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ACRONYMS

ARCEDEM	African Regional Centre for Engineering Design and Manufacturing
ARIPO	African Regional Industrial Property Organization
BRELA	Business Registrations and Licensing Agency
CARMATECH	Centre for Agricultural Mechanization and Rural Technology
CMRDI	Centre for Metallurgical Research and Development Institute
COMSATS	Commission on Science and Technology for Sustainable Development in the South
COSTECH	Commission for Science and Technology
CPCT	Cleaner Production Centre of Tanzania
CTI	Confederation of Tanzania Industries
DAF	Department of Administration and Finance
DED	Department of Engineering Development
DIR	Department of Industrial Research
DRC	Departmental Research Committee
EAC	East African Community
EAIRO	East African Industrial Research Organization
EEC	European Economic Community
EU	European Union
GDP	Gross Domestic Product
HFO	Heavy Fuel Oil
IAEA	International Atomic Energy Agency
IDRC	International Development Research Centre of Canada
ICT	Information and Communication Technologies
JICA	Japanese International Cooperation Agency
LISO	Local Industrial Support Organizations
M&E	Monitoring and Evaluation
NDT	Non destructive testing
NORAD	Norwegian International Development Agency
POC	Parliamentary Parastatal Organization Committee
R & D	Research and Development
RTO	Research and Technology Organizations
SADC	Southern Africa Development Community
SIDO	Small Industries Development Organization
SIDP	Sustainable Industrial Development Policy

SME	Small and Medium Enterprises
SWOT	Strength Weaknesses Opportunities and Threats
TANESCO	Tanzania Electric Supply Company Ltd
TBS	Tanzania Bureau of Standards
TCCIA	Tanzania Chamber of Commerce, Industries and Agriculture
TEMDO	Tanzania Engineering and Manufacturing Design Organization
TIRDO	Tanzania Industrial Research and Development Organization
TISCO	Tanzania Industrial Studies and Consulting Organisation
TPC	Technical Programmes Committee
TPRI	Tropical Pesticides Research Institute
TWAS	Third World Academy of Sciences
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
URT	United Republic of Tanzania
US\$	United States Dollar
VIBINDO	Jumuiya ya Vikundi vya wenye Viwanda na Biashara ndogo ndogo
WAITRO	World Association of Industrial and Technological Research Organizations
WIPO	World Intellectual Property Organization

EXECUTIVE SUMMARY

0.1 INTRODUCTION

Tanzania Industrial Research and Development Organization (TIRDO) is a multidisciplinary research and development organisation established in 1979 to facilitate industrial development in the context of a command economy. This document presents TIRDO's vision, mission, values, objectives and strategies for transformation to a sustainable R&D institution in the evolving social-economic environment over the 2004/5-2008/9 period. Realising the importance of competitiveness in becoming sustainable, the theme of the transformation programme will be "Building Excellence for Sustainability"

0.2 SITUATIONAL ANALYSIS OF TIRDO

A number of developments and issues outside the organisation have a bearing on TIRDO because they either represent opportunities which TIRDO can gainfully exploit or challenges which the organisation must find ways of dealing with for it to be sustainable. Also, TIRDO has a number of strengths, which it should build on, as well as weaknesses, which, must be addressed if the organisation has to be vibrant and sustainable. These are summarized below:

Strengths

- A management team which is hard working and committed to development of the organisation
- Availability of some specialised equipment in food, biotech, energy and environment technology, wood processing, agrotechology and industrial chemistry
- Considerable number of skilled research staff
- Extensive links with many international bodies
- The large land area for expansion and third party investment
- Substantial experience in R&D

Weaknesses

- The mix of activities and services was determined without regard to effective demand and potential for TIRDO to develop excellence in the area.
- Heavy reliance on non-core income for operational activities and donor funding for development activities
- The existing legal framework, both in terms of TIRDO Act No. 5 of 1979 and operating regulations which govern relations with government, are outdated and too restrictive, having been prepared during the days of command economy

- Planning and marketing functions are not given the profile and resources they deserve to enable the organisation function effectively and efficiently
- TIRDO's technical infrastructure is limited in amount and quality; some critical facilities are not in place and none of the laboratories are accredited
- TIRDO lacks systematic and professional marketing systems and practices, partly because of lack of sufficient expertise and experience
- TIRDO's networks have been based on donations, rather than reciprocal/partnership relations
- The ratio of research to non research staff is unfavourable*
- Non-core activities (health services, estate, housing) are not efficiently managed
- Incomplete fibre, leather, textiles, pneumatics, hydraulic, mechanical labs and other structures
- Inadequate maintenance, calibration and replacement of equipment
- Poor remuneration and hence motivation of employees
- Inadequate linkages between TIRDO and the industry
- Shortage of skills in certain technical areas: physical, organic, chemistry
- Absence of appropriate policies and guidelines for personnel and R&D
- Limited level of entrepreneurship and business acumen among staff

Opportunities

- Ongoing reforms in government, in the form of national and sector policies, strategies and programmes present many opportunities for TIRDO to be part of the implementation
- The industrial sector needs substantial R&D interventions to enable it respond to the good macro-economic environment. However, this potential must be awaked to be effective demand
- The booming mining sector presents substantial R&D opportunities, not only for mining activities, but for sectors which are supposed to support mining as well
- There are many unexploited opportunities in industry for improving product range, quality, cost of energy, etc
- Liberalisation and globalisation present challenges to industries to enhance competitiveness, whose solution is partly R&D
- Regionalisation and globalisation present opportunities for TIRDO to partner with other regional and international R&D institutions in capacity building, bidding, etc
- Supportive national scientific research policy

Threats:

- Competition in the R&D business is intense and increasing, both from local and international institutions.
- Inadequate and unreliable funding from government
- Limited enforcement of food processing, industrial safety and intellectual property regulations
- Local industries do not appreciate R&D

* Best practice study (WAITRO, 1998) the recommended ratio of researchers to administrators is 2:1

- Move towards government competitive bidding exposes TIRDO to the challenge of having to compete with the best
- Many government policies are not being systematically implemented

0.3 VISION, MISSION AND STRATEGIC OBJECTIVES

From the foregoing analysis, TIRDO's vision, mission, values and strategic objectives are as follows.

Vision:

TIRDO's vision is to become a centre of excellence for conducting quality R&D and providing technological support to create internationally competitive industrial sector.

Mission:

TIRDO's mission is to promote industrial development through demand driven research and development and provide quality technical services to public and private sector in an environmentally friendly manner.

Values:

In pursuit of its mission, TIRDO will be guided by the following values:

- Productivity, innovation and entrepreneurship
- Quality and best practice
- Customer service
- Professional and ethical standards
- Responsibility to society

Strategic Objectives:

It is planned that the TIRDO vision will be achieved through the following set of strategic objectives: -

1. Improve Legal Framework, Organisation and Management
2. Consolidate and Improve Technical Infrastructure
3. Improve Marketing of TIRDO and its Products
4. Improve Quantity and Quality of R&D Outputs
5. Improve Quality and Value of Consultancy and Technical Services
6. Improve Human Resources Capacity and Management
7. Increase Number and Productivity of National and International Linkages
8. Improve Gender Balance and Mainstreaming
9. Improve Environmental Management
10. Improve Occupational Health Services
11. Improve Estates Infrastructure and Management
12. Improve Financial Management and Sustainability

0.4 STRATEGIES AND ACTIONS TO BE TAKEN TO REALISE EACH OBJECTIVE

The list of strategies and actions to be taken to realize each Strategic Objective is shown in Section 5 of this report.

