

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**

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DIRECTOR GENERAL**

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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**.

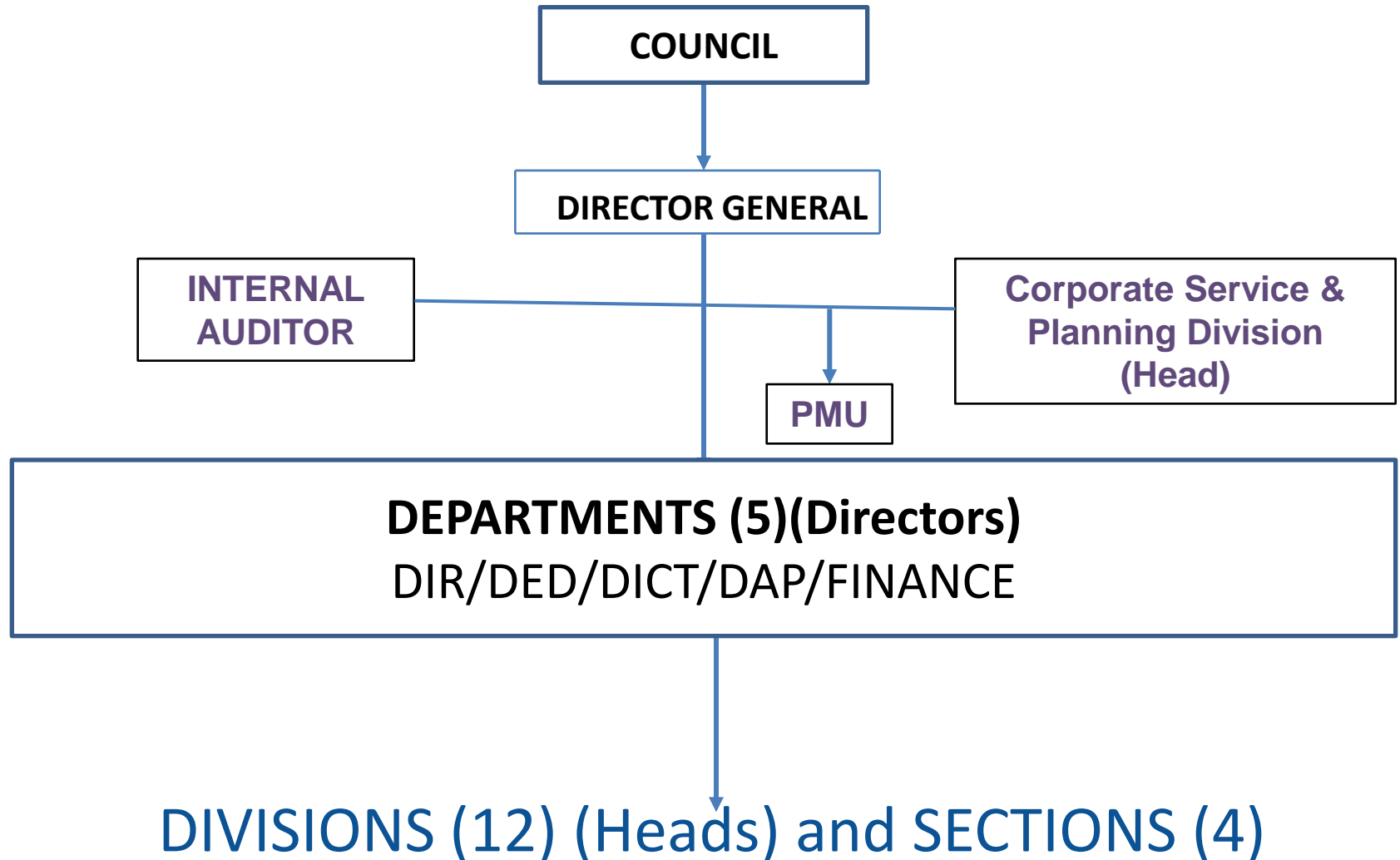
MISSION

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



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)

STAFF PROFILE

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)

CATEGORIES	FEMALE	MALE	TOTAL
RESEARCHERS	10	18	28
TECHNICIANS	6	11	17
ADMINISTRATION AND FINANCE	8	23	31
TOTAL	24	52	76

ANNUAL BUDGET 2014/2015
(1USD =1700TShs)

BUDGET ITEM	AMOUNT IN TSHS
DEVELOPMENT	2,337,825,000
OPERATING COST	778,000,000
SALARIES	1,803,299,000
OTHER INCOME	1,000,000,000
TOTAL	5,919,124,000

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, 3MSc
- ***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

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

PRIORITY 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 (22Hectares).
- 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

STRATEGIES TO OVERCOME CHALLENGES- Cont.

- 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**





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|---------------------------|-------------------|-----------------------|------------------------------------|
| 1. Netherlands | 10. Austria | 20. Ghana | 29. Liechtenstein |
| 2. Belgium | 11. Hungary | 21. Togo | 30. Montenegro |
| 3. Luxembourg | 12. Serbia | 22. Benin | 31. Kosovo |
| 4. Switzerland | 13. Moldova | 23. Cameroon | 32. Palestinian Territories |
| 5. Slovenia | 14. Macedonia | 24. Equatorial Guinea | 33. St. Vincent and the Grenadines |
| 6. Croatia | 15. Albania | 25. Rwanda | |
| 7. Bosnia and Herzegovina | 16. Cyprus | 26. Cambodia | |
| 8. Czech Republic | 17. Lebanon | 27. Panama | |
| 9. Slovakia | 18. Guinea-Bissau | 28. Malawi | |
| | 19. Guinea | | |

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