TANZANIA INDUSTRIAL RESEARCH AND DEVELOPMENT ORGANIZATION

OVERVIEW OF RESEARCH AND DEVELOPMENT ACTIVITIES AND TECHNICAL ADVISORY SERVICES FOR THE PERIOD 2014/15

THE 18TH COMSATS COORDINATING COUNCIL MEETING IN COLOMBO, SRI LANKA
12TH-13TH MAY, 2015

Prof. M.M.A. Mtambo
DIRECTOR GENERAL
CONTENTS

- BRIEF INTRODUCTION OF TIRDO
- VISION, MISSION AND CORE FUNCTIONS
- STRUCTURE, STAFF PROFILE AND ANNUAL BUDGET
- TECHNICAL CAPACITY AT TIRDO
- CAPACITY BUILDING
- INTERNATIONAL COLLABORATIONS
- ONGOING RESEARCH AND TECHNICAL SERVICES
- CHALLENGES
- STRATEGIES TO OVERCOME CHALLENGES
- FUTURE OUTLOOK/CONCLUSION
INTRODUCTION

- The Tanzania Industrial Research and Development Organization (TIRDO) is a multi-disciplinary research and development organization established by an Act of Parliament No. 5 of 1979 and it became operational on 1st April, 1979.

- TIRDO is a semi autonomous organization under the Ministry of Industry and Trade.
VISION

High Quality, Environmentally friendly and Demand Driven Research Institution with Outputs Resulting to Competitive Industry.
MISSION

To conduct **research, development** and **technical services** on industrial **processes** and **products**, while utilizing local materials in partnership with Industries
CORE FUNCTIONS

• To carry out research in various aspects of local and foreign industrial techniques and technologies and evaluate their suitability for adaptation and alternative use in local industrial production.

• To provide to the firms engaged in industrial production advisory technical services so as to improve performance and to avert or minimize the sources of industrial pollution.
ORGANIZATION STRUCTURE

COUNCIL

DIRECTOR GENERAL

INTERNAL AUDITOR

Corporate Service & Planning Division (Head)

PMU

DEPARTMENTS (5)(Directors)
DIR/DED/DICT/DAP/FINANCE

DIVISIONS (12) (Heads) and SECTIONS (4)
CORE DEPARTMENTS

• Industrial Research (Director)
  ▶ Food & biotechnology division (Head)
  ▶ Industrial Chemistry and Agro-processing division (Head)
  ▶ Environment and Occupational Safety division (Head)

• Engineering Development (Director)
  ▶ Materials Science and Technology division (Head)
  ▶ Textile and Leather division (Head)
  ▶ Energy division (Head)

• Information, Communication Technologies and Technology Transfer (Director)
  ▶ ICT division (Head)
  ▶ Instrumentation division (Head)
  ▶ Technology Transfer division (Head)
TIRDO has 76 workers including 28 Researchers (scientists, engineers), 17 technicians and the rest consist of administrative personnel.

*PhD 8 (4 Studies); MSc 26 (3 Studies)*
## Annual Budget 2014/2015

(1 USD = 1700 TShs)

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Amount in TShs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td>2,337,825,000</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>778,000,000</td>
</tr>
<tr>
<td>Salaries</td>
<td>1,803,299,000</td>
</tr>
<tr>
<td>Other Income</td>
<td>1,000,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,919,124,000</strong></td>
</tr>
</tbody>
</table>
TECHNICAL CAPACITY AT TIRDO LABORATORIES

- Food and Microbiology Laboratory.
- Environment and Occupational Safety Laboratory.
- Agro Technology and Industrial Chemistry Laboratory.
- Materials Testing Laboratory/Non-destructive testing Laboratory (NDT).
CAPACITY BUILDING

Human Resource:

• **New employment**: 26 (19 Researchers, 7 Technicians)
• **Postgraduate training**: 4 PhD, 3 MSc
• **Seminars/Short courses**:
  – COMSATS (3 Internet security TZ, Pakistan ICT, 1 Nigeria Maths modelling)
  – 6 Trained in India (2 Coal, 3 Food, 1 Environment)
  – SIDA- 3 **Sweden** (Chemical, Energy, ICT)
  – **South Africa**: 1 (Food)
  – Nairobi –1 Human Resource
  – **China**: 1 Environment
  – In-house training on laboratory facilities
EQUIPMENT

