seeds

The availability of improved seeds, compared to estimated demand for the period 1998/99 to 2001/05 is shown in Table 6.3.

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand</th>
<th>Supply</th>
<th>Supply Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998/99</td>
<td>160,333</td>
<td>4,742</td>
<td>155,591</td>
</tr>
<tr>
<td>1999/2000</td>
<td>172,940</td>
<td>10,763</td>
<td>162,177</td>
</tr>
<tr>
<td>2000/01</td>
<td>33,190</td>
<td>9,083</td>
<td>24,107</td>
</tr>
<tr>
<td>2001/02</td>
<td>29,970</td>
<td>11,994</td>
<td>17,976</td>
</tr>
<tr>
<td>2002/03</td>
<td>30,000</td>
<td>4,953</td>
<td>25,047</td>
</tr>
<tr>
<td>2003/04</td>
<td>30,000*</td>
<td>33,355</td>
<td>+3,355</td>
</tr>
<tr>
<td>2004/05</td>
<td>30,000*</td>
<td>9,847</td>
<td>20,153</td>
</tr>
<tr>
<td>2005/06</td>
<td>30,000*</td>
<td>2,230</td>
<td>27,770</td>
</tr>
<tr>
<td>2006/07</td>
<td>30,000*</td>
<td>1,709</td>
<td>28,291</td>
</tr>
<tr>
<td>2007/08</td>
<td>30,000*</td>
<td>3,322</td>
<td>26,678</td>
</tr>
</tbody>
</table>

* Estimated by TISCO based on previous years’ trend

TISCO-AGITF Study and TRA

The supplies have consistently been lower than the technically derived requirements. However the technically derived requirements have recently been drastically reduced to reflect effective demand.

According to the National Sample Census of Agriculture (2001/03) 18 per cent of crop growing households use improved seeds (maize, sorghum, paddy, beans, wheat and oil seeds). Most farmers (about 60 percent) get their requirements from local markets and trade stores. This is the most adopted of the improved inputs. Cost seems to be the major factor limiting increased use; therefore credit and/or subsidy will lead to positive effect on adoption rates.

The trend of cost being the major hindrance to increased use of other inputs persist compelling one to conclude that access to improved inputs must be accompanied by sound credit/subsidy schemes to enhance use and hence increase productivity.

World Vision in Tanzania are operating a special loan system whereby farmers are loaned good seed and supposed to pay 2/3 of the quantity after production so that others can also get the seed. In this way distribution of good seed with high productivity is promoted through this system. Catholic Relief Services have similar operations for the rural people.

### 6.3.4 Demand/Availability of Veterinary Drugs and Vaccines

- **Economic Liberalization in the Livestock Sector**

Since 1986 Tanzanian has been undertaking economic reforms to establish a free market economy in order to stimulate economic growth. Many reforms being undertaken are aimed at encouraging development of the private sector, which had been neglected for a long time, thereby reducing government participation in the economy. The macro-economic policy reforms have made necessary for a redefinition of the roles of the public and private sectors in
livestock development. These changes have paved the way for the withdrawal of the Government involvement in direct production, processing and marketing activities, which could be better performed by the private sector.

The implementation of Economic Recovery Programmes (ERPs) policies has affected all the major sectors of the Tanzanian economy including the livestock sector. The major objective of the government’s liberalization policy was to enhance efficiency in resource mobilization and allocation. With respect to the livestock sector, the mechanism for the achievement of the policy objective included the removal of subsidies on livestock inputs, removal of concessory interest rates on livestock production loans, liberalization of trade and exchange rate policy, abolition of Commodity Boards, price deregulation and divestiture or liquidation of parastatals. This meant dissolving state production and marketing monopolies and letting open competition to allow market forces to operate in both the factor and product markets.

Economic liberalization in the livestock sector involved the following:

a. Allowing the private sector to participate in the supply of inputs, processing and marketing of livestock inputs and products;
b. Deregulation of prices of livestock products;
c. Removal of subsidies on livestock inputs;
d. Removal of restrictions on imports and exports of livestock products; and divestiture.

Today, livestock producers and traders are free to set prices of livestock products. This implies that, under the liberalized economic environment, the forces of demand play a big role in arriving at prices of livestock products.

The process of deregulating prices of various livestock inputs/products and removal of subsidies on livestock inputs started in early 1990s. Prior to market reforms, the government has been providing livestock inputs such as concentrates, minerals, livestock veterinary drugs and services at highly subsidized prices. Other inputs, which were subsidized by the government, include heifers from Heifer Multiplication Units (LMUs). Suppliers of livestock inputs were required to sell their inputs at government controlled prices to make them affordable to farmers.

While input liberalization has eased livestock input provision at wholesale level, traders of livestock inputs have no interest in providing inputs to remote areas because of high transport costs and tight profit margins, which require economies of scale. The removals of government subsidies and price deregulation have increased prices of inputs paid by livestock farmers. Various studies undertaken at the farm level indicated that farmers have responded to the increase in prices by either abandoning or reducing the use. According to the study carried in Rungwe and Mbozi districts in 1997 on effects of input subsidy removal, the results indicates that 42.2% and 49.6% of the interviewed farmers used fewer amounts of inputs than before subsidy removal while 37.6% and 15% have stopped using inputs completely respectively.

However, from 2005/2006, the Government has decided to provide subsidy on acaricides. During 2007/2008, a total of TShs 10 billion have been budgeted for input subsidy. The move is geared to make livestock farmers to access livestock inputs at reasonable price.
6.3.5 Others

Other factors characterizing the poor crop marketing infrastructure include:

- Poor linkage within the marketing, and processing and production chains coupled with inadequate processing of commodities and high levels of wastes during pre and after harvest periods;

- Failure on the part of the Government/government agencies to regulate markets resulting in unethical trade practices on the part of some agribusiness firms (A case of Mtibwa Sugar Cane out-growers vis-à-vis – Mtibwa Sugar Cane Estate Management)

6.3.6 Meeting Sanitary and Phytosanitary Standards

Agricultural exports diversified significantly in the last two decades, particularly into high-value fresh and processed products, fueled by changing consumer tastes and advances in production, transport and other supply-chain technologies. Fruits and vegetables, as well as fish and fish products, meat, nuts, spices and floriculture account for around 47% of the agricultural exports from developing countries. These are exported as fresh or processed products.

For agro food products, sanitary and phytosanitary (SPS) standards govern international trade to address food safety and agricultural health risks associated with pests (fruit flies), food-borne and zoonotic diseases (foot and mouth and mad cow diseases) and microbial pathogens and other contaminants (mycotoxins and pesticides).

In reaction to the periodic food scares in industrial countries, coupled with better scientific knowledge and greater public concern about these risks, many countries have tightened their SPS standards or extended their coverage to new areas.

Developing countries like Tanzania are concerned that the proliferation and stringency of food safety and health measures being adopted in the exports market will be discriminatory and protectionist. Developing countries worry that they will be excluded from the exports market because they lack in-country administrative and technical capacities to comply with the requirements or that the costs of compliance will erode their competitive advantage.

To enhance trade-that is in compliance to SPS requirements, it is recommended that the public and private sector work together each playing its role.

Specifically the following issues have to be addressed:

**Policy and regulatory requirements:** The Government should pursue international dialogue; adopt domestic food safety legislation and standards consistent with local conditions and preferences, WTO and other regional trade obligations.

**Risk assessment and management:** Strengthen national systems for pests, animal diseases and market surveillance, support research on food safety and agricultural health concerns.

**Awareness building and promoting good practices:** Support consumer awareness campaigns on food safety; promote good agriculture hygiene and food processing practices to be integrated into extension programmes; investment in appropriate laboratory infrastructure, accredit private laboratories.
Infrastructure investments: Improve water supply and sanitation and marketing facilities.

Traceability: Develop systems and procedures to enable traceability of raw materials and intermediate and final products.

6.4 LIVESTOCK AND LIVESTOCK PRODUCTS MARKETING

6.4.1 Live Animals

The live animals entering the livestock marketing chain each year are mainly traditional goats and cattle of the short horn Zebu type, the Ankole and a small number of Boran breeds from the national and private ranches, individual livestock keepers’ households and middlemen and birds (poultry). Offtake rates for the traded animals and birds are as follows; 15% of the cattle, 25% of goats and 29% of sheep, 35% pigs and 75% chicken (Table 6.4). However, only a small number of animals are officially exported. For example cattle entering the official export market are significantly low (2,200 per annum) and those crossing national borders for trading are estimated at 300,000 per annum.

Table 6.4: Current Livestock Offtake Rates.

<table>
<thead>
<tr>
<th>Animals</th>
<th>Livestock Population</th>
<th>Offtake rates</th>
<th>Live Animals Offtake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>18,800,000</td>
<td>15%</td>
<td>9,000,000</td>
</tr>
<tr>
<td>Goats</td>
<td>13,500,000</td>
<td>25%</td>
<td>3,375,000</td>
</tr>
<tr>
<td>Sheep</td>
<td>3,500,000</td>
<td>29%</td>
<td>337,500</td>
</tr>
<tr>
<td>Pigs</td>
<td>1,800,000</td>
<td>35%</td>
<td>630,000</td>
</tr>
<tr>
<td>Poultry</td>
<td>53,000,000</td>
<td>75%</td>
<td>39,750,000</td>
</tr>
</tbody>
</table>

Source: Ministry Livestock Development 2007

Cattle

Currently, about 97% of cattle available in Tanzania are suitable for meat production, hence this implies large proportion of cattle marketed are mainly for meat and the least for dairy and draft animals. Domestically, these animals are commonly traded in primary and secondary markets whereby they are traded. Cattle are traded to meet different objectives including for slaughtering (meat for consumption), fattening for the same purpose and exporting. Also in the least cases, cattle are traded for drafting and dairying purposes.

In most cases the animals sold are at the age of 6 to 7 years weighing 250 kg. The reason for selling is not only because animals have reached prime market condition but also as a disposal for fear of facing risks such as draught, ageing or diseases. Good cattle are sold when livestock keepers are in dire need of cash for the purpose of buying food or meeting social obligations. This gives an implication that most of the cattle are traditionally kept rather than commercially kept. Limited numbers of good quality cattle which can survive long trekking stretches between pastoral areas and primary or secondary markets are also sold to livestock traders, ranches for fattening or abattoirs for slaughter. The traditional practice in the humid plateau lands of Mara, Mwanza, and Mbeya or in the pastoral system of the semi arid to sub humid rangelands of Arusha, Dodoma, Shinyanga and Singida produce animals that are normally traded in the upper markets i.e. the secondary or terminal markets, and exported after selection and fulfilling foreign or importer’s conditions and requirements.

Goats and Sheep (Shoats)

Red Masaai and Sukuma black head sheep and the Masaai or East African goat breeds raised in traditional husbandry accounts for 90% of the national sheep and goat flock. The preference to consume goat meat than mutton seemed to account for the supply of goats at slaughter age
Some shoats are slaughtered in the rural areas more often than the cattle but a significant number are consumed in the urban area especially as a favorable bite or *nyama choma* on special including meetings, bars and clubs, wedding and other festivities. In recent times, the demand for sheep in the domestic market has been is on increase due to the rising demand for mutton in the foreign markets such as in the Middle East countries. Despite of the fact that the demand for mutton from young sheep in those countries is increasing, the supply of young sheep to meet such demand from the domestic markets is yet to be met. The increased demand for mutton for the foreign markets than it can be supply has subsequently raised price of sheep in the domestic market. The price of the shoats increased from TShs 8,000 in 2006 to the current TShs 15,000 per sheep in the rural primary markets. The current cost of delivering a sheep from the Shinyanga and Singida markets to the Dodoma abattoir has increased from TShs 12,000 in September 2006 to TShs 20,000 in the same period 2007.

Unlike cattle, the number of shoats being slaughtered for export, their corresponding value in the export trade has been higher than that of beef. In Kuwait and United Arab Emirates markets the wholesale price for a kilo of beef ranges between US$ 2 - 4 while mutton fetches US$ 3-4. Retail prices for beef and mutton varies from US$ 5 - 6 and US$ 7 - 8 for mutton. The export market for shoats in the Comoro Islands is active but only 5,737 have been exported there in the past 5 years. The trend has been rising from 140 in 2002 to 446 in 2006.

### 6.4.2 Establishing Crop and Livestock Regulatory/Monitoring Body

It is proposed that a regulatory body more or less similar to the defunct “Marketing Development Bureau” should be revived or established. Its role should include among others monitoring production and productivity, market information (export and domestic markets) and prices. It should also be given power to intervene in cases where farmers/producers need this intervention.

### 6.5 LIVESTOCK MARKETING INFRASTRUCTURE

The livestock marketing infrastructures in the country support the supply chain from the producer to the consumer. The marketing infrastructure consists of primary markets (300), secondary markets (10) located in Arusha, Dodoma, Singida, Tabora, Shinyanga, Kagera, Mwanza, Mbeya and Mara and 4 terminal markets namely Pugu-DSM, Themi-Arusha, Weruweru-Kilimanjaro and Korogwe-Tanga. In addition there are 13 holding grounds, 10 railway cattle loading ramps and 15 veterinary checkpoints located at regional boundaries and at natural barriers (rivers).
7. FACTORS HOLDING BACK AGRICULTURAL DEVELOPMENT

While it is generally understood that agriculture is a high risk undertaking requiring dedicated and concerted efforts to sustain it, to this effect Tanzania has endeavoured to direct all the efforts aimed at achieving a significant and sustainable measure of agricultural productivity throughout the four decades since independence in 1961. Despite all the efforts, Tanzania’s agriculture has not performed well.

In this section the study discusses some factors holding back agricultural development. Focusing on review of resource inputs Tanzania has applied in its agriculture; it explains the phenomenon of the country’s poor performance in the sector.

7.1 ADOPTION OF IMPROVED TECHNOLOGIES

7.1.1 Improved Seeds

Available data shows that the potential demand for improved seeds in Tanzania is about 120,000 tons per annum. The average annual supply for the last four years has been 10,000 tons. Further review of the data shows that the amount of improved seeds actually used by farmers was, estimated at 8,000 tons or less than 7% of the estimated demand. Much of this happened because improved seeds producing companies which existed ceased to operate and those that were privatized were not able to perform as required.

Recent experience in Sub-Saharan Africa offers more promise. After a late start, improved varieties are finally making an impact on some food staples.

7.1.2 Maize

Improved maize varieties and hybrids were widely adopted by small-holders in many African countries in the 1980s, reaching almost universal coverage in a few countries, such as Zimbabwe. But much of this was underwritten by heavy subsidies that were unsustainable. Still, a substantial share of the maize area was planted to improve varieties and hybrids in 2006 in Kenya (80 percent), Malawi (30 percent), Tanzania (28 percent), Zambia (49 percent), and Zimbabwe (73 percent).