0.5. MONITORING AND EVALUATION

The Director General will have the overall responsibility for monitoring and evaluation of TIRDO Corporate Strategy and will ensure that a participatory approach is emphasized. Monitoring will be mainly through semi-annual and annual progress reports on achievements, reasons for deviation, remedy for under-achievement for each strategic objective, strategy and actions. These will be discussed at the level of department, TPC and Council level. The annual progress reports will also be the basis for rolling over the Corporate Strategy.

Evaluation

Evaluation will be done at two levels:

- Internal evaluation, using internal evaluators appointed by management every two years
- External evaluation, done by external evaluators in collaboration with internal evaluators, every five years

0.6. BUDGET

The indicative budget for the five-year plan is Tshs 4,307,000,000/=. The detailed budget is shown in Section 6 of the report.

1. INTRODUCTION

1.1 PREAMBLE

Tanzania Industrial Research and Development Organization (TIRDO) is a multidisciplinary research and development parastatal organisation established in 1979 following the break up of the East African Community and the subsequent demise of the East African Industrial Research Organization (EAIRO). TIRDO was established during a period when its role was clearly defined within the framework of government managed industrial development process.

Over the years, the organisation has made significant achievements in terms of research, service to industry and development of industrial technologies. It has also established networks with a number of international, regional and local institutions. Although its services are still very much needed, the change of the role of government away from direct implementation and management of economic activities means that TIRDO's business and therefore its sustainability is no longer automatically assured. The organisation has to reposition itself in the evolving social-economic setting so that it can continue to contribute to industrial development in a sustainable way.

This Corporate Strategy is a statement by TIRDO of its vision, mission, values, objectives and strategies for transformation to a sustainable R&D institution in the evolving social-economic environment over the 2004/5-2008/9 period. The plan was developed through a participatory process, whereby both internal and external stakeholders were involved. It is realised that in order to survive and have a considerable contribution to the National Development Vision 2025, TIRDO must build "competitive capacity". The theme of the transformation programme will therefore be "Building Excellence for Sustainability"

1.2 TIRDO's Mandate

TIRDO's mandate is to provide technical advice to industry and the government, to promote the manufacture of industrial goods, to carry out technological research and provide services for facilitating the exploitation of natural resources by local industries.

More specifically, TIRDO is charged with the following functions as spelt out in Section 4 of Act no. 5 of 1979: -

- (a) to carry out, and promote the carrying out of applied research designed to facilitate the evaluation, development and use of local materials in industrial processes;
- (b) 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;
- (c) to promote; or provide facilities for the training of local personnel for carrying out scientific and industrial research;

- (d) To monitor and co-ordinate applied industrial research carried out within Tanzania, or elsewhere on behalf of or for the benefit of the Government of Tanzania, and to evaluate the findings of that research;
- (e) To establish a system for the registration of and to register, the findings of applied industrial research carried out within Tanzania, and to promote the practical application of those findings in industrial production;
- (f) To establish and operate a system of documentation and dissemination of information on any aspect of applied research carried out by or on behalf of the Organization;
- (g) To provide to the Government, and to firms or organizations engaged in industrial production, technical and advisory services, and advice and guidance on technical matters necessary for the furtherance of, or relating to industrial activity;
- (h) To advise the Government and firms or organizations engaged in industrial production, on the adaptation of technology in industrial production;
- (i) To provide to the Government, and to firms or organizations engaged in industrial production, advice and assistance relating to the provision of technical facilities in industrial enterprises, and the establishment of systems for the control and regulation of industrial processes, so as to improve performance and to avert or minimize the sources of industrial pollution;
- (j) To do anything which may be necessary to uphold and support the credit of the organization, to obtain and justify public confidence, to avert or minimize any loss to the organization and to facilitate the proper and efficient performance of its functions;

1.3 Layout of the Corporate Strategy

This document is organised in six chapters. Chapter one provides background and the rationale for the Corporate Strategy. Chapter two analyses the internal and external situation of TIRDO, raising strategic issues and culminating into a synthesis of Strengths, Weaknesses, Opportunities and Threats (SWOT). The vision, mission, values and strategic objectives to be sought by TIRDO are stated in Chapter three. Chapter four presents the strategies and interventions to be implemented during the planning horizon. Chapter five presents the monitoring and evaluation system. The operational plan and budget for the execution of the plan are presented in Chapter six.

2. SITUATIONAL ANALYSIS (ENVIRONMENTAL SCAN)

2.1 TIRDO'S EXTERNAL ENVIRONMENT

2.1.1 An Overview of the Economy

Tanzania has been experiencing a modest but steady economic growth in real terms, averaging about 5% over the past five years. This growth was realized mainly as a result of an enhanced attractive investment climate in mining and industrial sub sectors. The contribution of the industrial sector to the GDP have been below 20%, while crops, livestock, forestry and hunting contribute 46%. The economy is still heavily dependent on agriculture, which provides 85 percent of exports and employs 80 percent of the total work force. Over 50% of the population lives well below the poverty line and unemployment is estimated at 13% (World fact book, 2003).

Since the mid 1990s, the government embarked on a concerted macro-economic stabilization programme that has resulted into marked improvements in inflation, balance of payments, foreign exchange reserves and debt situation. However the productive sector, and particularly the industrial sector is yet to positively respond and recover from years of stagnation and decline.

A number of developments and issues in TIRDO's external environment have a bearing on the future of the organization because they either represent opportunities, which TIRDO can gainfully exploit, or challenges which the organisation must find ways of dealing with for it to be sustainable. These are briefly discussed below.

2.1.2 Ongoing Reforms Present Many Opportunities for TIRDO

The government is implementing far-reaching reforms in almost every sector. Although the pace of their implementation varies from one sector to another, they present a lot of opportunities for TIRDO. Indeed, TIRDO can only hope to secure resources and sustain itself by aligning itself and becoming a vehicle for implementing these reforms as well as becoming a competitive service provider to the government and the growing private sector. These reforms are briefly discussed below:

The Tanzania Development Vision 2025 comprehensively describes the country's long-term objectives. The vision is for the country to have a strong, diversified, resilient and competitive economy, which can effectively cope with the challenges of development and which can also easily and confidently adapt to the changing market and technological conditions in the regional and global economy.

The Poverty Reduction Strategy Paper (2000) was formulated as a medium-term strategy to operationalise the vision over the medium term (up to 2010). The focus is to reduce abject poverty from 48% of the population in 2000 to 24%.

A number of **Sector Policies, Strategies and Programmes** have also been formulated in the recent past, most of which are designed to enable the government achieve Vision 2025. These include:

The National Science and Technology Policy (1995), **which underscores the need to strengthen, rationalise and co-ordinate R&D activities and institutions;**
Sustainable Industrial Development Policy (1996), **which, among others stresses the need for institutionalising linkages between industry and R&D institutions;**
The Environmental Policy (1997), **which emphasises the need to develop environmentally friendly technologies;**

The National Energy Policy (1992), which aims at establishing an efficient energy production, procurement, transportation, distribution and end-use systems in an environmentally sound and sustainable manner;

The Mineral Policy of Tanzania (1997), which among other things stresses the need for facilitating the availability of simple, modern and environmentally sensitive mining and mineral processing technologies;

The Small and Medium Enterprises Development Policy (2003) whose objectives include improving access to technology, improved physical infrastructure and enhancing rural industrialization for small and medium enterprises;

The Agricultural Sector Development Strategy (2001), which is focused on improving crop, livestock and agri-business activities through, among others, technology development and transfer;

The National Trade Policy (2003) which aims at stimulation and encouragement of trade by adding value on domestic products where Tanzania has a comparative advantage;

Some development agencies, such as the United Nations Industrial Development Organisation (UNIDO), the World Bank, the Danish International Development Agency (DANIDA) and the International Labour Organisation (ILO) are implementing programmes, which are aligned with some of these sectoral programmes.