EQUIPMENT PROCUREMENT:

• Energy Laboratory- Coal testing (COSTECH)
• Food testing-(COSTECH, UNIDO, COMSATS)
• Leather Waste Recycling (COSTECH)
• ICT (Internal sources)
• Environment Laboratory (COSTECH)
TRAINING ON LAB EQUIPMENT USE
FACILITIES

COMPUTER LAB: The main focus of the facility is training on cyber security and digital forensics.
FACILITIES

LEATHER WASTE RECYCLING UNIT INSTALLATION
INTERNATIONAL COLLABORATIONS

• TIRDO-COMSATS
• TIRDO-UIRI
• TIRDO-KIRDI
• TIRDO and CSIR India
• UNIDO
• UNDP
• WAITRO
• EAC-INDUSTRIAL RESEARCH
ON GOING RESEARCH

- Utilization of edible oil waste to produce value added products: Bio-refinery Perspective

- Production of bio chemicals and bio fuels (such as glycerol, ethanol and bio methane) from biomass.

- Quality improvement of locally produced reinforcing steel bars

- Value addition on the leather solid waste to Produce Leather Boards
SUBMITTED PROJECT PROPOSALS

• Market Value Chains Relating to Horticultural Products for Responsible Tourism Market Access-UNIDO (1 Mil USD)

• Developing and Introducing Criteria for Risk-Based Inspection Enforcement (MIT 800,000USD)

• Capacity Building to Support SMEs on Packaging (MIT)

• Promotion of Local Content for the Oil and Gas Industry through Capacity Building of the NDT Laboratory at TIRDO-4.5Mil (MIT-JICA-WB)
TIRDO staff undertaking NDT inspection of welded joints on a 35-km gas pipeline from Msimbati to Mtwara.
PRIORITY AREAS OF RESEARCH

• Agro processing Technologies
• Renewable energies
• Gas and Petrochemical Technologies
• Textile and leather Technologies
• Coal, Iron and Steel Technologies
• Natural and Medicinal products
• Biotechnologies
PRIORİTY AREAS OF RESEARCH- Cont.

• Environment/Pollution Prevention and Control Technologies

• Information and Communication technologies (ICT),
CHALLENGES TO TIRDO

- Availability of Funds (Research Funds):
  - Research, infrastructure, training
- Accreditation of Laboratories and availability of specialized equipment
- Absence of strong private sector that appreciates R&D contribution and willingness to adopt local innovations - use foreign technologies/services
- Generation of Marketable IPs, Commercialization
- Competition in R&D business
STRATEGIES TO OVERCOME CHALLENGES

• TIRDO has prepared Land Use Plan, Business Plan and feasibility Study for investment on the available land (22 Hectares).

• Utilization of meager consultancy income for skills development and enhancement of marketing activities.

• Competitive bidding through joint proposal write-ups to Government and other donors.

• Accreditation of laboratories to acquire international recognition.
• Strengthening of collaboration with other R&D and Academia locally and Internationally to compliment each other.
FUTURE OUTLOOK

- Establishment of Energy laboratory
- Strengthening of the Leather and Textile Division with fully fledged laboratory
- Establishing a fully fledged metallurgy Laboratory
- Maximizing utilization of the available land at TIRDO through joint venture with private sector for income generation to support research activities
- Establishing and strengthen the R&D, Academia and Industry Linkage to explore possible areas of collaboration
INTRODUCTION

ABOUT TANZANIA

- Tanzania is located in East Africa and includes the islands of Mafia, Pemba and Zanzibar
- **Size:** 945,000 sq. km
- **Population:** 43.7 M (UN, 2009)
- The Highest Mountain in Africa (Mt. Kilimanjaro)
- Serengeti NP
- Ngorongoro Crater
THANK YOU FOR LISTENING