7.1.3 Cassava

Improved disease-resistant strains of cassava have been adopted, reaching more than half the cassava area in Nigeria, the world’s largest producer. Cassava has been the fastest growing food staple in Africa, and since it is a staple of the poor, the impacts of productivity gains are especially pro-poor.

7.1.4 Rice

The New Rice for Africa – combining the high yielding potential Asian rice with the resistance of African rice to weeds, pests, diseases, and water stress was released to farmers in 1996. Increasing yields under low input conditions, it is cultivated on about 200,000 hectares in Africa. Yet adoption is still modest because of insufficient dissemination, training, and extension.
7.1.5 Beans

In eastern, central, and southern Africa, nearly 10 million farmers, mostly women, are reportedly growing and consuming new bean varieties (*Phaseolus vulgaris*), many with multiple stress resistances.

7.1.6 Increased quantities of fertilizer

Importation and distribution of agricultural inputs in the country is largely being handled by the private sector since the withdrawal of the government from the business due to a range of factors. However, private sector involvement in agricultural input marketing has been slow largely because of inadequate capital to run the business; poor infrastructure and distribution network; and, lastly, inadequate market information resulting from high overheads costs. As a result, there is a low agricultural input utilization by households in Tanzania.

Currently, Tanzania uses 9kg of fertilizer per hectare of arable land. A comparison with other countries tells the story of how the country’s agriculture could not have moved forward, beyond the limited achievement that has been recorded. Malawi uses 27kg per hectare; while South Africa uses 53kg/ha. The average utilizations is 16 kg/ha for SADC; 103 kg/ha for India; 279 kg/ha for China; 365 kg/ha for Vietnam. Figures show that on average, in Asia, fertilizer use is 100kg/ha for South Asia, 135 kg/ha for east and South-East Asia, 73 kg/ha for Latin America, and 206 kg/ha for the industrial countries. Tanzania does not even come close to a Malawi.

7.1.7 Agricultural Chemicals

With respect to agricultural chemicals, the story is much the same and even worse. Annual demand of agricultural chemicals for the past years was 4.0 million Litres of liquid formulations; and, 21,000 tons of solid formulations. But available data show that the average availability was only 2.1 million liters of liquid formation (or just over 50%) and 6m000 tons (or just above 28%) of solid formulations. In effect, the actual amount used by farmers was much less than the above quantities that figures show were available.

7.1.8 Irrigation and agricultural water resource use management

Tanzania is second in Africa, after DRC, for large volume of water resources. Presently, the country with its large idle tracks of fertile land; flowing rivers of Kagera, Mara, Rufiji, Pangani, Ruviu, Wami, Ruaha and Ruvuma together with the largest lakes in Africa - Victoria, Tanganyika, Nyasa and Rukwa; numerous basins and plains; countless opportunities for irrigation systems is only able to irrigate 1% of its potential irrigable land of 29.4 million hectares. Clearly, this is not for lack of water resources; rather, it is has been a question of prioritization as well as financial resources and organization for the required irrigation operations.

The key factor that must always guide policies is that success in agricultural transformation will only come when the Tanzanian farmer - especially a small scale one is able to get the most crops for each drop of water. Irrigation systems have made significant contribution towards food security in many countries such as Sudan and Egypt using waters originating partly from Tanzania; and; India among others, with less water resources.

7.1.9 Agricultural Implements and Machinery

The level of utilization of machinery and implements for agricultural production and post-harvest is very low. The lack or inadequate supply of equipment and machinery has been one of the causes of the failure of agricultural transformation in Tanzania. According to available
figures, in the 70’s, Tanzania had an estimated 17,000 tractors; today the total number of tractors in the country is estimated at 8,000, less than half of those that existed, when, in the meantime, Tanzania’s population has doubled. Some 85% of the tractors are more than 10 years old; 73% are more than 15 years old and 35% are more than 25 years old. While 70,000 Oxen ploughs are needed annually only 20,000 become available. Up to 1,800 tractors are needed annually, but only up to 400 become available. 70% of the farmers still use hand hoe, 20% use oxen plough and only 10% use tractors.

7.2 INVESTMENT IN AGRICULTURE

Low Investment in Agriculture by both Private and Public Sector

The government of Tanzania had, at both the AU and SADC level committed that it would allocate 10% of the national budget to agricultural development. Considerable progress has been made from the low of 2.9% of national budget that some years ago were allocated to agriculture to the present level of 6.2%. However, the government should now raise the threshold to 10% of 2009/2010 budget in order to adequately fund agriculture and trigger the process of Tanzania’s agricultural transformation. Private sector involvement in agriculture has remained weak with very limited investment mostly due to lack of long term finance at affordable interest rates.

7.3 FINANCING OF AGRICULTURAL PRODUCTION ACTIVITIES

Lack of Meaningful Banks Lending to Agriculture

The reality is that no country in the world had developed its agriculture without having special financing and the Government necessarily is a provider of this initial investment as has been the case in agricultural developments in other parts of the world. This has not been the case in Tanzania.

The Bank of Tanzania 2007 Report shows that loans to the Agricultural Sector amounted to only 10.4% of the total loans to the Private Sector! Besides, such loans are currently available at rates which are around 20%. And most of these loans are short term for buying and selling and not for production! Only 8% of the 10% went into production, meaning that it is only 0.8% of total lending by commercial banks that was directed to agricultural production.

There is also evidence of funds earmarked for the Agriculture Sector being unutilized/mismanagement by some Commercial Banks when channeled through them. It has also turned out that the lending of these Donor funds to agriculture (in which commercial bank exposure is already reduced by 50%) is still at an interest rate of 20% which actually defeats the whole purpose of the existence of these funds. It remains doubtful whether commercial banks will decide on concessionary lending to agriculture. Legislation in this regard may be necessary as India, among others had done.

7.4 LEGAL FRAMEWORK

The enabling environment for agricultural growth needs an appropriate legal framework in land tenure and taxation policy. The current legal framework, land tenure and taxation policy do not enable Tanzanians to fully exploit the production and marketing opportunities created by the emerging free market environment. The existing legal framework for agricultural development needs reviewing and updating to march the prevailing market economy.
• **Land Policy and Tenure**

These are crucial to agricultural growth. A land policy that is clear and tenure that is secure will guide the allocation, ownership and use of land as a resource and help to resolve land use conflicts.

The Land Act has not been reviewed since the 1960's and was only changed in 1995, followed by the Village Land Act in 1999. The Land Act and Village Land Act are the main legal instruments for implementing Land Policy.

The land legislation still has some drawbacks when it comes to land utilization for commercial purposes i.e. the marketability of the customary land right is still a problem. The shortcomings need addressing to be able to attract large-scale investors who want to use land as a base resource and facilitate broad-based socio-economic development.

• **Taxation Policy**

Taxation policy is a major determinant of private sector investment behavior. In the past, Tanzanian’s agricultural was heavily taxed. At one time studies on taxation showed that Tanzania had 55 direct taxes on agriculture when compared to 25 in Morocco, 7 in Zambia and only 4 in South Africa (Revision of Agricultural Sector Development Strategy 2001). These taxes were imposed or levied by the central and local governments.

The taxes included taxation on export crops, food crops, livestock and livestock products, agricultural inputs, business licenses, corporate and income taxes. Most of these tax burdens fell on farmers who produced for markets regardless of their level of income or ability to pay. The net effect was to discouraged farmers from producing for the market, discouraged commercial agriculture of all scales of operation and therefore reduced growth in incomes, productivity, and export earnings. This also reduced food security and the farmers’ opportunity and contribution to reduce poverty.

In addition, agriculture in the country was also subjected to high indirect taxation induced by macro-economic and sector policies as a result of inappropriate agricultural marketing and pricing policies, overvalued exchange rates of the Tanzania Shilling, high import duties on agricultural imports, and quantitative restrictions (e.g. ban imports and exports). These meant that producers of export crops and livestock products received prices that were far below their world market prices.

However, since the year 2000, some of these taxes have been realized as nuisance taxes and are now being reviewed and eliminated.

The remaining taxes on agriculture are also being called for further review and reduction. They include Value Added Tax (VAT), produce cess which farmers pay to local councils at the rate of 5% while industries are charged only 0.3%; land rent of TShs 200 per acre per annum; taxation on diesel and energy which may limit the use of tractors and other transportation by farmers, and employment taxes that are imposed on employers.

The farmers’ interests in the country should be safeguarded if the country requires this person or company to produce more and the country should not feel awkward about it since most countries do in the world today; putting the interests of their farmers first e.g. all the countries in the European Union protect their farmers.
7.5 GOOD GOVERNANCE

Corrupt practices have been developing in the country since the years of shortages (food and other basic items) in the 1980’s. These practices later extended to services and other Government machinery. In the process Tanzania was ranked as one of the leading countries with an alarming corruption index in Africa. The Government took drastic measures to combat the vice since early 1996, when it set out to document the extent, the possible causes and remedies through a Presidential Commission. The report on corruption was clear in pointing out areas and categories of people and functionaries in the public service most prone to corruption.

The Government is therefore taking all necessary steps that will lead to stamping out corruption in the country. These measures include:

- Strengthening the institutional operational capacity of the Corruption Bureau now called Prevention and Combating of Corruption Bureau (PCCB);
- Creating conducive working environment and provision of attractive pay packages to officials in sensitive public employment; and
- Bringing before law officials alleged to have amassed wealth through corrupt means.

Efforts to attain good governance must ensure that all people are equal before the law. Therefore, in the fight against corruption more focus should be cast on the respect of law, observance of rules and regulations and the reinforcement of laws by all due process, and judicial system that is transparent and fair. Furthermore, the state is educating the citizens on the attributes of good governance and the need for accountability for all, including those in higher public places. This attitude is taking root practically as high public officials are being taken to tasks in the courts of law or losing their jobs on account of corruption charges against them or their subordinates.

The most critical factor in the implementation of a green revolution by Tanzania will be POLITICAL WILL. While launching India’s green revolution, it’s then Prime Minister, the late Pandit Jawaharlal Nehru said “Everything else can wait, but not agriculture: i.e. KILIMO KWANZA. China’s vision of its green revolution was achieving a shift from: “agriculture supporting industry and countryside supporting city” to “industry re-feeding agriculture and city supporting countryside”. In most of the cases, political will at all levels of government was crucial to China’s agricultural transformation.

Other causes of the failure of Agriculture Transformation in Tanzania

In addition to the factors relating to inadequate agricultural inputs, there are other major causes that have hindered the transformation of Tanzania’s agriculture:

- To compound the above two obstacles, historically, the amount of investment both by the government and the private sector that has been directed to agriculture has been at levels that are too low to transform the sector. As already indicated, the share of the national budget allocated to Agriculture fell to as low as 2.9% in 2001/2002.

- Challenges of gender and youth resulting from the traditional norms in allocation of resources, where males have more access, control and ownership rights of the production resources especially land, also contributed to the country’s failure to transform its agriculture.

The issue and necessity for strategic crops based on the fundamental requirement of a nation producing what it consumes, and consuming what it produces, has been significantly
demonstrated by current world economic crisis in terms of falling prices of the so-called traditional commodities: coffee prices have fallen by 32%; leaf tea by 40% but recovered somehow to a fall of 19%; cotton by around 20%; sisal by 30%; etc. This demonstrates the economic vulnerability of relying on such crops.

7.6 LAND RESOURCE MANAGEMENT

Land degradation is becoming a growing problem in Tanzania due to increased human activity and expansion of farm/livestock production area as the population grows on an average of about 3 per cent per annum. Deforestation, overgrazing and inappropriate tillage practices are contributing heavily to land degradation. As a result of increased population pressure, the hitherto honoured practice of letting lie “idle” (fallow) for a period of up to 3 years, has now become shorter leading to no-fertility recovery and therefore perpetuating the soil-mining of nutrients. Due to inadequate and inappropriate application of fertilizers (natural and chemical), nutrient replenishment is negative due to additions being less than those used by the plants and pastures. A study by Smalling (1993) estimated the extent of nutrient mining within Tanzania and concluded that there was a negative nutrient balance of 27, 4 and 18 kgs each per ha for nitrogen, phosphorus and potassium respectively. The subsequent decline in crop and pasture yields is a result of the soil-mining.

7.7 YOUTH MIGRATION TO URBAN CENTRES

The 15-59 year old range of population of about 13 million Tanzanians constitutes about 89% of labour needs. While agricultural labour is growing at 2.8 per cent per annum, the overall growth rate is 3.1% mainly due to migration to urban centres.

Once the avenues for increased growth noted above have been exhausted, continued expansion in agricultural output in Tanzania will have to come from technological change. The review of the sector provided above points a picture of a peasant economy where labour availability is an important constraint to expansion. Labour augmenting inputs such as ox-plough and fertilizer appear to be essential for raising rural income. The ADIS farm level surveys confirm the priority given to inputs supply, and farmers’ desire for Government intervention in this area.

7.8 MANAGERIAL AND ENTREPRENEURIAL SKILLS OF FARMERS

The majority of small-holder farmers are aware of existing technological packages but lack managerial skills in developing the farms as business units. Farmers are unable to assess the cost/benefit of technology packages due to, among others, poor records. Also they cannot assess the usefulness of modern inputs and market opportunities and therefore they react to the results rather than planning and managing the process. The problem is exacerbated by lack of the desired knowledge among the extension officers and the trainers. Also the farmers do not effectively participate in planning, implementing, monitoring and evaluation skills which cause the formulation of technology packages and their delivery to disregard farmers’ needs. The extension agents, researchers and trainers also lack skills in participatory planning, implementation monitoring and evaluation.

Relationships have been established between indicators of farm productivity and some determining factors of farm management skills including crop intensification. It has been established that farmers may be paying attention to only limited indicators of farm productivity. As a result they get only partial and sometimes misleading impressions of their farm performance. It is therefore recommended that farmers and extension workers should be trained to use a wider range of farm productivity indicators including gross-margins and farm intensification and to get a broad and more meaningful posture of their prevailing farm performance in order to guide their future decisions.
7.9 IMPACT OF CLIMATE CHANGE

Impact of climate change on agriculture could be devastating. Many areas in the world feel these impacts which will get progressively more severe as mean temperatures rise and the climate becomes more variable.