TIRDO is well positioned to be a key implementing agency or partner in many of these initiatives and therefore needs to closely dialogue and work with the respective lead ministries and development partners so that it has a role in their implementation.

2.1.3 The industrial sector needs substantial R&D interventions to enable it respond to the good macro-economic environment

Tanzania's industrial sector is still in its infancy and this infancy is reflected in low competitiveness due low quality and inefficient systems. This is one reason for failure to exploit opportunities, including the Africa Growth and Opportunity Act, which provide duty free access to the USA apparel market for selected countries including Tanzania. Lack of R&D is one of the reasons for the low level of quality and efficiency. A study by TIRDO (TIRDO, 2002) revealed that most industries (80%) do not have in house R&D units because of cost consideration. An equal percentage does not even budget for

R&D. A large majority do not contact R&D institutions either due to limited awareness of local R&D institutions or general reluctance to commit funds for R&D.

The main areas where industries seek consultancy on R&D include: energy management, raw material and product testing, environmental management, cleaner production, new product development, marketing and training.

The most pressing technical problems for which large industrialists say they need R&D interventions are high cost of power, raw materials, water, machine breakdowns and infrastructure. R&D could solve these problems indirectly by innovating cost (energy, water) saving materials and more efficient processes. TIRDO is endowed with significant capacity in energy saving know-how and could take advantage of this to solve critical problems in industry in a sustainable manner.

Despite the need for support, effective demand for R&D in industries need to be awakened through aggressive awareness raising campaigns of, for example, that technology can be used to reduce the cost of energy, water, etc.

There is lack of appreciation of the need for professional support in R&D particularly by SMEs. Even some of those who are able to pay are reluctant to pay economic fees. This means that, to deal with them, one must get partial third party financing to meet the costs involved.

2.1.4 The Booming Mining Sector Presents Substantial R&D Opportunities

Tanzania has a very large potential in the mining sector. The largest mining potential outside gold includes the Kabanga nickel deposit, the large coal reserves in the Ruhuhu area, and the iron reserves in nearby Liganga.

These deposits are now attracting the interest of some of the largest mining houses around the world. In response to attractive investment incentives, the last decade saw Tanzania developing big, mechanised tanzanite mining works in Mererani and the opening of three new gold mines in the Lake Zone, one of which is the second largest in Africa.

The growing mining sector can give TIRDO new opportunities. TIRDO may get more work bearing in mind that the booming mining sector will force other sectors also to develop in order to service the mining sector.

2.1.5 There are many unexploited opportunities in industry

There are considerable opportunities in the industry sector which are yet to be fully exploited by the private sector and R&D institutions. For example, although the country is predominantly agricultural, the food-processing sector is very much under-developed, with a few product range and poor quality. There is significant opportunity for supporting industries to increase product range. TIRDO can add value in this sector by exploring areas where there are unexploited or under-exploited opportunities and working to provide the necessary solutions.

2.1.6 Liberalisation and globalisation present both opportunities and threats to TIRDO

The ongoing economic liberalisation is increasingly doing away with economic borders, opening all sectors of national economies to international competition. At the same time, under the WTO, governments are increasingly been required to open up their procurement of goods and services to international, competitive bidding. This is a threat to local R&D institutions, because due to low capacity they cannot compete with international R&D services. At the same time, the doors will be open for TIRDO to compete in other countries. This means TIRDO must develop internationally competitive capacity at least in selected areas, if it has to be sustainable.

The East African Community (EAC)

The reestablishment of the East African Community brings new challenges and opportunities for TIRDO. The challenges emanates from the fact that among the EAC agreements is to remove trade restrictions among the member states. However, the ability of Tanzanian industries to compete with their Kenyan counterparts is rather low. This will force some of them to seek R&D support, so as to be competitive. Other industries may however have to close down if they cannot upgrade their technology and systems to regionally competitive levels.

Other opportunities come from the fact that now the cooperation among the EAC science and technology institutions will be strengthened. For instance in 2000 the EAC secretariat published a manuscript entitled "Science and Technology Policy in East Africa", where among other things the science and technology policies of the three countries were explored, compared and contrasted.

Southern African Development Community (SADC)

Southern Africa Development Community (SADC) is a regional economic block encompassing: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The region is richly endowed with human, natural, agricultural and mineral resources. With a population of about 200 million people and a combined GDP of US\$176 billion, the SADC region remains one of the largest unexploited markets in the world (SADC, 2001). Some of the objectives include evolving common institutions and achieving sustainable utilization of natural resources and effective protection of the environment.

These regional co-operation schemes open up the possibility for TIRDO to team up with EAC or SADC R&D organizations to collaborate at various levels, including sharing of information and resources and joint projects.

2.1.7 Competition in the R&D business is intense and increasing

Local Industrial Support Organisations (LISO)

Industrial support institutions were established in order to cater for different technological needs of industries. These organizations, which are all state owned, include; Tanzania Industrial Research and Development Organisation (TIRDO), Center for Agricultural Mechanization and Rural Technology (CARMATEC), Tanzania Engineering and Manufacturing Design Organisation (TEMDO), Board of External Trade (BET), Tanzania Bureau of Standards (TBS) and Small Industries Development Organisation (SIDO). These face related problems and challenges:

- Most have not been able to commercialise their technologies because of limited effective demand in the formal sector and their production orientation. There is also the problem arising from the fact that the technologies they develop are very simple and hence the informal sector readily copy these, making them unattractive to large scale producers
- They are all under-resourced, and heavily dependent on donor funding
- As a result of the above, they have tended not to stick to their roles and have moved into commercial production of goods as well as duplicating roles of others. Hence instead of complementing each other, they are competing with each other

Nevertheless, these are not TIRDO's direct competitors because compared to them; TIRDO is involved in relatively high tech R&D.

TIRDO Competitors

With economic liberalization and globalization, TIRDO is facing strong international competitors including the following:

- South African Council of Scientific Industrial Research (CSIR);
- Société Générale de Surveillance (SGS);
- Inter Leb Brett Oil, which has an oil-testing lab at its headquarters in Mombasa;
- MMK Sweden; and
- Small foreign firms

These have experience, personnel, accredited facilities, established and tested systems, networks with donors and investors and other R&D providers and high level of flexibility to respond to opportunities. They however lack local knowledge.

2.2 INTERNAL SITUATION OF TIRDO

2.2.1 Introduction

The Corporate Strategy must build on the internal capabilities and potentials and at the same time address critical weaknesses, which might stand on the way to successful transformation. This section analyses the internal situation of TIRDO.

2.2.2 Products and Services

TIRDO provides a wide range of services to industry and other stakeholders as follows:

- **Research/Technology Development.** The organization carries out applied research associated with adding value to industries and minimizing industrial pollution.
- **Technology Transfer/Brokerage.** TIRDO adapts local and foreign technologies for application in industrial activities in Tanzania.
- **Technical Services to Industry.** The organisation provides a wide range of technical services to industry, including food analysis; strain banking; chemical analysis; environmental impact assessment; efficiency tests; energy audits; quality control and assurance of products, machine components and concrete structures; failure analysis; materials evaluation; software development,
- **Training** in a wide range of areas and target groups, including application of ICT in industry, quality management, application of simple food processing technologies for small and medium enterprises, etc

Although there is a wide spectrum of services to industry, the actual job volume is low. The mix of activities and services was determined in the past, during the days when the government was directly involved in production, without regard to effective demand and potential for TIRDO to develop excellence in the area. Since it is not realistic to expect TIRDO to excel in all fields, there is a need to make a strategic choice of mix of activities and market segments around which the organisation will build its sustainable competitive competencies and image. This requires careful mapping of capacities, needs and effective demand as well as competition, and then deciding on strategic activities for TIRDO over the medium and long-term.