Five main factors will affect agricultural productivity. These are:

- Changes in temperature
- Precipitation
- Fertilization
- Climate variability and
- Surface water run off

Initially, rising atmospheric concentration of carbon benefit crop growth and could offset yield losses from heat and water stress. But the carbon fertilization is smaller in practice. The most common factors that will affect agricultural productivity include:

- **Change in temperature:**
  In tropical countries, moderate rise in temperature (1°C) for wheat and maize and 2°C for rice (paddy) can reduce yields significantly because many crops are already at the limit of their heat tolerance.

  For temperature increase above 3°C, yield losses are expected to occur everywhere and be particularly of severe in tropical regions - i.e. Tanzania. Studies show that rise in temperatures 3-4°C may reduce yields by 20 to 40 percent.

- **Precipitation:**
  Agriculture productivity in low-lying areas would be damaged by flooding and increased salinity caused by sea level rise and salt water aquifers. Less precipitation would reduce the availability of water for irrigation from surface and ground water sources in some areas.

  Adapting agricultural systems to climate change is urgent because its impact is already evident and the trends will continue even if emissions of Greenhouse Gas (GHG) emissions are stabilized at current levels. Adaptation can substantially reduce the adverse economic impact. Farmers need to plant different varieties of the same crop, changing planting dates, and adapting practices to a shorter growing season.
8. ENABLING ENVIRONMENT

8.1 BUDGET ALLOCATION

Table 8.1 indicates that even though Government expenditure over the years has increased in monetary terms, in terms of percentages it has actually decreased. For example although Government expenditure in agriculture increased tremendously in monetary terms in percentage it dropped from 15% to 3% during the period examined 1972/73 to 2006/07.

8.1.1 Education

Low levels of education and literacy among smallholder farmers contribute to low production and low quality of agricultural produce. 31% of overall heads of households of smallholders have no education, 49% have some level of primary school education and 20% completed standard four, this is according to Poverty and Human Report 2005. An increased level of education in farmer households will enable them understand and implement training given in agricultural production. Government expenditure in this area is improving in monetary terms as shown in Table 8.1 of Appendix 8A. Government expenditure in education increased from TShs 161 billion to TShs 432 billion from 1999/2000 to 2006/2007. Looking at it on a five year average basis in percentage terms, Government expenditure in education actually has been reducing since 1972 Table 8.2 in Appendix 8A. It reduced from 11% in 1972/73 and 1976/77 to 9% in 2002/03 and 2006/07.

8.1.2 Infrastructure

Improvements in infrastructure are critical particularly in trunk and rural roads, power, communication and water.

Roads

Good road network facilitates access to markets and services. There are lots and lots of food piled up in storage facilities in Rukwa region for example, but due to poor roads which are often not passable during the rainy season and only barely passable during the dry season, the food stuffs mainly, maize, paddy and beans cannot be quickly transferred to markets outside the region with shortages of food.

According to Table 8.1 (Appendix 8A) Government expenditure on roads reached its peak in 2004/2005, since then constructed expenditure on roads has reduced and in percentage terms it has basically remained stable since the 1970’s (Table 8.2 in Appendix 8A).

Power

Other items under infrastructure which are equally critical for supporting agricultural development are power, communications and water. Most households do not have access to electricity; and even most regions do not have sufficient electricity supply. Agro-processing factories in Rukwa are having an acute problem with power supply leading to increase in output costs as they look for alternative power sources. Also Government expenditure in this vital resource of supporting improvement in agriculture is low and no new development has been financed since 2005/2006. This is probably because the Government is encouraging private investors in new sources of power development and distribution.

8.1.3 Communication and Water

Communication network that is adequate and efficiently run is necessary to access markets for inputs and outputs from within and without. Farmers need to be able to know and have access to these markets to enable them improve in output and distribution channels. The Government is doing a lot in this area in terms of opening up the sector to private investors.
Government expenditure in this area in percentage terms reduced from 3% to 0.5% during the period under review (Tables 8.1 and 8.2) shown in Appendix 8A.

Improved water supply will have a remarkable impact on production and health in terms of increased time into productive activities and reduced risks of disease.

In about 67 mainland districts fewer than 50% of rural households have access to clean and safe water supplies (Poverty and Human Report 2005). This lack of adequate water supply affects all farmers, even water availability for grazing and livestock keepers.

8.1.4 Health

A healthy population is a potential valuable resource for economic development especially in agricultural (rural) areas in the country where majority of the population live. The rural population is dispersed and reducing distances to the nearest equipped health care centre or hospital is vital as more of the health care facilities are built in reasonable proximity to the people. As indicated in Tables 8.1 and 8.2 (Appendix 8A). Government expenditure in health provision has been increasing slightly as a percentage of total expenditure of the Government in other sectors. Though the Government may not be adequately covering every remaining obstacle in accessing quality health care all over the country, the commitment and will is visible in what the Government is doing so far. The private sector is also being encouraged by the Government to invest in the health sector.

8.1.5 Commercial Farming

The agriculture sector needs commercialization. This was emphasized also during field surveys. The farmers themselves should be encouraged or trained to think commercially and not only farming for subsistence.

This process is gradual and will require increased levels of public and in particular private investment at all levels of agricultural activities; primary production, marketing, inputs supply and agro-processing. Lending to agriculture by banks and other financial institutions has dramatically reduced following economic liberalization and privatization. However, bigger trading organizations are financing their marketing operations through funds from overseas sources. The agriculture sector is considered too risky and expensive to lend to, especially smallholder farmers. The low profitability levels for farmers and agribusiness do not allow them to earn adequate returns for sustaining their own livelihoods and also reinvesting in the sector or attracts new investment. Also micro-financing institutions are still not fully developed or expanded in the rural areas to satisfy the financial requirements of farmers and agribusiness. Traditional smallholder and livestock farmers mainly require short-term financial instruments (resources) such as credit for inputs supply, savings facilities and money transfer services.

In this regard, out-grower and contract farming schemes are seen as an effective and initial strategy for alleviating lack of formal farm credit among smallholder farmers as well as providing access to extension services, farm inputs and produce markets.

8.1.6 Promoting Micro-Finance Institutions (MFIs)

The need for promoting MFI’s in the rural areas as a means of enhancing economic development and reducing poverty is growing. Smallholder crop farmers and livestock keepers are being encouraged to form and join Savings and Credit Cooperative Societies (SACCCOS) or Savings and Credit Associations (SACAs) or any other informal savings and credit groups. In the initial years as farmers form these groups, it becomes a training base for
saving and borrowing and as they learn to save and borrow from each other they will eventually be able to borrow from the formal bank and be able to payback.

On the basis of the evidence from other countries, it is anticipated that the establishment of viable MFIs will be slow and at times a risky and uncertain process, but it is still worth the effort. According to a business article the Daily News of 29th May, 2009, the National Microfinance Bank (NMB) pledged to increase support to the agriculture sector. The Bank emphasized that currently more than 20% of the bank’s loan and advances portfolio goes to the agriculture sector.

The Government is also advocating the establishment of an Agricultural Bank as well as giving more financial resources to the Tanzania Investment Bank (TIB) to enable increased support to the sector. Already the Bank of Tanzania has floated requests for proposal to carry out feasibility study on the establishment of an agricultural bank in Tanzania.

These banks would finance investments in agriculture and agro-industry including providing emerging medium and large-scale farmers with investment capital for agricultural development. The Government is also exploring the possibility of encouraging non-bank financial institutions to finance agricultural investments.

The establishment of an agricultural Bank is not new as the original Tanzania Rural Development Bank (TRDB) was formed mainly to advance credit to the rural population. This was later changed to Cooperative and Rural Development Bank (CRDB) with the same function of providing credit to cooperatives and farmer organizations before it was further changed to an ordinary commercial bank – the status it now holds.

The country’s goal now is to bring about a “Green Revolution” with the aim of enabling faster growth rate in the agriculture sector, and in doing so must implement major changes to creating an enabling environment.

8.1.7 Agriculture Support Services

One of the major areas for Government focus is the improvement of quality and delivery of supporting services to enhance production and productivity of smallholder and large-scale farmers and livestock keepers. It is believed that the existing low levels of productivity is caused by inappropriate crop and livestock husbandry practices, use of potential varieties and breeds, use of low level technology. Non-replacement of nutrients and poor management of soils and water lead to resource degradation. To address constrains to productivity, the private sector is being allowed to lead in providing some of the supporting services to smallholder farmers. This range of options also covers areas for collaborative arrangements between the private and public sector in the delivery of efficient supporting service.

These collaborations are in the area of agricultural research, extension, regulatory services, promoting of farmer organizations, animal health services and agricultural information services. Other areas are rangeland development, land use planning, irrigation and mechanization.

- Agricultural Research

Privatization of cash crop research and institutionalization of client-oriented research is in progress, covering mainly the major crops. Pluralism in research, involving the Research Departments of the Ministries, the semi-private agricultural research institutes under Crop Boards and the Sokoine University of Agriculture (SUA) as well as Zonal Agricultural Research Centers are accorded priority in demand-driven and result-oriented agricultural research. Participation of the agencies is contributing to gradual privatization of agricultural
research and a revival of the research breakthroughs of 1960’s and 1970’s for both cash and food crops. The process of funding and mechanism for private sector control with Government maintaining a regulatory role is in progress. In this regard most crop boards and stakeholders have agreed on a set of modalities for financing shared functions, e.g. research.

Research funding is shared between Central Government, Local Government Authorities (LGA’s), crop boards and the private sector through the mechanism of Public Private Partnership (PPP).

• **Agricultural Extension Services**

There is need to improve the quality of extension services and to improve its delivery. The LGA’s are responsible for providing extension services in areas where the provision of extension service is still a ‘public good’ operation in consultation with the respective sector ministries.

Contract private enterprises, NGO’s and SUA provide extension services competitively in selected areas where it is commercially feasible for such organizations to do so.

In facilitating privatization of extension services and improving quality delivery, LGA’s will enter into partnership arrangements with out-growers and contact farming schemes for smallholder farmers. Under these arrangements, cost sharing arrangements or transfer of extension staff to the schemes, would be reached and specified. LGAs may agree to transfer or attach extension staff to the schemes free of charge for at least three years, provided the sponsor of the scheme agrees to meet the field expenses (allowances and logistic expenses).

A part from extension, services to support smallholder crop production are at a very low level and this was confirmed during field work. Extension agents are the frontline staff between the Government and the farmer, and they often have a high contact rate as they live in the villages. Extension agents can only teach the improved technologies. These technologies often require other support services or policies for the farmers to adopt them, such as access to affordable fertilizer credits. On this regard inputs and services should be provided to smallholders at affordable rates, subsidies/grants should be given to help smallholders change from subsistence base to profit making economic entities.

European agriculture did not develop without this type of assistance and Tanzania requires the same. European farmers even after being developed are still getting assistance from their governments in protecting farmer profit levels through stabilized market prices of their produce.

• **Large Scale Farms to Smallholders Agriculture**

The popular idea is to have large scale farms or agro-processors linked to smallholders. However, agro-processors in the country are few and can only provide services to a very small portion of the rural population. In addition to this, distance of outreach is limited to some kilometers from the farm or agro-processing factory. The poor rural roads also limit the number of smallholders that can be reached. All these factors suggest that while large scale farms/agro processing factories linked to smallholders are important in providing services in the form of out-growers or contract farming, they are not going to resolve the problems faced by majority of smallholders in the country in the short term. Hence the Government still has the role to continue providing smallholders with such support services.
• **Private Agriculture Sector Support (PASS)**

PASS was established in 2000 in Morogoro as an independent organization. It provides technical assistance and advisory services on a demand basis to private agribusiness enterprises and entrepreneurs in critical areas such as: market information, market development and expansion, entrepreneurial skills development and training and facilitate linkages to finance and policy advocacy. The aim is eventually to have PASS established in every region in the country.
9. LESSONS LEARNT, FROM PAST EXPERIENCE

9.1 IMPACT OF POLICIES, STRATEGIES AND PROGRAMMES ON AGRICULTURAL PERFORMANCE

The following account, unless stated otherwise, is based on data of the National Sample Census of Agriculture and Livestock Industry conducted under the supervision of the National Bureau of Statistics (2003/03). The chapter explores major factors which may explain the poor performance of the sector, and therefore failing to fulfill the potential.

9.1.1 The Agricultural and Livestock Holding Households

The Agricultural Census (2002/03) identified the following types of households undertaking agricultural and livestock production:

- Total households: 4,901,837
- Crop growing: 3,156,060
- Mixed crops/livestock: 1,702,750
- Livestock households/pastoralists: 43,027

The regions with the highest concentration of agriculture and livestock households in Tanzania mainland are found in Laze Zone (Shinyanga, Mwanza and Kagera regions) and the Southern Highlands (Mbeya and Dodoma regions). The highest concentration of agricultural and livestock households per square kilometre are found in Mwanza (17) and Kilimanjaro (16). Shinyanga has the highest number of agricultural households (377,857) followed by Mbeya (372,844), Kagera (353,277), Mwanza (340,085) and Dodoma (323,719). Kilimanjaro, Arusha and Manyara regions are the only regions with more mixed farming households than households either for crop farming or livestock keeping only. Pastoralist households are mainly found in Arusha (16,379).

The analysis of time-series data shows an increase in all agricultural and livestock households over the period 1994 to 2003 by 32.2% (3.4% per annum); households growing crops only grew by 3.2%; mixed farming households increased by 3.3%; livestock households increased by 165%.

9.1.2 Land Use – Smallholder Agricultural and Livestock Production

- **Utilization**

  Area allocated is 11,885,132ha. The national average utilized land per household is 2ha with fallow land or 1.7ha if fallow land is excluded. Land area utilized per household has increased by 186 percent from 1993/94 to 2003 with the biggest increase between 1994 and 1999 (from 0.7ha to 1.7ha).

- **Access to Land**

  Although Tanzania has large land resources and low population densities, there is a problem with land access with 2,201,773 households (45% of all agricultural and livestock farming households) possessing less than 0.5ha, and 25 percent of all households farming for subsistence only. There are large differences in land pressure between regions, with Kilimanjaro having the highest apparently felt land insufficiency of 70 percent, with Lindi/Mtwara with reported land insufficiency at 35 percent.
Moreover the land areas per household, besides being small, are in many cases scattered in small plots leading to uneconomic exploitation due to:

- Difficulties/expenses of mechanization,
- Difficulties to expand or increase productivity given low cash incomes to purchase inputs,
- High risk to investment,
- Low accessibility to formal credit,
- High cost of input/output marketing, resulting into shortages of supply or high prices of inputs;
- and transport/storage costs eroding crop margins,
- Poor bargaining capacity with input/output dealers.

The picture is worsened by low marketability of Land Titles under the Village Land Act (No.3) of 1998. These titles can be purchased by clan/neighbours in case of default on mortgage, but not outsiders. With international Banking System, this semi-feudal system of land-tenure hampers to farmers’ entry into formal credit market.

- **Land Under Annual Crops**

Annual crops occupied 76 percent of area under crops and permanent crops occupied 24 percent of the area in 2002/2003. 7,818,620ha were planted with annual crops (1.61ha/household). Maize is the dominant annual crop with greater land of 4.3 times that under cassava (0.9) followed by beans (0.8) paddy, (0.7) sorghum (0.6), groundnuts (0.5) cotton (0.5), and sweet potatoes (0.3).

Cereals are the main crops grown in Tanzania. In 2002/03 cereals occupied 61 percent of the 4,798,071ha under cultivation, followed by roots and tubers (14%), oil seeds (7%), and cash crops (5.1%). Maize production is higher than any other cereal with a total production of 2,613,470 tonnes which is 74 percent of total cereal production followed by paddy (17%), sorghum (6%), finger millet (1.6%), and others (1%). Also area planted under maize 44% of planted area or 72 percent of area planted under cereals.

The foregoing data shows that households have access to limited sizes of land on which to grow crops for food. This limitation coupled with low level of technology has led to low production and productivity has been on the lower side when compared with other countries with similar sizes of land.

- **Productivity**

The yield for all cereal crops decreased over the period 1987 to 1998; maize yield decreased from 3.8tonnes/ha to 1.5tonnes/ha; paddy yield decreased from 1.7tonnes/ha to 0.9tonnes/ha and sorghum yield decreased from 0.7 tonnes/ha to 0.35 tonness/ha. During the same period, actual production increased or stagnated. On strength of increased land under cultivation, especially in the period 1994 to 1998, maize production increased from 1.1 million tonnes in 1987 to 1.7 million tonnes in 2002/03, i.e. an increase of 143,000 tonnes/annum or 4.7 percent p.a. The sharp decline in maize yield between 1994 (1.2 tonnes/ha to 0.6 tonnes/ha in 1998 can be explained either by sharp decline in use of modern inputs and or husbandry practices.

Cassava is the only root and tuber crop with an increase in planted are since 1986, mainly between 1994 and 1998 (280,000ha in 1986, 800,000ha in 2002/03). Yield decreased from 4.7 tonnes/ha (which is below recommended levels of 20tonnes/ha) to 2.5 tonnes per ha. Other cereals and pulses show same trend of productivity decline.
Livestock Holdings

Tanzania has about 50 million hectares of land suitable for rangeland development of which only 24 million hectares are suitable for livestock grazing, and the bulk of the area is heavily infested by tse-tse flies. The carrying capacity of the rangeland available for grazing is about 20 million livestock units compared to more than 17 million livestock units currently being held.

The majority of livestock products come from the traditional sector. Small improvements in productivity per livestock unit will result in large increases in production. The long term objective would therefore be to bring about changes in traditional procedures, attitudes and practices to a level where it evolves into a modern sub-sector. Special attention could focus on provision of water for livestock, disease control, marketing facilities, and provision of adequate designated grazing areas.

Husbandry Practices

The livestock sub-sector is dominated by four modes of husbandry, namely pastoral, agro-pastoral, ranching and zero-grazing of dairy cattle. Pastoral constitutes about 20% of the livestock keepers and 40% of the livestock. Productivity under both pastoral and agro-pastoral systems is limited by uncontrolled grazing involving long distance movement of animals in search of pasture and water. These factors result in high mortality rates and low productivity. Further, the practice places no responsibility for conserving land, managing the feed resource, and provision and maintenance of amenities such as water points.

Challenges here would include provision of regulatory systems that would control movement and encourage farmers to manage and improve the feed resource and water points, and initiate practices that encourage commercial production.

Another factor that limits productivity under traditional husbandry practices is the fact that the animals are kept for reasons such as prestige and an alternative savings bank, rather than as a commercial enterprise. This factor together with the low production coefficients of the herds explains the low incentive for farmers to invest in improving the quality of the stock and husbandry prices.

The poor condition of marketing infrastructure for livestock products is a factor that discourages the emergence of commercial livestock production. Auction centres for both local and export markets are in poor condition and not organized. As a result of this, collection costs by traders become too high leading to low farm gate prices for farmers. The uncoordinated nature of markets also causes difficulty for traders to meet large shipment orders in time. Other difficulties include lack or shortage of:

- Stock routes,
- Holding grounds at market areas,
- Modern abattoirs and cold rooms, and
- Processing facilities.

The overall result is low demand, lack of competition and low sell prices for the farmers and discouraging the emergence of commercial environment in the industry.

Therefore, livestock is a challenging sub-sector as it constitutes a large amount of wealth that is only minimally linked to the cash economy. Rapid benefits to the economy will be gained at a relatively low cost if this sub-sector can become fully commercialized.
9.1.3 Waste and Losses in the Agriculture Sector

Commercialization is achieved by meeting customers' needs in a competitive way and at a reasonable profit. Increasing competition in the commodity markets and the highly selective needs of customers is rapidly reducing available markets and prices of traditional agricultural commodities. This has lowered profits, leading to low level of investment in agriculture. One way for increasing profitability is to reduce the unit costs of production. Reduction of waste and losses suffered by the sector can contribute appreciably to cutting down the unit costs. This section discusses the potential and possibilities presented by waste utilization and minimization of losses.

- **Waste Utilization**

Increasing the value of production through profitable utilization of 'waste' has two advantages. These are:

- Opportunity to increase profitability of sector through added income from what is currently produced and thrown away,
- Reduction of negative environmental impacts by reducing waste.

The two advantages are also linked to each other because meeting the current international and national regulations for disposal of wastes requires expenditure that may sometimes be as high as the cost of converting the waste into saleable products.

Often a small proportion of the biomass produced by the plant is harvested. A classic example is found in sisal production where only the hard fiber is recovered. The fiber constitutes only 4% of the sisal leaf and even lower proportion of the whole plant. The 'waste' is disposed in rivers or burnt with detrimental effects upon the environment. One approach to waste minimization is through horizontal integration within the sector and vertically with other sectors. Integration within the sector is designed such that waste from one operation becomes raw material for another. Examples include production of energy from bagasse in the sugar industry, using crop residues as animal fodder, and using animal manure as fertilizer. The integration found at the Tanganyika Wattle Company in Njombe is a good example.

9.1.4 Risk and Uncertainty

Agriculture is a high risky undertaking for all stakeholders who are involved, from production to processing and marketing. Risks arise because farmers and other stakeholders have to make critical decisions without full knowledge of key parameters that influence the outcome of their production, processing or marketing activity. Variation in weather and outbreak of pest and diseases are the main causes of risk during the production stage. At the marketing stage farmers face risks related to price fluctuations and unexpected market barriers. Primary producers, processors and marketing agents in turn react in different ways in order to avert or minimize the effect of risks factors.

- **Production risk and uncertainty at production stage**

Spatial and temporal variability of rainfall is perhaps the leading cause of risk and uncertainty in Tanzania agriculture. This section describes the consequences of climatic variability in relation to risk and uncertainty. The most important consequences are:

- Very high losses of crops and livestock reducing farmers' production and productivity;
- Heavy rains damage roads and make access to input and output markets difficult causing unexpected losses to farmers;
- Annual variation in the supply of raw materials to agro-processing industries;
- Risk minimization by farmers who opt to use improved inputs requiring high cash expenditures;
- Most livestock keepers are forced into “nomadism”, in an attempt to search for green pastures and water;
- Low level of investment in agriculture and primary agro-processing.

Losses due to pests and diseases may be classified as endemic or sporadic. The endemic pests and diseases occur every season within the production system. However, farmers often do not know the magnitude of the problem in the coming season. Often, mitigation involves having outlays of funds to acquire agro-chemicals in order to control pests. Thus farmers may be under-prepared, in which case they lose their crops or animals, or they may over-invest in agro-chemicals for that season incurring a high opportunity cost for their meagre financial resources.

Other production risks include directives that come after farmers and marketing agents have already made investment decisions. Examples include compulsory minimum acreage for food or cash crops, restrictions on sale of fresh maize (on-the-cob), and restrictions on cross border trade. It has been shown that such decisions reduce the profit margins for farmers and traders significantly at processing and marketing stages.

All risks and uncertainty that relate to processing and marketing are reflected in terms of fluctuating prices, lower or falling prices. Underlying causes include:

- Fluctuation in international prices;
- Varying prices of inputs;
- Perishable nature of agricultural produce (especially vegetables and fruits);
- Limited shelf life of processed agricultural products;
- Unfair grading for farm produce (reported for tobacco, tea, cotton, coffee);
- Limited potential of consumers to increase expenditure (demand) on food as income rises; and
- Macro-economic policies (exchange rate, interest rate, inflation).

Fluctuating prices in the international market affect all export crops and imported inputs. Such fluctuations have been recorded for all export crops and some imported inputs. The effect has been to reduce the net return for farmers and declining real prices over time.

**Post Harvest Losses**

Post harvest losses range between 25 and 30 percent every year out of the annual average of 7 million tonnes farm through-put mainly for major food crop (cereal and non cereal). The current crop loss of about 2.1 million tonnes imply that the country loses an average of TShs 48.5 billion annually as the value of preventable loss mainly due to pests and poor grain storage. For example, the total value of food and cash crops produced in 1998/1999 season was about TShs 225 billion, whereas TShs 63 billion was the value of preventable loss due to pests, representing 23% of the total aggregate value. During the year under review, high losses were noted in bananas and tomatoes, followed by coffee, maize, paddy and other non-traditional cereals.

**Strategic Grain Reserve (SGR)**

The SGR maintains a Grain Reserve to mitigate food shortages especially due to natural disasters. Currently the SGR has the capacity to stock 150,000 tonnes of maize grain. The Government releases its SGR stocks for relief distribution to the most food insecure people who cannot access grain from the market.
The SGR also functions to stabilize both producer and consumer prices, purchasing from places where the private sector is absent and selling to markets where consumer prices are increasing sharply due to low food supply. The major problem in its operations is the untimely availability of finance for crop purchases and distributions; and related costs.

- **Food Trade**

Food trade plays an important role in food security, for example surplus maize produced in Rukwa cannot easily find domestic markets because of high cost of transportation to urban market centers like Dar es Salaam and Dodoma. Such regions could potentially sell their agricultural produce to the neighbouring countries, i.e. Zambia and the Democratic Republic of Congo for Rukwa produce or Kenya and Uganda for Arusha and Kagera produce. Whenever, there are early warnings for food deficiencies in one country early response should be taken to this supply opportunity (for external market). Due to the liberalized nature of food markets, there is need to increasingly involve traders, producers, transporters and extension staff in order to achieve positive impact in trade and marketing of food crops.

- **Poverty**

Poverty in Tanzania is primarily a rural phenomenon. Poverty is registered to be rampant among rural households, mainly in the arid and semi-arid regions which depend primarily on subsistence crops. There is an important gender dimension in poverty. A World Bank study indicates that average income for female headed households is 45% below the same for male headed households, and that 65% of the female headed households live below the poverty line.

The Tanzania Government places high priority on reduction of poverty and increased food security. Achieving these objectives is closely linked to the agricultural sector performance because majority of the poor people earn most of their income from agriculture, and Tanzania farmers supply most of the food consumed in the country. The trends in poverty and nutrition are important indirect measures of the agricultural sector performance.

The National Poverty Eradication Strategy (NPES) and the PSRP intend to create an environment that promotes new options and avenues, mobilise available resources, facilitate different actors, build the capacity of the poor and empower the civil society to participate effectively in poverty eradication.

9.1.5 **Cross Cutting Issues**

- **HIV/AIDS – Rural/Agricultural Development Issue**

The active age group between 15-59 years constitutes about 70% and is the most vulnerable to HIV/AIDS epidemic. HIV/AIDS is a threat to agriculture and household food-security mainly of the rural families. As adults fall ill and die, families face declining productivity as well as loss of knowledge about indigenous farming methods and loss of assets. In the past 10 year life expectancy in Tanzania has been reduced from 52 years, to about 47 years. It is estimated that expectancy would fall to 42 years in the next ten years if the epidemic is not checked.

Biological and social factors make women and girls more vulnerable to HIV/AIDS than men and boys. Women and girls also face the greatest burden as their traditional responsibilities include caring for the sick. The epidemic has become a major development issue given its retrogressive effect on level of agriculture and rural development attained in the last 40 years.
**Empowerment of Youth in Agribusiness for Self Employment**

The current situation in basic education has to be upgraded to meet the aspirations of youth in the global changing environment. The revised Youth Policy enunciates reforms in basic education to have an impact on health, nutrition and population growth rate of young men and women. The policy recognizes the deliberate need for youth development through quality basic education in agriculture by improvement of primary enrolment rate, reduction of school drop-outs and increase of the enrolment ratio for secondary and tertiary education. The agricultural strategy will thus give priorities to the following specific targets areas:

- To ensure growing access to demand driven vocational education and training in agribusiness;
- To revitalize and improve the entry points to vocational training through basic quality primary and secondary education requirements to the institutions.

9.2 OBSERVATIONS AND FINDINGS:

**Views on Transforming Agriculture**

TISCO carried out field survey involving small sample of crop, livestock farmers, LGA officials and agricultural specialists as well as small scale agro-processors. The following is a summary analysis of their responses. Details of the field data and analysis are given in Appendix 9A.

9.2.1 Source of Financing for Farm Operations

Farmers need funds for farm operations when they plan to farm commercially for profit. Thus, during the interview farmers were asked to reveal their source of finance for farm operations.

Most farmers have no access to funds provided by different institutions due to restrictive regulations which are very difficult for farmers to comply with, particularly by commercial banks. Normally interests charged are too high with short time mode of return; financial institutions fear risks as farming is not so reliable because of it is climate dependent. Most farmers fail to have bank loans because they do not have collaterals demanded by the banks. Other credit institutions such as FINCA, FAIDA, and PRIDE AND SIDA do provide loans but favour business people not farmers. Their mode of pay back is also short for farmers to afford (one to two weeks). Most of them 57% depend on own funds from previous crop sales, livestock and livestock products sales and from off-farm activities such as craft making and petty business. The mentioned financial institutions in this study are farmers’ SACCOS. The only solution to help farmers is to train them on how to establish their SACCOS where they can collect their own resources and hence build capacity to attain loans from banks. Their own SACCOS can provide loans to the members as cash or physical inputs for agricultural production under their own conditions and regulations. Data from the survey reveal that the majority of farmers could not get loans from any credit institution.