2.2.3 Governance and Management

Legal Framework

The TIRDO Act No. 5 of 1979 specifies the governance structure, functions and objectives of the organisation. In addition, there are Ministerial orders, which must be adhered to by TIRDO. However, the role of government (and therefore TIRDO) and the environment in which TIRDO is operating have changed very radically over the past 10 years. TIRDO is no longer the only provider of the services it was established to provide and there is no longer a captive market for it in the form of state owned industries. The government has disengaged from direct provision of some services without redefining the roles and structure of its implementing agencies, including TIRDO. Although the Act and all other regulations around TIRDO are well intended, some of them are likely to negatively affect the efficiency, effectiveness and generally the pace and direction of TIRDO development. The Act and the entire regulatory framework around TIRDO needs

to be carefully studied and reviewed in order to give TIRDO the necessary focus and decision-making authority.

Organisation and Management

TIRDO has two-line departments (Engineering Development and Industrial Research) one staff department (Administration and Finance) and two staff units under the Director General's office (Internal Audit and Corporate Services). The Cleaner Production Centre operates as a unit under the Director General's office.

TIRDO does not have a clear, adequate and operational structure for its marketing and planning operations. The Corporate Services Unit has been given the responsibility to interface between R & D activities at TIRDO and external environment, which include industrialists, other R&D institutions, academia and government. This office lacks sufficient profile and resources to properly market TIRDO and its products.

The unit responsible for planning and generally managing change in TIRDO is the Corporate Services Unit. The role of the unit include:

- Implement sustainable development concepts aimed at achieving the objectives of TIRDO
- Management system, that of its own accord, sets, reviews and continues to develop targets for improvement in the areas of laboratory, documentation, pilot plants, technology transfer and technical services.
- Keep technical staff and other employees and public on current status, target and results of each programme being carried out.
- Pursue a dialogue with technical personnel, customers and the public, actively responding to opinions and interests of stakeholders
- Business plan preparation and adherence.

To date much has not been achieved by the section. TIRDO's transformation process requires the leadership of an energetic, entrepreneurial and visionary change team, which is properly situated in the structure.

The low importance given to planning and marketing functions in the structure as well as in allocation of resources is consistent with the position of TIRDO under the command economy, where these functions were not as critical to success of the Organisation as they are now.

There is a need to review TIRDO's organisation structure to ensure that the offices responsible for marketing and planning and provided with the necessary profile resources and power to effectively executive their important roles. If necessary, TIRDO can seek financial support to commission one or a few experts with track record of successfully leading reforms to facilitate this process as well as train others to take over after they have left.

Top management capacity

TIRDO's top management is made of a Council, a Director General and the heads of departments. The challenges facing organisations like TIRDO requires top management to be visionary, entrepreneurial and competent. The top management,

including Board Members, the Director General and Heads of Departments need to continuously sharpen their knowledge and skills to deliver effective corporate leadership. There is need to carry out a Training Needs Assessment for TIRDO's top management members and determine specific interventions for further improvement. Capacity building should be a continuous process, since top management members are also replaced from time to time.

2.2.4 Technical/Infrastructure capacity

Equipment

The Organization has quite substantial number of equipment and instruments. Many of these were donated by UNIDO and the EU during the 1980's. There has also been equipment and instruments received through research projects and programmes supported by international agencies such as IDRC and IAEA. For the Organization to be able to deliver services and technologies there is a need to increase the capacity through acquisition of new and calibration of available equipment and instruments in areas where TIRDO wants to excel. This must be done in a targeted way, after deciding on key areas where TIRDO wants to excel for sustainability through a study.

Laboratories

At present TIRDO has seven laboratories in the areas of microbiology analysis, chemical analysis, mushroom production, non-destructive testing, physical materials testing, instrumentation, information technology and energy. Two more laboratories in fuel technology and ceramic technology have recently been built, although not yet equipped. These laboratories are not certified and standardized.

The demand for building laboratory space is growing and areas earmarked for next phase are:-

- Expansion of food technologies
- Environmental engineering
- Ceramic technology
- Leather and textile

To be able to provide world-class services and compete internationally, TIRDO must have accredited laboratories and personnel in carefully selected areas, based on effective demand for services and feasibility of developing the capacity.

2.2.5 Marketing

Marketing in general

The marketing office within the Corporate Services Unit is manned by one person. The office does not employ a consolidated approach in carrying out the task. It has mainly relied on extension visits, which are not well-planned and coordinated and organized ad-hoc participation in exhibitions. On the other hand the marketing environment for R & D products has not been well studied. TIRDO needs to assess and keep track of:

- Demand for its services
- Competition by local and foreign R & D providers
- Awareness of TIRDO and its services in the market and government

- Perception and satisfaction with TIRDO and its services in the market and among key supporters

Currently, there is no annual marketing plan. TIRDO does not have sufficiently trained and experienced personnel for carrying out the marketing function.

Marketing of R&D outputs

For the past twenty years research conducted were aimed at replacing imported industrial raw materials. There are a number of “successfully” developed technologies, including technology for:

- Extraction of natural dyes from the barks of mangrove trees.
- Production of caustic soda from lime and Lake Natron soda ash.
- Production of essential oils from local resources.
- Production of turkey red-oil from castor oil, which is applicable as wetting agent in textile manufacturing.
- Production of water quality alum (aluminum sulphate) from Pugu Kaolin.
- Production of abrasive hand wash paste for use in engineering workshops, kitchens etc.
- Production of tannin based wood adhesive
- Processing of locally available gypsum into consumer products – PoP for production of school chalks
- Improvement of traditional fermented cassava flour.

All these technologies were import substitution oriented. Most of these research projects were foreign funded and not driven by effective demand in Tanzania.

Sustainability of TIRDO depends very much on the uptake of the technologies developed by industries willing to pay for the development cost. Almost all of the technologies have not been successfully transferred. For successful commercialization under economic liberalization and globalization, TIRDO must change its orientation:

- From developing import substitution-oriented technologies to developing competitive products and technologies. Import substitution is no longer a viable strategy under globalisation
- From developing what will be funded by donors/foreign agencies to developing technologies for which there is effective demand
- From a production orientation, where an R&D organisation conceives of what can be produced and goes on to make it, to a marketing orientation, where one starts from what is needed and what the buyers are willing and able to pay for and then developing it
- From a passive approach to marketing, to an aggressive approach to creating awareness and interest in the organisation and its products
- From viewing itself as a national agency to considering itself as part of the regional and international network of R&D institutions, able and ready to partner and work across national boundaries

2.2.6 Linkages, Networks and Networking

International Networks

TIRDO has had many links with local, regional and international bodies. These include World Association of Industrial and Technological Research Organization (WAITRO) World Intellectual Property Organization (WIPO), United Nations Environment Programme (UNEP), International Atomic Energy Agency (IAEA), International Development Research Cooperation (IDRC), Third World Academy of Sciences (TWAS), Commission on Science and Technology for Sustainable Development in the South (COMSATS) and African Region Intellectual Property Organization (ARIPO). These organizations have supported TIRDO by providing funds for acquisition of equipment and materials, construction, research, conducting technical workshops/seminars/conferences, providing services to micro and small enterprises, which cannot pay the full cost, staff training, expertise,

These linkages have mostly been through country programmes. There is need to deliberately sustain them and where possible establish long-term relationships.

Development Partners

TIRDO has been working in partnership with a number of development partners, including the United Nations Development Programme (UNDP), United Nations Industrial Development Organization (UNIDO), the European Union (EU) Japanese International Cooperation agency (JICA) and the International Labour Organisation (ILO), which have interest in technology development and transfer. These organizations have generally been very supportive to TIRDO. TIRDO should build on this goodwill and ask some of these to support its transformation in various ways, including technical assistance in key areas, such as marketing for a few years, while it builds its own capacity. This is because, with the current remuneration structure, it may not be possible to attract someone with the necessary capability, since these are also highly demanded in industry.

Regional networks

Regional cooperation exists with African Regional Center for Engineering Design and Manufacturing (ARCEDEM); East African Community (EAC)' Southern African Development Cooperation (SADC) Center for Metallurgical Research and Development Institute (CMRDI). These have supported TIRDO in technical co-operation issues.

These networks have helped TIRDO in building its capacity. However, in today's world, organisations are building strategic collaborative arrangements through which they can have competitive advantages in costing, local knowledge as well as established international track record. TIRDO also needs to develop collaborative arrangements with institutions, which can provide internships for its technical staff and other opportunities for building practical capacity. TIRDO therefore needs to develop such networks with other providers of related services in Tanzania, regionally as well as internationally. These include:

Local training and research institutions

Local and international companies involved in R&D and other services provided by TIRDO, with which TIRDO has complementary capacity and hence there is potential for collaboration in bidding, developing technologies, marketing technologies, etc

Local companies which are major users of the services provided by TIRDO. TIRDO can have long-term contracts with such companies

Development agencies

Networks with government and local institutions

TIRDO has been working closely with the Ministry of Industry and Trade which is its parent Ministry as well as the Ministry of Energy and Minerals on issues concerning energy efficiency, renewable energies and technologies for mining industry; Ministry of Water and Livestock Development on energy efficiency in water pump stations; The Vice President's Office, Department of Environment on environmental matters and Ministry of Works, Electrical and Mechanical Department on general consultancy; Ministry of Natural Resources and Tourism on Microbiological analysis of fishery products,.

Also, TIRDO collaborates with various local authority agencies such as the National Radiation Commission for licensing of radioactive equipment and coordination of radiant energy activities.

TIRDO needs to establish firmer and more formal relationships with government departments and agencies, which require its services.

2.2.7 Human Resources and Human Resources Management

Since TIRDO was established, human resource development has been going on and to-date there are quite substantial experienced research personnel specialized in the area of chemical analysis and research, engineering and material testing, energy and environmental impact assessment, food and microbiology, information technology and instrumentation repair and maintenance.

Optimal staffing researchers and non-researchers

At present there are 36 staff in research activities and 53 in non-research activities. The long-term objective is to reduce the ratio of non-researchers to researchers to less than unity. There is a need to retrench the unproductive forces and recruit scientists, engineers and technicians to be added to the small force of more effective manpower.

Staff recruitment, deployment and development

TIRDO does not have a human resources policy. Recruitment is done to fill vacancies left as a result of death, termination or resignation. TIRDO should not only focus on employing young people, which must be trained for many years before they can be productive. It should also create possibility for recruiting experienced people from Tanzania and other countries. It is also possible for TIRDO to accommodate guest researchers, people on sabbatical as well postgraduate researchers to contribute to its

research outputs. TIRDO can solicit scholarship funds to sponsors such researchers, in addition to those who can pay on their own or can secure sponsorship elsewhere.

Staff remuneration, motivation and retention

Remuneration of TIRDO staff is pegged on Treasury Registrar's circular no 2 of 1999. It is very difficult to attract and retain competent staff with this government salary structure.

There is need for TIRDO to put in place a competitive, performance based remuneration system, which should be able to attract highly competent staff in all fields. TIRDO must also provide a comfortable working environment and facilities to make it attractive to good technical as well as administrative staff. The review of the legal framework should give TIRDO more scope in setting its own performance-based remuneration system.

Staff appraisal and promotion

The appraisal system considers very traditional aspects, which were used during the command economy days, which may not help TIRDO achieve sustainability. There is need to review the appraisal system so that it considers such things as initiative, creativity, attracting/securing funding, etc

Staff capacity and capability

TIRDO has highly skilled scientists. However, it lacks the requisite business acumen and entrepreneurship, which is a must in becoming a sustainable, business oriented entity. This partly explains limited commercialisation of technologies developed and the under-utilization of capacity, and limited attraction of external support. The scientific staff as well as the administrative staff needs to be re-oriented and where necessary, new ones should be employed to steer the organisation in a sustainable path.

2.2.8 Estate and Estate Management

TIRDO has area of 27.21 ha of which 13.23 ha have been earmarked for office and laboratories space. So far, TIRDO has developed about 50% of its land. There is need for a land use policy which should ensure that income generation from renting and third party investment is maximized without negatively affecting R & D programmes now or in the future.

There is also critical shortage for a board cum conference and training rooms with modern facilities.

Housing policy at TIRDO exists and is used together with government circular No. 2 of 1999 to allocate houses to staff. Further, some houses are rented to interested individuals to increase income to the organization.

The housing policy needs to be revisited to give more attention to maintenance of existing houses and apartments and to make them self-sustaining.

2.2.9 Occupational Health and Safety

Health services provided by TIRDO dispensary have long been below expectations and a burden to the organization. This is a result of poor management, inadequate financial management practices and inability to attract customers outside TIRDO.

Safety practices are carried out in ad-hoc manner. Fire fighting devices are at minimum required level. Also, detection system such as smoke detectors are not in place. Issues of occupational safety which include training are equally missing. Guidelines for laboratory and pilot plant safety are not available.

In an effort to improve the security at TIRDO, a fencing wall has been built to encompass TIRDO offices, C1 flats and C2 detachable houses.

There is need to rationalize health, safety and security matters by carrying out a study on these challenges, consider options and recommend a cost effective way of addressing these issues, taking into account the fact that they are non-core activities of TIRDO. The possibility of outsourcing and leasing out none-core activities should be considered. For medical services, the possibility of relying entirely on health insurance should be explored.

2.2.10 Environmental aspects

TIRDO is situated near the ocean characterized by coral land hence with poor vegetation. Efforts should be made to revegetate the area by planting trees, grass construction of drainage systems. The disposal of toxic chemicals/effluent should be handled according to acceptable environmental standards and the organization should prepare a clear policy.

2.2.11 Library and Communication

Apart from local newspapers the library is stocked with old documents most of which are over ten years old. This is an awkward situation for a research organization making it unattractive to researchers and public. There is need to address this problem.

The Internet services are available but only in certain offices. The organisation needs to have a Local Area Network (LAN), through which all offices and facilities will be directly connected to the Internet.

2.2.12 Financial Resources

Financing of TIRDO has been through government subvention, donor funding and internally generated funds.

The government budgetary allocation covers only basic expenses such as staff remuneration, and a small amount of development funds. In 2002/2003 the total government input was 45.6 percent of budget (revenue and capital grants). This has caused deterioration of assets such as building and vehicles (Audited Accounts, 2002/2003).

A second major source of financing TIRDO activities especially capacity building and institutional strengthening has been donor funding. Major sources have included United Nations Industrial Development Organization (UNIDO), the United Nations Development Programme (UNDP), Danish International Development Agency (DANIDA), the International Atomic Energy Agency (IAEA), World Association of Industrial Technological and Research Organizations (WAITRO), Commission for Science and Technology (COSTECH). This covered about 21.2 percent of organisation budget in 2002/2003.