9.2.2 Training in Agriculture and Livestock Management

Few farmers (33%) had an opportunity to attend formal and/or informal training as reported during the survey. Training of farmers and livestock keeper builds their management capacity as they are imparted with new management techniques in production. The capacity building will empower farmers and livestock keepers to produce for profit as entrepreneurs. However, the result showed that training has only covered very small portion of the interviewed group members.
Thus more training particularly on the informal part is required to make agriculture transformed, and this may be attained by using farmer training of trainers (TOTs) and farmer field schools or shamba-darasa (FFS). Agriculture transformation will be possible if the targeted people will be trained to handle well the crop and livestock keeping by using new techniques which are simple and profitable.

9.2.3 Farmer’s Opinions on Agriculture and Livestock Development in the Last 10 Years

During the survey farmers were given an opportunity to give their opinions on how they found agriculture and livestock development in the past 10 years.

- Farmer’s Opinions on Agriculture and Livestock Development

The results were from different households interviewed in the selected regions. 30 households (71%) reported that agriculture and livestock development in the last 10 years was good. 2 households (5%), particularly from Morogoro and Mbeya, reported that the development was very good. However, 10 households (24%) in the country reported agriculture and livestock development to be poor.

- Market Factors Opinions on Agriculture and Livestock Development

Some market factors which contributed to the given opinions about agriculture and livestock development in the past 10 years were: predictable market 10 households (24%), unpredictable market 20 households (48%), good products price 9 households (21%), low product price 19 households (45%), market prompt payment 9 households (22%), market information 5 households (12%), delayed payments 2 households (5%), product quality 6 households (14%), market standard awareness 2 households (5%) and market standard unawareness 3 households (7%).

- Extension Services Factors Opinions on Agriculture and Livestock Development

Some extension services factors contributed to the given opinions about agriculture and livestock development in the past 10 years were: available but not helpful 13 households (31%), available and helpful 19 households (45%), unreliable extension service 12 households (29%), facilitation adequate 9 households (21%), and facilitation inadequate 25 households (60%). Most reason given by farmers for extension officers failing to reach them were poor facilitation, example lack of transport and larger working areas more than one village or the whole ward.

- Tools/Equipments Factors Opinions on Agriculture and Livestock Development

Tools/equipments may be one of the factors contributing to agriculture and livestock development; 32 households (80%) of the interviewed households reported that tools/equipments for agriculture and livestock are inadequate and only 8 households (20%) reported that tools/equipments were adequate.

- Other Factors in Agriculture and Livestock Development

More factors which has contributed to the opinions given by farmers about agriculture and livestock development in the past 10 years

The results obtained from the survey showed that other factors had contributed either positively or negatively to the development of agriculture and livestock in the past 10 years, hence the existing situation. Prices for crop produce were inadequate as reported by 32
households (80%). Majority 31 households (74%) reported that inputs were available but not affordable, thus limiting the use of important inputs. Also farmers could not receive adequate credits (31%) or no credit organizations were available (55%). 22 households (52%) reported no water management programs. Farmers and livestock keepers or 25 households (60%) reported to have diseases and pests control services, mostly for livestock development. However livestock keepers complained of high costs for veterinary services.

- **Farmer Priorities for Crop and Livestock Production**

The interviewed farmers had an opportunity to give their priorities which they think can enhance their performance in agriculture and livestock production as shown below.

Majority households scored for market access (60%), adoption of new technologies (52%) and availability of improved credit facilitation (48%) as their three priorities to enhance their performance in agriculture and livestock production. Extension services appeared the fourth and irrigation the fifth. All regions had priority on market access except for Dodoma region. All regions had priority on adopting new technologies and improved credit facilitation. Priority for extension service was set in all regions except for Morogoro and Mbeya may be because already such services are reasonably available. Tractorization was a priority to Dodoma and Singida regions. However, for Morogoro and Kilimanjaro regions, tractorization was not a priority at all possibly due to hilly topography. Irrigation was a priority to some of farmers in Kilimanjaro and Mbeya regions, but in Singida and Dodoma regions this was not a priority most likely due to lack of rivers, lakes or constructed dams which can be used in irrigation schemes.

- **Strategies Set to Accomplish Priorities for Interventions**

The prioritized programs need strategies or approaches to be accomplished, thus farmers were requested to outline approaches/strategies to be involved in interventions.

- **Strengthen extension services:** Establish on job training for extension staff already employed, this will enable them on the new techniques. If possible recruit more staff to increase number of workers who can at least service each village. The extension staff must be facilitated to reach farmers and livestock keepers easily.
- **Dissemination of new technologies:** Farmer Field Schools (FFS) approach may be used to train farmers and disseminate different new technologies in agriculture production.
- **Proper planning:** All agriculture stakeholders should plan to work with committed and willing farmers, otherwise no positive impact will be realized.
- **Politics:** Politics should not be involved in agriculture, especially for fostering personal agenda. Only let the technical people carry out their responsibilities professionally with minimal interference.
- **Development of technologies:** Make use of Agriculture Research Institutes to develop and popularize use of developed and modern technologies among the targeted groups in the community, train extension staff and farmers on better and proper use of inputs (e.g. seeds and fertilizers for crops, and better breeds for livestock), train farmers on the use of tractors, power tillers and ox-plough in agriculture production, and train farmers on agro-processing and livestock products processing to add value.
- **Agriculture and livestock marketing:** Provide reliable and adequate market information to farmers and traders. This can be sustained by establishing marketing network. The Government must set guidelines for producer prices, and if possibly establish price stabilization system to provide predictable and reasonable produce prices. Find opportunities to export agricultural products where earnings are maximized.
- **Inputs, tools/equipments:** Promote stocks at ward or village level for reliable, timely and convenient access of inputs. The corresponding prices should be affordable to farmers. The prices may be made affordable through Government subsidies and use of Input
Voucher System (IVS). Most farmers have suggested that each village should be enabled to at least have one tractor for hiring. Other farmers suggested having tractor purchase credits repayable in installments.

- **Credits for agriculture production:** Create awareness among farmers on the existing credit institutions which can provide soft loans for agricultural production.
- **Rural roads:** Improve rural roads (infrastructure) for easy transportation of inputs to producers, and crop and livestock products to markets.
- **Build capacity:** Build capacity for livestock keepers to improve their skills especially on range management.
- **Artificial Insemination Centers:** Establish AICs close to livestock keepers to increase accessibility and use of the services.

- **Inputs/Services Sustainability**

To accomplish these priorities the farmers need inputs, and thus they were asked again on how reliable inputs and/or services to the targeted farmers or livestock keepers could be sustained.

- For sustainable availability of inputs/services, training of inputs/services providers is very essential, so that proper and timely delivery of inputs/services may be achieved.
- Design inputs and services supply system which will enable farmers in the villages have access at reasonable prices. In this case, the Government may facilitate village stockists or SACCOSs especially to make the prices more affordable to the smallholder farmers or livestock keepers.
- Provide trainings to farmers and livestock keepers on how to use the inputs, covering type, time and rates of used.
- Empower farmers through their SACCOSs to obtain inputs through Voucher System Approach (VSA) or provide loans to SACCOSs or SACAS for procurement of inputs. This good approach/system may avail inputs to them at affordable price.
- Improve infrastructure (rural roads) for easy transportation of inputs and agricultural products. If the transport cost is low and agricultural produce fetches good price more farmers will expand their farm and make use of agricultural inputs.
- Establish processing of crop and livestock products for value addition. Promoting of agro-processing i.e. grain milling, oil seeds crushing, etc.
- Improve monitoring and evaluation of agricultural projects.

9.3 FARMER ORGANISATIONS

During this survey the team members had an opportunity to visit organizations which work on agriculture and/or livestock development. Some of farmer organizations visited were the primary cooperative societies (crops and livestock), SACCOS and associations. During the survey majority, 13 of the organizations (69%) reported were SACCOS, followed by 4 organizations (21%) as primary cooperatives (crops) and 1 organization for the remaining organizations (5%) for primary cooperative (livestock) and association each.

9.3.1 Businesses Performed by Organizations for Farmers’ and Livestock Keepers’ Development

Most of the businesses performed by many organizations (37%) were saving and credit provision, followed by facilitation on agriculture and business as well as cooperative union reported by few (16%) organization for each one.
9.3.2 Different Activities to Accomplish Organization’s Businesses

Credit service is the most carried out activity by most of the 13 organizations (68%) to fulfill the mission of the organization on saving and credit businesses. Followed by saving mobilization as another important activity performed by 9 organizations (47%) and the third important activity is 8 organizations working on market services.

9.3.3 Organization’s contribution to agriculture and livestock development

Most of the organizations have contributed to agriculture and livestock development. The result from the survey has revealed that all 19 organizations (100%) have contributed in one way or another on irrigation program for agriculture development except for Singida region followed by 14 organizations (74%) which have contributed a lot to credit provision. However, Arusha region did not contribute anything for credit provision.

Each organization has its own priority factors for agriculture transformation. The survey team had an opportunity to ask the organization which factors are priority so that they can be used by the policy makers and other agriculture stakeholders in transforming agriculture.

Majority (16) of all the interviewed organizations (84%) reported that the first priority factor is to provide market access except for Rukwa region, followed by 14 organizations (74%) for credit availability except for Arusha and Kilimanjaro regions and 8 organizations (42%) for extension services as priority factors are Morogoro, Meya, Kilimanjaro, Arusha and Dodoma regions. The other factor was the improved technologies which were set as a priority factor for organizations in Mtwara, Lindi and Dodoma regions. Plants and animal disease control was a priority factor for Arusha, Lindi and Dodoma. Water management was an important factor for Rukwa Kilimanjaro, Mtwara and Dodoma regions whilst value adding and quality control was only a priority factor for Dodoma region.
10 ISSUES AND CHALLENGES

This chapter describes the strategic issues, challenges and options to transform the agriculture sector in Tanzania. The analysis is discussed in the following four main areas:

10.1 ISSUES

- Policy framework,
- Institutional framework,
- Producer organizations,
- Standards,
- Markets,
- Micro-financing Agriculture,

10.1.1 Policy Framework

Performance of the agriculture sector is governed by sectoral policies under the Agriculture Sector Line Ministries (ASLMs), together with strategies and programmes implemented under the Ministry of Agriculture, Food Security and Cooperatives. Early policies on socialist path for development advocated collective farming operations and denied people owning land individually. All produce obtained was to be distributed to the people who participated in its production. The state controlled the land resource.

The Agriculture and Livestock Policy was formulated in 1997 with following main objectives:

- Assuring basic food security for the nation and to improving standards of nutrition through increased production output, quality and availability of good commodities;

- Improving standard of living in the rural areas through increased income generation from agricultural and livestock production, processing and marketing.

The sectoral policies, strategies and programmes have changed the framework rather drastically as focus of general policy moved to poverty reduction with the adoption of a sector-wide approach. The policy environment in the country is still in a transition from being a top-to-bottom directive to becoming participatory and market-driven. The evolution and implementation of agricultural policies and programmes in the country are circumscribed by two strategic guide posts, namely National Strategy for Growth and Reduction of Poverty (NSGRP) or MKUKUTA in Kiswahili, and the Agricultural Sector Development Strategy (ASDS). However, the existing policies related to agriculture are not necessarily in alignment with those of MKUKUTA and the ASDS. Most agriculture-related policies have weak or lack implementation frameworks (strategies) and adequate funding. The Rural Development Strategy (RDS) also suffers from weak institutional set up and adequate funding.

There are several basic features consistent in the development of the sectoral policies, such as the role of the Government in taking only supporting and facilitating functions which enhance enabling conditions for the players in the sector. This idea of Government’s limited role has been recognized in every policy.

Another common and consistent feature is the increasing role of the private sector. Recognizing the importance of the market driven development, all policies, except for the 1997 Agricultural Policy, put clear emphasis on harnessing the private sector in the development of the agriculture sector.
In the latest ASDP under the basket fund, the focus is particularly put on empowerment of farmers and farmer groups. This shift is an effort to ensure demand-driven process in the sector development.

10.1.2 Agricultural Institutional Framework

- **The Government**

The Central Government traditionally plays a central and significant role in the development of the agriculture sector. However, the Government has now changed to providing a few core functions that are essential for facilitating the development of market based economy in which the private sector plays the critical role.

- **Commodity Boards**

Commodity Boards operate in both agriculture and livestock. Those in agriculture are known as Crop Boards (CBs) and those for livestock are commodity specific i.e. Meat Board, Dairy Board etc. The role of the commodity boards has been changed to regulatory organizations and custodian of information on commodity prices and markets.

- **Local Government Authorities**

The planning and implementation of public programmes and services have been decentralized from the Central Government Ministries to Local Government Authorities (LGAs).

- **Private Sector Participation in Supporting Service Delivery**

For many years, agricultural supporting services delivery has been traditionally an exclusive responsibility of the public sector. Recently, however, private sector participation emerged following implementation of the ASDS. Experience shows that the private sector has the capacity to participate in the delivery of these services.

  - **Agricultural Research**: Subsequent to the MAFC privatizing research activities, several private sector organizations have been established and operate research stations of major traditional export crops. This move has promoted the emergence of new approach for ensuring responsiveness to stakeholder needs, whereby the Government research stations, universities, and non-Governmental organizations (NGOs) compete for the research contracts. This also allows extension staff to participate in determining research priorities in their respective areas, thereby providing strong linkage between research and extension. The District Agricultural Development Programmes (DADPs) provide ideal modalities for operating LGA funded research.

  - **Agricultural Extension Services**: The role of the non-Government organizations in providing extension services is about 5 percent of total national extension service needs, although their impact tends to be localized in small areas. Most of NGOs have a package approach whereby they provide extension services linked with for example credit and inputs supply. They are operationally flexible and responsive to farmers’ needs and work innovatively. LGAs can outsource the provision of extension services to NGOs. Privatization of extension and mechanisms for cost sharing with beneficiaries has been incorporated in the ASDP. Other approaches include support and training to farmers and farmer groups through farmer field schools (FFS) or shamba-darasa.

  - **Livestock Support Services**: Livestock support services have moved from being controlled free, subsidized and provided by the state to commercial and liberalized to
meet the needs of the livestock keepers. Today private veterinarians deliver the corresponding services. The regulatory framework, however, is outdated and requires to be revised. At the village level, currently livestock and crop extension services are delivered by the same and one village extension officer (VEO). However, this arrangement has created sub-sector bias, depending on area of specialization for the VEO, e.g. more emphasis for crop services when the VEO is an agriculture expert, or livestock services for veterinary specialist. It was suggested that may be training in agro-veterinary be reintroduced for all VEOs. Otherwise separate these functions by employing two respective experts at village level.

10.1.3 Producer Organizations

These are organizations established to enhance bargaining capacity of the producers. The old cooperatives had gone a long way to establishing farmers’ bargaining power through their strong marketing organization and contributed significantly in only developing the farmer but also developing agriculture. Current such organizations include the crop out-grower schemes. Producer organizations can play a critical role in meeting the targets of MKUKUTA and ASDS with respect to household income and food security.

10.2 CHALLENGES

10.2.1 Standards

Tanzania faces many challenges with respect to standards namely:

- Alignment of national with international standards,
- Building capacity for enforcement and development of the culture of observing the standards of main international trading partners in major export products,
- Conformity to WTO agreements on SPS/TBTs based on building capacity for scientific analysis and risk assessment,
- Building capacity on issuance of internationally recognized accreditation certificates,
- Setting up internationally recognized testing laboratories.

The Government should take measures and steps to overcome these constraints.

10.2.2 Markets

In order to improve crop marketing the following measures need to be effected:

- **Promoting Farmers Organization**

  To improve marketing systems we need to promote farmers organizations so that representatives can be able to handle issues regarding input and output marketing often the basis for group marketing and contract farming and out-growers farming schemes.

- **Partnership Between Small Holder Farmers and Agribusiness**

  Collaboration/partnership modality between small holder farmers/producers and through contract firming allows the farmer to have assured markets for their products and the supply for inputs on a Credit basis or through voucher system.

  Contractors benefit from an assured supply of raw materials with improved quality. Such schemes are already in existence in sugar cane, tobacco, sisal, milk (in Mara Region) and may be suitable in other crops and livestock products.
The Government and stakeholders are continuing to collaborate in developing such schemes through working out mechanisms for the required incentives for attracting more private investors, such as tax and labor laws.

10.2.3 Micro-Financing Agriculture

The Savings and Credit Cooperative Societies (SACCOS) and Savings and Credit Associations (SACAS) are micro-finance institutions which play a key role in financing agriculture and trade, particularly the trading of agricultural products. The surveys on the operations of MFIs show that the bulk of lending goes to trading in agricultural products, inputs and consumption goods rather than to agricultural investments because of high interest rates being charged and short periods of repayment. In the long term MFIs need to derive effective mechanism to attracting and mobilizing savings from members and non-members in the rural areas. This will ensure their sustainability and provide relatively cheap source of funds for lending.

10.2.4 Productivity

Agriculture sector productivity is generally very low and uncompetitive with other countries in both food and cash crops. Low productivity in the sector calls for more research, extension services and technology such as mechanization to be accorded priority in budget allocation.

10.2.5 Budget Allocation

Sector budget allocation is still inadequate to create growth. With, for example the 2008.09 budget allocation to ASLMs and LGAs being 3.6% on total government allocation which shows a decline from 2007/08. There is need to increase budget allocation gradually to reach 10%

10.2.6 ASDP Implementation

It has been noted that ASDP implementation at LGAs level has been affected by delays in fund disbursement. ASLMS collaboration with treasury should ensure released funds reach LGAs on time. Also the Government and Development Partners should honour their commitments on approved budgets to ensure initiatives and activities are carried out as planned.
11. CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the study draws up conclusions and recommendations basing on the analyses in the foregoing chapters.

11.1 CONCLUSIONS

The central issue in agricultural growth and development is the necessity to increase production and productivity, employment and income for poor segments of the agricultural population of whom the small and marginal farmers constitute a sizeable portion. To this remark Tanzania has made a lot of effort to sustain agriculture since the country attained independence in 1961.

There has been a long shift of systems in implementing agricultural production yet the performance is low and may continue to deteriorate if corrective strategies are not addressed immediately. Basing on the challenges encountered in the agricultural development endeavours, the country is faced with fundamental decision that it must make for the future of its agriculture, which will essentially determine the long term prospects of its socio-economic transformation. The reality now is that the country must move away from producing what it does not consume, and consuming what it does not produce; and make a substantial investment in the agricultural sector to achieve such transformation. Tanzania must do away with continued subsistence agriculture. Alternative presentations and strategies for revising the present trend can be many; while ideas may be cheap; the fact is that resources are scarce and time is the essence in terms of the pressing need to lift Tanzania out of abject poverty and to take advantage of changing market conditions locally and worldwide. A determination should be made without delay on recommended measures that are crucial for Tanzania to move forward with concrete steps towards the transformation of the agriculture sector into a Green Revolution.

11.2 RECOMMENDATIONS

In the views and opinion of the study team, and in order to address the challenges to improve the performance of agriculture sector the study is recommending the following:

- **The Legal Framework and Policies**
  Although the formulated sectoral legal and policy framework are in line with intended objective to transform agriculture, the Government should strengthen their implementation and allow private sector participation in speeding up changes towards transformation of agriculture in Tanzania.

  Popularizing and widely disseminating various sector policies such as the Agricultural Marketing Policy (2008), National Livestock Policy (2006). Also a policy on crops (Agriculture Crops Policy) which is important should be formulated and followed by dissemination to stakeholders. The Ministry of Agriculture, Food Security and Cooperative should coordinate the lead ministries in laying down strategies to implement policy statements geared towards attaining improved agriculture. In addressing land ownership, the government should establish land registry offices in villages that will have the power to issue land ownership titles to farmers.

- **Producer Organizations**
  The government should encourage formation; development and support producer organizations with a view transform agricultural undertakings along all value chains. Such organizations include producer organizations, Farmers, Association, Cooperative Societies, Farmer groups etc. The government should provide focused training to farmers on importance of producer organizations. Build capacities and skills of cooperative institutions to enhance performance in production; processing and marketing.
- **Improvement of Research and Extension Services**
  The Government in collaboration with the private sector should strengthen research institutions and ensure that information on developments reaches farmers promptly. The extension services should ensure that the research findings are disseminated to farmers and should provide appropriate training and motivations by way of demonstrations. The study recommends that public/private sector partnership to:
  
  i). Invest in research and development, extension services and training. Recruitment of Extension Officers (crops and livestock) should be given high priority. The current level of implementation of this initiative is considered not yet at a required level to reduce the high demand of extension services at farmers’ level.
  
  ii). Provide adequate funding to enable research and extension services function well in providing the required services. This will entail vertical integration.

- **Infrastructure development**
  An enabling environment for agricultural development requires good roads, railway, water and air transport network. Together with transport, other requirements are communication network and power connections and water supply. Also important are health, education and other socio services. The issue of storage facilities is crucial particularly in villages to mitigate the post harvest of produce. The Government should facilitate planning and construction of storage facilities in rural areas.

- **Investment and Finance**
  The Government should raise the budget allocations meant for agricultural development from a meager 6% to 10% of the national budget. The Government should also improve access to credits for farmers investing in agricultural activities by establishing the Agricultural Bank and strengthening micro-finance institutions such as SACCOS. The Tanzania Agricultural Bank will spearhead credit facilities to the investment and projects in order to grow the sector.

  The government through ASDP should appoint DADP Coordinators at LGAs to work under DALDO. In addition the District, Ward and Villages Financial Trusts should be funded to support in monitoring of the implementation.

- **Input Supply and Environmental Protection**
  There should be timely supply of appropriate farm inputs to farmers and ensure the designated input stockists are supported in order to provide the services as required. Farmers should be educated on proper use of inputs. Adoption of Input Voucher System should be strengthened to support farmers increase production:

  The government through AGITF should make available farm machinery and implements such draught ploughs, power tillers and tractors to enhance improvement in cultivation especially in the rural smallholder farmers. Also the Government should review prices for these implements and machinery that is affordable to the farmers at all levels.

- **Irrigation Agriculture**
  a) The Government should establish legal and physical land access to land for establishment of self reliant irrigation development;
  
  b) On administration of water rights the Government should execute intensive educational campaign for easy understanding of water rights;
  
  c) The Government should set favourable taxes and tariffs for irrigation development for growing and profitable agriculture;
d) The government should strengthen close communication with international community either multi- or bio- donors for enhancing the assistance effect from donors.

- **Quality and Standards, Traceability and Metrology**
The Government should see to it that testing laboratories are established that would measure/determine standards of products to meet international requirements. There is need to improve capacity on inspection of products at entry points and check points i.e. customs and immigration officers. The roles of TBS, TPRI should be strengthened and improved. Adherence to international standards should be strengthened i.e. ISO, OIE and WTO. The Government should ensure that the country complies with the requirements of EU on traceability and weight measures to protect farmers.

- **Produce Markets**
Encourage and promote collaboration between smallholder farmer and processor to ensure market outlet. Establish good environment for contract farming/out-grower schemes. Encourage contract farming (out-grower schemes linking smallholders with processors e.g. sugarcane and tea, large farm participation,) through review of policy and regulatory environment (laws relating to trade, labour, environmental, contracts, land laws, and intellectual property). Commercialize production to produce more for food and for sale. There should be a price stabilization mechanism, particularly for crops like tea, cotton and coffee.

Contractual arrangements will provide farmers access to production services, credit and gain knowledge on new technologies.

- **Insurance cover**
Commercialization of peasant farmers brings with it high bankruptcy risks in case of crop failure. The government should explore the feasibility of introducing insurance schemes to cover risks by banks on extending loans to farmers. More research is needed before giving concrete recommendations on the modalities for operating such scheme.

- **Global Climate Change**
The global climate change affecting various parts of the world, Tanzania inclusive, agriculture and specifically food crop production is continuously being negatively impacted. It is recommended that the Government should continue to conduct area specific studies for identification of problems and implementation of appropriate interventions that will lead to sustainable agriculture and food security. This has a direct with resource allocation specifically to the research institutions.
13. Impact of taxes and levies on Agriculture Sector, Ministry of Agriculture and Cooperatives.
16. Livestock Development in Tanzania, Ministry of Livestock Development and Fisheries (Selected Reports).
APPENDIX 1: FIELD QUESTIONNAIRES

STUDY ON TRANSFORMING AGRICULTURE IN TANZANIA

QUESTIONNAIRE: A - FARMERS AND LIVESTOCK KEEPERS

INTRODUCTION:

- TISCO Consultants and Associates Limited has been commissioned by the President’s Office, Planning Commission to carry out a study on how to transform the Tanzania’s Agriculture to a modern state with expanded production capacity, value addition, improved product quality and enhanced returns to the farmers and the country. The study will highlight the role of agriculture, major set-backs to development, factors behind agricultural performance during the period from 1970 to 2007, and its potential.

QUESTIONNAIRE OBJECTIVES:

- Solicit views on causal factors for the current state of agriculture;
- Seek inputs on how to redress various factors hindering progress;
- Seek priority programs and approaches that will make the difference in the agricultural transformation.

All information/data provided will be treated strictly confidential by answering the following few questions.

REQUEST:

- Please contribute to the ideas to transform Tanzania’s agriculture.

INSTRUCTIONS TO INTERVIEWERS:

(1) Use separate sheets of paper where necessary;
(2) Tick (√) whichever response/answer is applicable;
(3) Let the respondent state answers/views freely; do not read to him/her alternative answers to choose.

Date of Interview : _____________________________
Name of Consultant : _____________________________
Mobile Phone : _____________________________
A1:  STAKEHOLDER PROFILE:

I.  Name:______________________________________________________

This questionnaire has seven pages.

II. Occupation:  
   - Crop Farmer   
   - Livestock keeper  
   - Both  

III. Sex  
    - Male  
    - Female  

IV. Age (Years)  

V. Location:  
   - Region:________________________________________
   - District:________________________________________
   - Ward:___________________________________________
   - Village:________________________________________

A2  EDUCATION:

- Not attended formal school

- Primary Education

- Secondary Education

- Vocational Education

- University

- Others

Explain/State:____________________________________________________
Attended Field Training

Yes  No

If yes in above please state:

Name of institution/place:_______________________________________________

Year:________________________________________________________________

Period (Years/Months) received training:___________________________________

If received other training/course please state types of training received, years, duration and place:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

AREAS OF PROFESSIONAL TRAINING:

Please indicate areas of training received in the space provided:

- Crop/husbandry
- Pest and disease control
- Spacing/
- Weed Control
- Timing of Planting
- Pasture Management
- Mechanization
• Input Use and Quantities
• Storage techniques
• Marketing
• Other

• Others Explain/State

A4 CROPS/LIVESTOCK HOLDING (CURRENT) ACRAGE

4.1 Main Crops Cultivated:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Crop</th>
<th>Acres owned</th>
<th>Acres used</th>
<th>Reason for underutilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2 Main Livestock Held:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Type</th>
<th>Number held</th>
<th>Remarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A5 MAJOR CASH CROPS/LIVESTOCK PRODUCTION TRENDS IN LAST 3 YEARS:

Please indicate how farming/livestock keeping occupation has benefited you and your family by providing the following information:
5.1 Main Cash Crops

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Kgs</td>
<td>TShs.</td>
<td>Kgs.</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2 Livestock

<table>
<thead>
<tr>
<th>S/N</th>
<th>Type of Livestock</th>
<th>2008</th>
<th>2007</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number (Unit)</td>
<td>Sales TShs.</td>
<td>Number (Unit)</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART 2: STAKEHOLDER’S VIEWS:

A6 What is your opinion about agriculture and livestock development in the last 10 years?