In the same period, the internally generated funds came from core activities which included contract research, technical services and consultancy services. The organization earned 4.1 percent of its income from core activities service. The non-core income came from third party rental fees or investment in TIRDO properties which enabled the organization to cover 29.1 per cent of its budget.

For TIRDO to grow into a sustainable organization, it needs to:

- (i) Change its orientation from seeing itself as basically a research institution, to seen itself as an innovative system responsible for adding value to industry
- (ii) Convince the government to increase its subventions and in particular to meet research and other development needs. This requires TIRDO to clearly demonstrate to government that its activities are worthy of investment/government funding because they contribute directly towards realization of specific priority national strategies and aspirations
- (iii) Secure comprehensive, long-term support from selected key donors. To enable it build capacity to generate income in a sustainable manner.

2.2.13 Publication and Dissemination

The current level of publication and patent registered by TIRDO is considered rather low. Also, the culture of internal professional meetings has been generally weak for lack of presentable materials and morale. Participants in national conferences/seminar/workshop by R & D staff takes a participant role rather than as resource persons. On the other hand, regional and international participation of R & D staff is more on managerial aspects rather than professionally involvement.

TIRDO needs to encourage its staff to be more professionally active by explicitly recognizing and rewarding such efforts. However, this should not be done at the expense of practical R&D and service to industry. Publishing should be considered a secondary, rather than a primary activity of TIRDO.

2.3 Synthesis of Strengths, Weaknesses, Opportunities and Threats (SWOT)

TIRDO's SWOT can be summarised as follows:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ A management team which is hard working and committed to development of the organisation • Availability of some specialised equipment in food, biotech, energy and environment technology, wood processing, agrotechology and industrial chemistry • Considerable number of skilled research staff • Extensive links with many international bodies • The large land area for expansion and third party investment • Substantial experience in R&D 	<ul style="list-style-type: none"> ▪ The mix of activities and services was determined without regard to effective demand and potential for TIRDO to develop excellence in the area. ▪ Heavy reliance on non-core income for operational activities and donor funding for development activities ▪ The existing legal framework, both in terms of TIRDO Act No. 5 of 1979 and operating regulations which govern relations with government, are outdated and too restrictive, having been prepared during the days of command economy ▪ Planning and marketing functions are not given the profile and resources they deserve to enable the organisation function effectively and efficiently ▪ TIRDO's technical infrastructure is limited in amount and quality; some critical facilities are not in place and none of the laboratories are accredited ▪ TIRDO lacks systematic and professional marketing systems and practices, partly because of lack of sufficient expertise and experience ▪ TIRDO's networks have been based on donations, rather than reciprocal/partnership relations ▪ The ratio of research to non research staff is unfavourable ▪ Non-core activities (health services, estate, housing) are not efficiently managed • Incomplete fibre, leather, textiles, pneumatics, hydraulic, mechanical labs and other structures • Inadequate maintenance, calibration and replacement of equipment • Poor remuneration and hence motivation of employees • Inadequate linkages between TIRDO and the industry • Shortage of skills in certain technical areas: physical, organic, chemistry • Absence of appropriate policies and guidelines for personnel and R&D • Limited level of entrepreneurship and business acumen among staff

* Best practice study (WAITRO, 1998) the recommendation ratio of researchers to administrators is 2:1

Opportunities	Threats
<ul style="list-style-type: none"> ▪ Ongoing reforms in government, in the form of national and sector policies, strategies and programmes present many opportunities for TIRDO to be part of the implementation ▪ The industrial sector needs substantial R&D interventions to enable it respond to the good macro-economic environment. However, this potential must be awaked to be effective demand ▪ The booming mining sector presents substantial R&D opportunities, not only for mining activities, but for sectors which are supposed to support mining as well ▪ There are many unexploited opportunities in industry for improving product range, quality, cost of energy, etc ▪ Liberalisation and globalisation present challenges to industries to enhance competitiveness, whose solution is partly R&D ▪ Regionalisation and globalisation present opportunities for TIRDO to partner with other regional and international R&D institutions in capacity building, bidding, etc • Supportive national scientific research policy ▪ Goodwill with development agencies and hence possibilities for partnering to access resources and carry out activities as well as getting technical assistance 	<ul style="list-style-type: none"> ▪ Competition in the R&D business is intense and increasing, both from local and international institutions. • Inadequate and unreliable funding from government • Limited enforcement of food processing, industrial safety and intellectual property regulations • Local industries do not appreciate R&D • Move towards government competitive bidding exposes TIRDO to the challenge of having to compete with the best • Many government policies are not being systematically implemented

3. VISION, MISSION AND STRATEGIC OBJECTIVES

3.1 Introduction

This chapter presents the vision mission, values and strategic objectives of TIRDO given the analysis of key strategic issues facing the organisation.

3.2 TIRDO Vision

TIRDO's vision is to become a centre of excellence for conducting quality R&D and providing technological support to create internationally competitive industrial sector.

3.3 TIRDO Mission

TIRDO's mission is to promote industrial development through demand driven research and development and provide quality technical services to public and private sector in an environmentally friendly manner.

3.4 Values

In pursuit of its mission, TIRDO will be guided by the following values:

- Productivity, innovation and entrepreneurship
- Quality and best practice
- Customer service
- Professional and ethical standards
- Responsibility to society

4. STRATEGIC OBJECTIVES, STRATEGIES AND ACTIONS

It is planned that the TIRDO vision will be achieved through the following set of strategic objectives: -

1. Improved Legal Frameworks, Organisation and Management
2. Consolidate and Improve Technical Infrastructure
3. Improved Marketing of TIRDO and its Products
4. Improved Quantity and Quality of R&D Outputs
5. Improved Quality and Value of Consultancy and Technical Services
6. Improved Human Resources Capacity and Management
7. Increased Number and Productivity of National and International Linkages
8. Improved Gender Balance and Mainstreaming
9. Improved Environmental Management
10. Improved Occupational Health Services
11. Improved Estates Infrastructure and Management
12. Improved Financial Management and Sustainability

4.1 STRATEGIC OBJECTIVE 1. IMPROVE LEGAL FRAMEWORK, ORGANISATION AND MANAGEMENT

4.1.1 Performance Indicators

- Human resources policy and procedures in place and functioning
- Improved effectiveness in planning and change management

- Improved effectiveness and efficiency of the marketing function
- Improved governance and corporate leadership
 - Change of orientation from production to marketing
- More entrepreneurial organisation
- Shortened decision making time
- Improved Legal framework

4.1.2 Strategies and Activities

4.1.2.1 Review TIRDO Legal Framework

- (i) Review the TIRDO Act No 5 of 1979 and make recommendations for revision to align the organisation with current circumstances and challenges and forward revised Bill to parent ministry by 07/2005
- (ii) Review other regulatory issues which can be addressed outside the Act and submit and pursue suggestions for improvement with the respective ministries by 12/2004
- (iii) Effect necessary changes to structure and decision-making process within three months of gazetting of the changes

4.1.2.2 Establish Policy and Guidelines on Human Resources

- i) Prepare a human resources development and management policy by 12/2004
- ii) Review the scheme of service by 12/2006 so as to continuously improve staff quality and work performance by 12/2004
- iii) Prepare by 12/2005 performance appraisal procedures and criteria for technical and administrative staff incorporating issues of productivity, innovation, entrepreneurship and external resource mobilization
- iv) Devise and promote a mechanism for industrial attachment of TIRDO staff to the industry
- v) Devise and promote a mechanism for sabbaticals to TIRDO from other local industries and international institutions to do research on TIRDO projects e.g. postgraduate/post-doctoral training by 12/2005