- Very good
- Good
- Poor
- Don’t know
A7 What factors have caused the type of experience given above (Note: Let the Respondent state the factors)

- Market
  - Predictable
  - Unpredictable
  - Good price
  - Low price
  - Prompt payment
  - Information
  - Delayed Payment
  - Product quality
  - Standards awareness/unawareness

- Extension Services
  - Available/Not helpful
  - Available/Helpful
  - Unreliable
  - Facilitation (e.g. transport)
- **Tools/Equipment**
  - Adequate
  - Inadequate

  If inadequate please state type of tools/equipment needed:

  ____________________________________________________
  ____________________________________________________

- **Pricing**
  - Adequate
  - Inadequate

- **Weather**
  - Good/Reliable
  - Erratic

- **Inputs**
  - Available/Affordable
  - Available/Not-affordable
  - Not available

- **Credit**
  - Available/Adequate
  - Available/Not-adequate
  - Credit Organization
  - Credit Organization is available
  - Not available

- **Water management**
  - Available/in use
  - Not available/Not adequate
A 8.1 What do you think are the three priorities to enhance your performance in agriculture and livestock production (please tick):

- Market Access
- Extension Service improvement
- Tractorization
- Improved Infrastructure
- Irrigation
- Improved Credit facilities
- Good Product Prices
- Adopt improved technology
  - High yield seeds
  - Improved animal breeds
  - Fertilizers, herbicides and insecticides
  - Equipment and tools
  - Skills transfer.
8.2 Please suggest how the three priorities stated above should be implemented:

<table>
<thead>
<tr>
<th>Priority area</th>
<th>How you want it to be implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A9 If you want to improve your performance what types of tools and equipment would you want to use?:

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

THANK YOU FOR YOUR COOPERATION.
## APPENDIX 8A: Central Government Expenditure by Purpose on Selected Items (TShs million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture Affairs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>9,969</td>
<td>11,893</td>
<td>14,910</td>
<td>31,378</td>
<td>42,278</td>
<td>23,154</td>
<td>23,901</td>
<td>49,283</td>
<td>43,008*</td>
</tr>
<tr>
<td>Development</td>
<td>15,026</td>
<td>17,997</td>
<td>15,823</td>
<td>30,333</td>
<td>52,946</td>
<td>12,792</td>
<td>13,389</td>
<td>18,968</td>
<td>21,421</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24,995</td>
<td>29,890</td>
<td>30,733</td>
<td>61,711</td>
<td>65,218</td>
<td>35,946</td>
<td>37,290</td>
<td>68,271</td>
<td>64,429</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>1,429</td>
<td>1,705</td>
<td>2,137</td>
<td>2,339</td>
<td>6,368</td>
<td>8,546</td>
<td>13,011</td>
<td>14,639</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>3,959</td>
<td>0</td>
<td>0</td>
<td>399</td>
<td>3,929</td>
<td>10,099</td>
<td>12,771</td>
<td>8,010</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5,388</td>
<td>1,705</td>
<td>2,137</td>
<td>2,738</td>
<td>10,297</td>
<td>18,635</td>
<td>25,782</td>
<td>22,649</td>
<td></td>
</tr>
<tr>
<td><strong>Road Transport</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>33,761</td>
<td>40,279</td>
<td>50,498</td>
<td>55,274</td>
<td>56,403</td>
<td>56,090</td>
<td>169</td>
<td>204</td>
<td>512</td>
</tr>
<tr>
<td>Development</td>
<td>34,258</td>
<td>34,274</td>
<td>30,143</td>
<td>55,394</td>
<td>100,831</td>
<td>176,516</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>68,019</td>
<td>74,553</td>
<td>80,641</td>
<td>110,668</td>
<td>157,234</td>
<td>233,047</td>
<td>169</td>
<td>204</td>
<td>512</td>
</tr>
<tr>
<td><strong>Water Transport</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Air Transport</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>6,240</td>
<td>7,445</td>
<td>9,334</td>
<td>10,217</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,250</td>
<td>7,445</td>
<td>9,334</td>
<td>10,217</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>3,067</td>
<td>3,659</td>
<td>4,587</td>
<td>5,021</td>
<td>7,084</td>
<td>10,362</td>
<td>7,798</td>
<td>16,147</td>
<td>15,563</td>
</tr>
<tr>
<td>Development</td>
<td>10,235</td>
<td>7,788</td>
<td>6,850</td>
<td>32,568</td>
<td>22,913</td>
<td>2,008</td>
<td>0</td>
<td>662</td>
<td>850</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13,302</td>
<td>11,447</td>
<td>11,437</td>
<td>37,649</td>
<td>29,997</td>
<td>12,370</td>
<td>7,798</td>
<td>16,147</td>
<td>16,413</td>
</tr>
<tr>
<td><strong>Electricity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>1,908</td>
<td>2,277</td>
<td>2,854</td>
<td>3,124</td>
<td>2,621</td>
<td>3,220</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Development</td>
<td>20,192</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22,100</td>
<td>2,277</td>
<td>2,854</td>
<td>3,124</td>
<td>2,621</td>
<td>3,220</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>54,762</td>
<td>66,345</td>
<td>81,924</td>
<td>115,818</td>
<td>148,547</td>
<td>106,819</td>
<td>200,867</td>
<td>198,670</td>
<td>200,274</td>
</tr>
<tr>
<td>Development</td>
<td>8,797</td>
<td>18,051</td>
<td>15,876</td>
<td>32,618</td>
<td>53,104</td>
<td>0</td>
<td>90,691</td>
<td>81,894</td>
<td>173,611</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>63,559</td>
<td>84,396</td>
<td>97,800</td>
<td>148,436</td>
<td>201,651</td>
<td>106,819</td>
<td>291,558</td>
<td>280,564</td>
<td>373,885</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>141,857</td>
<td>168,998</td>
<td>232,026</td>
<td>307,672</td>
<td>147,907</td>
<td>128,962</td>
<td>178,603</td>
<td>296,262</td>
<td>408,709</td>
</tr>
<tr>
<td>Development</td>
<td>18,682</td>
<td>35,829</td>
<td>34,337</td>
<td>101,691</td>
<td>105,407</td>
<td>7,768</td>
<td>74,985</td>
<td>136,021</td>
<td>144,026</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>160,533</td>
<td>204,827</td>
<td>246,405</td>
<td>409,303</td>
<td>253,314</td>
<td>137,730</td>
<td>253,586</td>
<td>432,283</td>
<td>552,735</td>
</tr>
</tbody>
</table>

## APPENDIX 8A (Cont): Government Expenditure by Purpose and as Percentage of Total (TShs million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Agriculture</strong></td>
<td>661</td>
<td>1,184</td>
<td>22,237</td>
<td>7,292</td>
<td>14,847</td>
<td>40,954</td>
<td>111,712</td>
</tr>
<tr>
<td>% of Total</td>
<td>15%</td>
<td>8%</td>
<td>8%</td>
<td>5%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>2 Roads and Bridges</strong></td>
<td>282</td>
<td>658</td>
<td>1,036</td>
<td>4,543</td>
<td>26,822</td>
<td>70,287</td>
<td>100,576</td>
</tr>
<tr>
<td>% of Total</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
<td>5%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>3 Water and Electricity</strong></td>
<td>447</td>
<td>694</td>
<td>787</td>
<td>3,030</td>
<td>5,300</td>
<td>38,075</td>
<td>87,326</td>
</tr>
<tr>
<td>% of Total</td>
<td>10%</td>
<td>5%</td>
<td>3%</td>
<td>2%</td>
<td>1.2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>4 Communication</strong></td>
<td>136</td>
<td>443</td>
<td>665</td>
<td>2,594</td>
<td>15,749</td>
<td>12,713</td>
<td>13,877</td>
</tr>
<tr>
<td>% of Total</td>
<td>5%</td>
<td>3%</td>
<td>2%</td>
<td>1.6%</td>
<td>3.6%</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>5 Health</strong></td>
<td>478</td>
<td>892</td>
<td>1,375</td>
<td>6,658</td>
<td>26,573</td>
<td>74,280</td>
<td>753,747</td>
</tr>
<tr>
<td>% of Total</td>
<td>9%</td>
<td>5%</td>
<td>5%</td>
<td>5.6%</td>
<td>5.8%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>6 Education</strong></td>
<td>720</td>
<td>1,709</td>
<td>2,583</td>
<td>9,930</td>
<td>40,215</td>
<td>124,636</td>
<td>301,252</td>
</tr>
<tr>
<td>% of Total</td>
<td>16%</td>
<td>12%</td>
<td>9%</td>
<td>6%</td>
<td>8%</td>
<td>14%</td>
<td>9%</td>
</tr>
</tbody>
</table>

APPENDIX 9A: FIELD SURVEY DATA ANALYSIS

In this section the study gives the farmers views and opinions on the need to transform agriculture in Tanzania. TISCO carried out field survey involving small sample of crop farmers, livestock keepers, LGA officials and agricultural specialist, and small scale agro-processors. Following is the analysis of their responses.

Methodology

Structured questionnaire were used to collect primary data on agriculture and livestock production. The study objectives were to solicit views on causal factors for the current state of agriculture, seek inputs on how to redress various hindering process and seek priority programs and approaches that will make difference in the agriculture transformation. The study area was Lake, Central, Northern zone, Southern, Southern highland and Eastern zones.

Data was collected by randomized sampling then date were coded, entered, cleaned and analyzed by SSPS computer program soft ware. Using the frequencies, descriptive and cross tabulations.

Results and Discussions

Interviewed Household background

Table 1: Socioeconomic characteristic of respondent (N=42)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>33</td>
<td>79</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Primary education</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td>Secondary education</td>
<td>15</td>
<td>36</td>
</tr>
<tr>
<td>University education</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crop farmer</td>
<td>18</td>
<td>43</td>
</tr>
<tr>
<td>Livestock farmer</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Crop and Livestock farmer</td>
<td>20</td>
<td>48</td>
</tr>
</tbody>
</table>
This study has involved gender aspects even though, it was not gender equality but equity. More male were administered with the questionnaire compared to the number of female. However, all ideas from both gender were involved in agricultural transformation. Most of the respondents interviewed had attended formal education with majority having primary education followed by secondary and university education this ensues the constructive ideas under this study. Most of the respondents do both farming and livestock keeping (48%), followed by crop farmers (43%) and very few livestock keepers (9%) the representative group for occupation was good. The majority of the interviewed respondents (76%) were an economic working group ranging from 30-59 years old. Majority of the interviewed households (84%) had 2-10 members in the household this reflects enough family labor. However the labor power was not enough to accommodate all activities in the field and/or animal management. This was revealed by the number of households (55%) reported to hire labor during the survey (Table 1). This may due to the fact that though some members have reported to be able to work do not do so as they go to school.
Figure 1: Labor hiring for agriculture activities

There are many activities in agriculture production and among those, weeding was reported by majority, 24 households (57%) reported to hire labor followed by harvesting 23 households (55%), cultivation 19 households (45%), spraying 17 households (41%), transport 12 households (29%) and lastly but not least storage 8 households (19%) as revealed above (Fig.1). The region which was leading in hiring labors were Mbeya and Morogoro regions whilst Kilimanjaro region used family labor only since the result showed that in Kilimanjaro region no any farmer reported to hire labor for all agriculture production. This revealed that they have enough labor who works hard to accomplish all planned activities but also this may be attributed by their small household land size and thus, the workload may be low. Hired labor for farming and livestock keeping operations were reported to cost mean payment of Tshs. 1,612,318.00 annually. Minimum labor payment was Tshs. 50,000.00 per households and maximum was Tshs. 15,000,000.00 annually. (one questionnaire outliery)

Main crops and livestock production

Main crops which were found to be grown in the surveyed area were listed as maize, sunflower, beans, paddy, cotton, simsim, horticulture, cassava, wheat, coffee, banana, groundnuts, coconut, cashew nut and sorghum. All the listed crops were considered as cash crops as they are sold for cash earning for the households. Livestock keeping involves chicken, local cattle, dairy cattle, goats and sheep.
Land ownership and area for production

Each interviewed respondent was requested to give the total land owned and land cultivated. The result showed that mean land owned is 14.67 acres, minimum land owned is 0.25 acres and the maximum land owned is 63.00 acres. These results have revealed that some households own very small portion of land therefore has to borrow or rent land to accommodate the desired crops. It was also reported that mean land used for agriculture is 11.50 acres; minimum land used for agriculture is 0.25 and maximum land for agriculture is 61.00 acres.

Source of financing for farm operations

Farmers need funds for farm operations when they plan to grow in commercially for profit. Thus, during the interview farmers were asked to reveal their source of financial for farm operations.

Table 2: Source of fund for farm operations (N=42)

<table>
<thead>
<tr>
<th>Source of fund</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own pocket</td>
<td>24</td>
<td>57</td>
</tr>
<tr>
<td>Own pocket and financial Institutional</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Own pocket and borrowed from friends and relatives</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Financial institutional</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Financial institutional and borrowed from friends and relatives</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Most farmers have no access to funds provided by different credit institutions due to restricted regulations which are very difficult for farmers particularly the Banks. Normally their interest is high with short time mode of return; they also fear risks as farming is not so reliable because of climatic changes. Most farmers fail to have Bank loans because they do not have collateral demanded to have loan. Other credit institutions such as FINCA, FAIDA, PRIDE and SIDA do provide soft loans but favor business people not farmers. Their mode of returns is also so short for farmer to afford (one or two weeks) starting repaying the loan. Most of them (57%) had to get their own fund from previous crop sales, livestock and livestock products sales and from off-farm activities such as craft making and petty businesses. The following group of farmers (19%) reported that they do accumulate their own fund and also ask assistance from friends and relatives to borrow them more money to attain their goals (Table 2). The mentioned financial institutional in this study are the farmers SACCOS. The only solution to help farmer is to train them on how to establish their own SACCOS where they can collect their own resources and hence build capacity to attain loan from Bank example CRDB. Their own SACCOS can provide loan to the members as cash or inputs for agricultural production under their own regulations. The data from survey has revealed that majority farmers who ere interviewed could not get loan from any credit institutions. The other option is to establish Cooperative Bank.
Training in agriculture and livestock management

Few farmers (33%) had an opportunity to attend formal and/or informal training as reported during the survey. All the topics which were trained to farmers and livestock keepers have been indicated with their percentages (Table 3). Training of farmers and livestock keepers builds their management capacity as they are imparted with new management techniques in production. The capacity building will empower farmers and livestock keepers to produce for profit as entrepreneurs. However, the result showed that training has only covered very small portion of the interviewed group members.

Table 3: Formal and/or informal training to farmers/livestock keepers (N=42)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Formal (%)</th>
<th>Informal (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop husbandry</td>
<td>57</td>
<td>31</td>
</tr>
<tr>
<td>Pest and disease control</td>
<td>60</td>
<td>29</td>
</tr>
<tr>
<td>Crop spacing</td>
<td>52</td>
<td>26</td>
</tr>
<tr>
<td>Weed control</td>
<td>50</td>
<td>29</td>
</tr>
<tr>
<td>Planting timing</td>
<td>46</td>
<td>26</td>
</tr>
<tr>
<td>Pasture management</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>Mechanization</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Input use and quantities</td>
<td>38</td>
<td>21</td>
</tr>
<tr>
<td>Storage techniques</td>
<td>36</td>
<td>19</td>
</tr>
<tr>
<td>Marketing</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Farmer Field School Techniques</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Use of Credit</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Animal feeding and housing</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Irrigation technology</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Extension</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

Thus more training particularly on the informal part is required to make agriculture transformed, and this may be attained by using Farmer training of trainers (TOTs) and Farmer field schools (FFS). Agriculture transformation will be simple if the targeted people will be trained to handle well their cropping and livestock keeping by using new techniques which are simple and profitable.
Farmer’s opinion on agriculture and livestock development in the last 10 years

During the survey farmers were given an opportunity to give their opinions on how they found agriculture and livestock development in the past 10 years.

Figure 2: Farmer’s opinions about agriculture and livestock development

Majority, 30 households (71%) reported that agriculture and livestock development in the last 10 years was good the result were from different households interviewed in the selected regions. Followed by 2 households (5%), particularly from Morogoro and Mbeya who reported to be very good. However, few 10 households (24%) in the country reported agriculture and livestock development to be poor.
Figure 3: Market factors contribute to opinions on agriculture and livestock development

Some market factors which contributed to the given opinions about agriculture and livestock development in the past 10 years were (Fig.3): predictable market 10 households (24%), unpredictable market 20 (48%), good products price 9 households (21%), low product price 19 households (45%), market prompt payment 9 households (22%), market information 5 households (12), delayed payments 2 households (5%), product quality 6 households (14), market standard awareness 2 households (5%) and market standard unawareness 3 households (7%).
Figure 4: Extension services factors contributes to opinions on agriculture and livestock development

Some extension services factors contributed to the given opinions about agriculture and livestock development in the past 10 years were (Fig. 4): available but not helpful 13 households (31%), available and helpful 19 households (45%), unreliable extension service 12 households (29%), facilitation adequate 9 households (21%), and facilitation inadequate 25 households (60%). Most reason given by farmers for extension officers failing to reach them were poor facilitation example lack of transport and larger working areas more than one village or the whole ward.

Figure 5: Tools/equipments contributing to agriculture and livestock development

Tools/equipments may be one of the factors contributing to agriculture and livestock development, majority 32 households (80%) of the interviewed households reported that tools/equipments for agriculture and livestock are inadequate and only 8 household (20%) reported that tools/equipments were adequate.
Other factors in agriculture and livestock development

More factors which has contributed to the opinions given by farmers about agriculture and livestock development in the past 10 years

Table 4: More factors contributed to agriculture and livestock development (N=42)

<table>
<thead>
<tr>
<th>More factors</th>
<th>Frequency (f)</th>
<th>Percentages (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate price</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Inadequate price</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available/affordable</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Available/not affordable</td>
<td>31</td>
<td>74</td>
</tr>
<tr>
<td>Not available</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td><strong>Credit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available/adequate</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Available/not adequate</td>
<td>13</td>
<td>31</td>
</tr>
<tr>
<td>Credit organization is available</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Credit organization not available</td>
<td>23</td>
<td>55</td>
</tr>
<tr>
<td><strong>Water management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available</td>
<td>20</td>
<td>48</td>
</tr>
<tr>
<td>Not available</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available/adequate</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Available/not adequate</td>
<td>27</td>
<td>64</td>
</tr>
<tr>
<td>Not available</td>
<td>8</td>
<td>19</td>
</tr>
</tbody>
</table>
The results obtained from the survey showed that some of the factors had contributed positively or negatively to the development of agriculture and livestock in the past 10 years ago, hence the existing situation. Prices for crop produce were inadequate this is a weakness. Majority 31 households (74%) reported that, inputs were available but not affordable thus farmers could not buy any though they were in need. Farmers could not receive loan for credit and other farm operations since no credit organizations were reported to favor farmers 23 households (55%) reported. No water managements 22 households (52%) reported this implied that no priority for irrigation program. Farmers and livestock keepers 25 households (60%) reported to have diseases and pests control services mostly on livestock development (Table 4). However livestock keepers complained of high vterenary services claims.

**Farmer priorities for crop and livestock production**

The interviewed farmers had an opportunity to give their priorities which they think can enhance their performance in agriculture and livestock production as shown in the table below.

**Table 5: Priorities set by farmers to enhance agriculture and livestock production performance (N=42)**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Priorities</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Market access</td>
<td>25</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Adopt new technologies</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td>3.</td>
<td>Improved Credit facilities</td>
<td>20</td>
<td>48</td>
</tr>
<tr>
<td>4.</td>
<td>Extension Service improvement</td>
<td>19</td>
<td>45</td>
</tr>
<tr>
<td>5.</td>
<td>Tractorization</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>6.</td>
<td>Irrigation</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>7.</td>
<td>Plant and animal disease control</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>8.</td>
<td>Good product price</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>9.</td>
<td>Water management</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>
Majority, 25 households (48-60%) scored for market access, adoption of new technologies and availability of improved credit facilitation as their three priorities to enhance their performance in agriculture and livestock production (Table 5). Extension services appeared the fourth and irrigation the fifth one. All regions had priority on market access except for Dodoma region. All regions had priority on adopting new technologies and improved credit facilitation. Priority for extension service was set in all regions except for Morogoro and Mbeya may be they have enough number of them. Tractorization was a priority to Dodoma and Singida regions than other regions. However Morogoro and Kilimanjaro regions tractor was not a priority at all may be this was due to hilly topography or affordability of the tractor is low. Irrigation was a priority to some of farmers in Kilimanjaro and Mbeya regions, even though in Singida and Dodoma regions no one had a priority, this may be due to lack of rivers, lakes or constructed dams which can be used in irrigation.

Medium and Large scale farmers and livestock keepers

During the survey, the team members had an opportunity to asked the respondents who were the organization’s representative on medium and/or large scale farmers and livestock keepers. The aim was to get their information on business performance and technical barriers to trade if any. However no any one of the organization who provided the information this has indicated that no medium or large scale farmers and livestock keepers all of them were small scale farmers and livestock keepers.

Strategies set to accomplish priorities for interventions

The prioritized programs need strategies or approaches to be accomplished, thus farmers were requested to outline approaches/strategies to be involved in interventions as:

- Strengthen extension services: Establish on job training for extension staffs who are already employed this will empower them on the new developed technologies, if possible recruit more staffs to increase number of workers who can at least accommodate each village. This extension staffs need to be facilitated so that will be able to reach farmers and livestock keepers easily.
- Improve vertyenri services
- Dissemination of new technologies: Farmer field Schools (FFS) approach may be used to train farmers and disseminate different new technologies in agriculture production
- Proper planning: All agriculture stakeholders should plan to work with committed and willing farmers unless otherwise no impact will be observed during evaluation
- Be careful-politics should not be involved in agriculture, only let the technical people carry out their responsibilities as planned without interference

<table>
<thead>
<tr>
<th></th>
<th>Improved Infrastructure</th>
<th></th>
<th>Quality control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td>3</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>3</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>Value adding</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
• Technologies development: Make a well use of Agriculture Research Institutes which are in each zone to develop or use the already developed new technologies to meet the targeted groups in the community, train extension staffs and farmers on better use of right inputs (eg seeds and fertilizers for crops and breeds for livestock). Train farmers how to use tractors, power tillers and ox-plough in agriculture production. Train farmers on crop and livestock products processing to add value for quality improvements and good market. Establish and develop irrigation technology and sensitize on agriculture conservation.

• Agriculture and livestock marketing: provide reliable and comprehensive market information to farmers and traders and this can be sustainable by the establishing marketing network. Price setting to be controlled by the government and if possible should think of price stabilization system which will help farmers to sell at reasonable price. Find opportunities to export agriculture products.

• Inputs, tools/equipments: Establish stockiest at ward or village level for reliable and good access of inputs (quality seed and fertilizers for agriculture and high breeds and drugs for animals) to be accessed at the right time, the price should be affordable to farmers however the price may be lowered by the use of government or SACCOS subsidies. If possible use Input Voucher System (IVS). Most farmers have suggested that if possible each village should be borrowed to at least one tractor which will be used hiring per acre. Others suggested to have tractors by credit so that can pay in installment.

• Credit for agriculture production: create awareness to farmers on the existing credit institutions which can provide soft loans for agriculture production.

• Rural roads: Improve rural roads (infrastructure) for easily transportation of agriculture inputs to producers and crop and livestock products to market.

• Build livestock keepers capacity to improve their skills and improve range management to ensure quality control of animal feeds.

• Establish Artificial Insemination centers nearby to increase accessibility to livestock keepers.

• Sensitize people to drink milk to promote milk marketing.

Input/services sustainability

To accomplish the priorities one may need inputs and thus farmers were asked again on how can they make the reliable inputs/services sustainable to the targeted farmers or livestock keepers? For sustainable availability of input/service one should:

• conduct training to input/service providers so that will supply or give service which is the right one and at the right time.

• design input and service supply system which will enable farmers in the village have an access of inputs at reasonable price. Use village stockiest or SACCOS in the villages. The government or SACCOS subsidies will make the price more affordable to the small scale farmers in the village.

• provide trainings to farmers and livestock keepers on how to use the inputs this involves type, time and rates to be used.

• Empower farmers through their SACCOS to obtain inputs through Voucher System Approach (VSA) or SACCOS loans or SACCOS subsidies for easily input procurements. The good approach/system will avail inputs (eg fertilizers and seeds for crops, drugs for livestock) at affordable price.

• improve infrastructure (rural roads) for easily input and agriculture products transportation. If the transport cost is low and agricultural produce fetches good price more farmers will expand their farm and make use of agricultural inputs.

• establish processing of crop and livestock products for value adding through training and equipments so as to add value on crop and livestock products.
• improve monitoring and evaluation on agriculture projects

FARMERS ORGANISATIONS

During this survey the team members had an opportunity to visit organizations which work on agriculture and/or livestock development. Some of farmer organizations visited were the primary Cooperative (crops and livestock), SACCOS and Associations.

![Figure 6: Organizations in the surveyed areas](image)

During the survey majority, 13 of the organizations (69%) reported were SACCOS, followed by 4 organizations (21%) as primary cooperatives (crops) and 1 organization for the remaining organizations (5%) for Primary cooperative (livestock) and Association each.

Businesses performed by organizations for farmers and livestock keepers’ development

Table 6: Organization’s businesses (N=19)

<table>
<thead>
<tr>
<th>Type of business</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving and credit</td>
<td>7</td>
<td>37</td>
</tr>
<tr>
<td>Facilitate agriculture and business</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Cooperative Union</td>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>
Most of the businesses performed by many organizations (37%) were saving and credit provision, followed by facilitation on agriculture and business as well as cooperative union reported by few (16%) organization for each one (Table 6).

**Different activities to accomplish organization’s businesses**

**Table 7: Organization’s activities for agriculture and livestock development (N=19)**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit service</td>
<td>13</td>
<td>68</td>
</tr>
<tr>
<td>Saving (mobilization activity)</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Marketing services</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Production</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Input supply</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Lobbyist</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Credit service is the most carried out activity by most of the 13 organizations (68%) to fulfill the mission of the organization on saving and credit businesses. Followed by saving mobilization as another important activity performed by 9 organizations (47%) and the third important activity is 8 organizations working on market services (Table 7).

**Organization’s contribution to agriculture and livestock development**

Most of the organizations have contributed to agriculture and livestock development. The result from the survey has revealed that all 19 organizations (100%) have contributed in one way or another on irrigation program for agriculture development except for Singida region.
Table 8: Organization’s contribution to agriculture and livestock development (N=19)

<table>
<thead>
<tr>
<th>Contribution to agric development</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation</td>
<td>19</td>
<td>100</td>
</tr>
<tr>
<td>Credit provision</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Market mobilization</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Input provision</td>
<td>7</td>
<td>37</td>
</tr>
<tr>
<td>Storage facilitation</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Price negotiations</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Extension services</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Availability of tractor services</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

followed by 14 organizations (74%) which have contributed a lot to credit provision however Arusha region did not contribute anything for credit provision (Table 8).

Each organization has its own priority factors for agriculture transformation. The survey team had an opportunity to ask the organization which factors are priority so that they can be used by the policy makers and other agriculture stakeholders in transforming agriculture.

Table 9: Priority factors for agriculture transformation (N=19)

<table>
<thead>
<tr>
<th>Priority factors</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market access</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>Credit availability</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Extension services</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Improved technologies</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Plant and livestock disease control</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Water management</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Value adding</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Quality control</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
Majority (16) of all the interviewed organizations (84%) reported that the first priority factor is to provide market access except for Rukwa region, followed by 14 organizations (74%) for credit availability except for Arusha and Kilimanjaro regions and 8 organizations (42%) for extension services as priority factors are Morogoro, Mbeya, Kilimanjaro, Arusha and Dodoma regions. The other factor was the improved technologies which were set as a priority factor for organizations in Mtwara, Lindi and Dodoma regions. Plants and animal disease control was a priority factor for Arusha, Lindi and Dodoma, Water management was an important factor for Rukwa Kilimanjaro, Mtwara and Dodoma regions whilst value adding and quality control was only a priority factor for Dodoma region.

Strategies in organization set priorities for agriculture transformation

- Mobilize farmers to establish SACCOS for saving and credit these will enable them improve in loan provisions also for easily input supply.
- Plants and animal disease control: Provision of insecticides, pesticides and animal drugs in an affordable price will make difference in agriculture.
- Market access: emphasis should be on agro-processing for value adding. Establish farmer cooperatives for marketing improvement if possible join associations like MVIWATA.
- Quality control: train farmers on quality control techniques so that will constantly provide quality products.
- Establish irrigation scheme where possible; construct dams which can be used for irrigation and in other places for animal use.
- Establish voucher system on input supply and crop produce storage for better price. One of the suggestions was to have a short term plan of buying farmers produce (SGR) early during harvesting to avoid farmers selling to middlemen who buy at very low price. However, farmers are forced to sell their produce at that take away price as they are in need of that money. The other one is a long term plan: when the SACCOS has matured and financial worthy it may be in position of giving loan to its members to fulfill their needs while they wait for the right time to sell their produce at high price. These two suggestions will kick out the middlemen and traders who plan to

9.2.1 Source of Financing for Farm Operations

Farmers need funds for farm operations when they plan to farm commercially for profit. Thus, during the interview farmers were asked to reveal their source of finances for farm operations.

Most farmers have no access to funds provided by different institutions due to restrictive regulations which are very difficult for farmers to comply with, particularly by the Banks. Normally the interest is high with short time mode of return; they also fear risks as farming is not so reliable because of climatic changes. Most farmers fail to have bank loans because they do not have collateral demanded by the banks. Other credit institutions such as FINCA, FAIDA, PRIDE and SIDA do provide soft loans but favor business people, not farmers. Their modes of pay back is also so short for farmers to afford (one or two weeks) starting repaying the loan. Most of them (57%) depend on own funds from previous crop sales, livestock and livestock products sales and from off-farm activities such as craft making and petty businesses. The mentioned financial institutions in this study are the farmers’ SACCOS. The only solution to help farmer is to train them on how to establish their own SACCOS where they can collect their own resources and hence build capacity to attain loan from Bank. Their own SACCOS can provide loan to the members as cash or inputs for agricultural production under their own conditions and regulations. The data from survey has revealed that majority of farmers could not get loan from any credit institutions.