4.1.2.3 Develop and Institutionalize Planning Function and Planning Culture

- (i) Require all key departments to prepare Strategic Plans in line with TIRDO Corporate Strategy and roll them over annually by 04/2005
- (ii) Review and roll-over TIRDO Corporate Strategy annually in a participatory way from 06/2005
- (iii) Appoint a qualified and competent officer to take responsibility for initiating and co-ordinating planning activities by 07/2004

4.1.2.4 Management Capacity Among Improve Governance and Top Management (Council, CEO and Heads of Departments)

- (i) Carry out a Training Needs Assessment for top management by 09/2004
- (ii) Develop and implement a training programme on corporate governance, marketing orientation, entrepreneurial management and leadership (according to findings of needs assessment) by 04/2005

4.1.2.5 Strengthen the Marketing Function

- (i) Develop a three year business plan for TIRDO, including a comprehensive marketing plan by 09/2004
- (ii) Expose the marketing officer to skills required for marketing of technologies by 02/2005
- (iii) Develop operational guidelines for marketing activities by 01/2005

4.2 STRATEGIC OBJECTIVE 2: CONSOLIDATE AND IMPROVE TECHNICAL INFRASTRUCTURE

4.2.1 Performance Indicators:

- Accredited laboratories
- Improved efficiency, effectiveness and competitiveness of TIRDO
- Increased R&D outputs
- Enhanced quality of consultancy and technical services
- Increased demand for TIRDO products
- Increased usage of Information and Communication Technologies

4.2.2 Strategies and Activities

4.2.2.1 Upgrade Physical Infrastructure

- (i) Identify areas where TIRDO can develop a sustainable competitive advantage through market assessment – study of demand, competition and current capabilities by 07/2004
- (ii) Identify critical capacity upgrading and consolidation needs through a capacity mapping exercise by 09/2004
- (iii) Solicit funds to develop physical research infrastructure in selected areas by 12/2004
- (iv) Accredite at least one existing laboratory every year, starting from 2004
- (v) Install a Local Area Network (LAN) and connect all facilities and offices to the Internet by 07/2006

4.2.2.2 Improved ICT capacity

- (i) Coordination of ICT Developments
- (ii) Increasing ICT capacity
- (iii) Using ICT in Core Mission Activities

4.2.2.4 Optimize Utilization of Technical Infrastructure Available in TIRDO and other R&D Institutions

- (i) Assess availability of complementary technical infrastructure in other institutions and willingness of the other institutions to collaborate with TIRDO on a reciprocal basis to ensure optimal utilization of the capacity
- (ii) Establish Memorandum of understanding (MOU) with selected institutions to share complementary capacity on reciprocal basis
- (iii) Introduce good housekeeping measures and budget for maintenance, calibration, chemicals, etc by 12/2005

4.3 STRATEGIC OBJECTIVE 3: IMPROVE MARKETING OF TIRDO AND ITS PRODUCTS

4.3.1 Performance Indicators

- Increased marketability of TIRDO products
- Increased number of contacts between TIRDO and stakeholders
- Increased inquiries for R&D activities, technical services publications training etc.
- Increased request for partnership in R&D activities
- Increased awareness about importance of TIRDO among stakeholders
- Increased dissemination of TIRDO information through workshops, seminars, conferences and publications

4.3.2 Strategies and Activities

4.3.2.1 Develop an Awareness of the Market in Which TIRDO is Operating on a Continuous Basis

- (i) Conduct a study to establish needs and effective demand as well as competitive situation in the business in which TIRDO is involved by 04/2005 and update every after two years

4.3.2.2 Create and Sustain Awareness and Interest in TIRDO and its Products Among Potential Customers, Government and The Public

- (i) Introduce TIRDO awards for successful application of locally developed technology by 07/2004
- (ii) Improve and update TIRDO website as a marketing tool by 07/2004
- (iii) Design and conduct sensitization campaigns on the role of TIRDO, its products and importance of R&D for competitiveness of industries by 12/2004
- (iv) Establish a mechanism of encouraging entrepreneurs and the general public to come up with product ideas in product design and development
- (v) Prepare an integrated marketing programme for consultancy services through the mass media, website and direct mail and review it annually

4.3.2.3 Improve Library, Documentation and Dissemination Services

- (i) Organise at least one highly publicized workshop to share and promote information on new technology and TIRDO services from 12/2004
- (ii) Establish critical publications needed in TIRDO library and procure the same by 7/2005
- (iii) Computerise library services and subscribe to at least three web-based resources for literature by 08/2005

4.4 STRATEGIC OBJECTIVE 4: IMPROVE QUANTITY AND QUALITY OF R&D OUTPUTS

4.4.1 Performance Indicators

- Increased number and quality of research programmes
- Increased funding level of research programme and publications
- Increased number of patents, copyright and applied awards such as through Third World Academy of Sciences.
- Increased number of transferred technologies
- Increased number of pilot programmes.
- Increased revenue from commercialization of R&D results

4.4.2 Strategies and Activities

4.4.2.1 Strengthen the Administration of Research at all levels

- (i) Improve relationships with agencies funding research, which have potential to assist by 07/2005.
- (ii) Appoint a research standards coordinator by 07/2004
- (iii) Prepare operational guidelines for research activities, including optimal balance between research and consultancy, patents and copyrights by 06/2005
- (iv) Review and strengthen departmental research committee and processes by 06/2005
- (v) Establish a data bank of TIRDO research programmes by 06/2005

4.4.2.2 Set Research Priorities

- (i) Carry out a study to establish the relevance and impact of research programmes undertaken by TIRDO by 9/2004.
- (ii) Develop a concept research agenda and a research programme tied to development priorities through stakeholders' consultative forum by 12/2004.

4.4.2.3 Strengthen Research Funds Mobilization and Budgeting

- (i) Establish a modality/formula for costing research by 12/2004
- (ii) Consult alternative government departments and agencies and other funding organizations to get their interest and commitment in financing TIRDO research programmes by 06/2005

4.4.2.4 Ensure Increased Research and Publications Productivity and Quality

- (i) Require annual research plans to be prepared by divisions starting 7/2004
- (ii) Introduce half year progress reporting on research and publication progress to Management by 07/2005
- (iii) Introduce a compulsory research methodology training for all R&D staff by 07/2004
- (iv) Establish performance-based remuneration for quality research by 12/2004
- (v) Re-introduce staff seminars at departmental level by 12/2004

4.4.2.5 Improve Technology Sourcing, Adoption, Adaptation and Transfer process

- (i) Establish guidelines on technology transfer, sourcing, adoption and adaptation by 01/2005
- (ii) Establish a system for documenting technologies developed by 6/2006

4.5 STRATEGIC OBJECTIVE 5: IMPROVE QUALITY AND VALUE OF CONSULTANCY AND TECHNICAL SERVICES

4.5.1 Performance Indicators:

- Increased quality and volume of consultancy services
- Increased revenue from consultancy activities
- Increased appreciation of TIRDO by stakeholders through acknowledgements, awards, etc.
- Increased number of bids won by TIRDO

- Increased number and value of consultancy and technical services per person.
- Increased industrial skills

4.5.2 Strategies and Activities

4.5.2.1 Strengthen Consultancy and Technical Activities

- (i) Develop a consultancy policy and operational procedures, including motivation for those who are able to win consulting projects by 08/2004
- (ii) Conduct workshops on consultancy skills for all staff by 06/2005

4.5.2.2 Manage the Quality of Consultancy and Technical Services

- (i) Establish a mechanism for screening/editing consultancy proposals by 07/2004
- (ii) Establish and institute a simple mechanism for soliciting consultancy clients satisfaction with services, analyzing and giving feedback to consultants involved by 08/2004
- (iii) Establish acceptability criteria for job orders by 05/2005

4.5.2.3 Strengthen Training Services

- (i) Appoint a secretariat (an office) to take responsibility for training by 08/2004
- (ii) Carry out a demand assessment for training activities in areas where TIRDO has or can easily development competence and competitive advantage by 07/2004
- (iii) Introduce and aggressively promote scheduled training courses which are highly demanded by 12/2004

4.6 STRATEGIC OBJECTIVE 6: IMPROVE HUMAN RESOURCES CAPACITY AND MANAGEMENT

4.6.1 Performance Indicators

- Increased take home pay per staff
- Increased proportion of R & D staff with PhDs
- Decreased vacant position ratio
- Improved ratio of R&D to administrative staff
- Improved staff retention

4.6.2 Strategies and Activities

4.6.2.1 Ensure Optimal Staffing Level

- (i) Work out the optimal staffing levels for R & D and non R & D staff by 06/2005
- (ii) Carry out a comprehensive manpower audit (Review the quality of all administration and R & D staff by 04/2005) to identify those who are unable to cope with demands placed on TIRDO and as a basis for a staff development programme.
- (iii) Retrench excess or unproductive staff by 07/2005

4.6.2.2 Improve Staff Remuneration, Motivation and Retention

- (i) Provide optimal office space for all R & D staff by 12/2007
- (ii) Review incentive scheme to make it more attractive and performance based by 09/2005
- (iii) Institute a housing policy which encourages staff to build own houses by 06/2005

4.6.2.3 Improved Recruitment, Deployment and Development

- i. Introduce contractual employment for all new staff by 06/2006
- ii. Develop and implement TIRDO training policy and staff development programme by 12/2004

4.6.2.4 Streamline Staff Appraisal and Facilitate Staff Publications

- (i) Review annual performance system for technical and administrative staff by 12/2004

4.6.2.5 Improvement of Professional Skills and Exposure of Staff

- (i) Facilitate better sabbaticals for R & D staff by 06/2005, both locally and internationally
- (ii) Enhance project formulation and design skills through short courses by 12/2005 and provision of opportunities for design of projects
- (iii) Enhance the consulting skills of R & D staff through short courses and pairing with experienced consultants by 12/2005
- (iv) Develop research skills through short courses on research methodology and exchange programmes with local and international institutions from 07/2004
- (v) Develop entrepreneurial attitudes and skills through short courses by 12/2005 and continuously encourage and reward enterprising behavior.

4.6 STRATEGIC OBJECTIVE 7: INCREASE NUMBER AND PRODUCTIVITY OF NATIONAL AND INTERNATIONAL LINKAGES

4.7.1 Performance Indicators

- Increased number of links per division (at least one new link per division per year).
- Increased number of collaborative research programmes/projects accomplished through links arrangements.
- Increased joint activities/events with national and international stakeholders
- Increased recognition by donor community
- Increased government funding
- Increased joint publications
- Increased number of linkages with rural communities
- Increased number of linkages with industries

4.6.2 Strategies and Activities

4.7.2.1 Strengthen the Management of Links at all Levels

- (i) Establish modalities and procedures on external relations and funds by 06/2004
- (ii) Appoint an officer in the corporate services unit to manage links and assign terms of reference by 06/2004

4.7.2.2 Strengthen and Expand Relations with the Government

- (i) Consult government ministries and agencies and request to make TIRDO a technical backstopping point for related matters by 07/2004
- (ii) Prepare and sign formal Memoranda of Understanding with all key partners including some local authorities by 07/2005

4.7.2.3 Strengthen and Expand Relations with Local and Regional Institutions

- (i) Organize a forum with business associations and industries every year from 2004
- (ii) Consult all key training and research institutions to agree on areas of collaboration by 09/2004

4.7.2.4 Strengthen relationships with development agencies

- (i) Consult selected donors to discuss collaborative potentials and arrangement by 12/2004 and follow these up continuously

4.7.2.5 Strengthen and Expand Links with Foreign R&D Institutes.

- (i) Monitor and control the productivity of existing links.
- (ii) Encourage each research division to have at least one link with other

reputable R&D institute by 07/2006.

4.7.2.6 Improve Co-ordination of Applied Research

- (i) Establish an electronic network of institutions involved in developing applied research to share information by 12/2004
- (ii) Establish a simple form and procedure for other institutions to share their ongoing research and research outputs with TIRDO by 12/2004
- (iii) Establish a database of outputs of applied research done in Tanzania or relevant to Tanzania by 12/2004
- (iv) Establish a simple newsletter for TIRDO to disseminate applied research results to R&D, academic institutions, business associations and other stakeholders bi-annually by 12/2004
- (v) Establish formal relationships with key local and regional media whereby TIRDO will periodically provide information and the media will freely publicize technologies developed by TIRDO and other local and regional institutions by 12/2004

4.8 STRATEGIC OBJECTIVE 8: IMPROVE GENDER BALANCE AND MAINSTREAMING

4.8.1 Performance Indicators

- Increased coordination, planning and implementation of gender programmes.
- Increase in female staff from present 29 per cent to 40 per cent by 2008/2009
- Increased female staff in R&D activities

4.8.2 Strategies and Activities

4.8.2.1 Co-ordination of Gender Issues

- i) Establish a Gender Dimension Programme Committee by 6/2005.

4.8.2.2 Addressing Root Problems

- i) Study and address the causes of low gender balance and mainstreaming at all levels by 12/2006
- ii) Sensitize R&D staff and TIRDO management on gender by 06/2005
- iii) Give priority to train female R&D staff at M.Sc and PhD levels.
- iv) Provide deliberate preference for women candidates when employing staff while maintaining qualification standards by 06/2004.

4.9 STRATEGIC OBJECTIVE 9: IMPROVE ENVIRONMENTAL MANAGEMENT

4.9.1 Performance Indicators:

- Decreased pollution/ environmental hazards arising from TIRDO's activities
- Enhanced awareness of environmental issues among TIRDO's employees and neighbours
- Increased number of advisory services/studies on environmental degradation
- Increase number of environmental programmes
- Increased number of collaborators in environmental matters

4.9.2 Strategies

4.9.2.1 Establish Guidelines for Good Practice

- i) Establish guidelines and budget for disposal of hazardous chemicals by 12/2005.
- ii) Establish garbage collection and disposal system by 06/2004

4.9.2.2 Construct and Maintain an Environmentally Friendly Infrastructure

- i) Build and maintain drainage system throughout the TIRDO estate by 08/2006

4.9.2.3 Sensitize TIRDO Staff on Environmental Issues

- (i) Prepare guidelines and code of conduct for TIRDO staff on environmental issues by 07/2004
- (ii) Include sensitization on environmental issues in at least one training course which will be offered to TIRDO staff to ensure all staff are sensitized by 07/2006

4.9.2.4 Provide Environmental Services

- (i) Promote TIRDO capabilities to stakeholders
- (ii) Strengthen TIRDO capability in environmental matters
- (iii) Extend environmental pollution services to stakeholders

4.10 STRATEGIC OBJECTIVE 10: IMPROVE OCCUPATIONAL HEALTH SERVICES

4.10.1 Performance Indicators

- Improved quality of health services to TIRDO staff
- Improved efficiency in provision of health services
- Increased relationship with health organizations/institutes
- Increased knowledge on occupational health in industries
- Increased utilization of external experts in occupation health

4.10.2 Strategies and Activities

4.10.2.1 Enhance Management of Health Services

- i) Carry out a study on alternative options and modalities for enhancing access, quality and efficiency of health services, including possibility of outsourcing through health insurance scheme by 12/2004
- ii) Rationalize provision of health services by 07/2005

4.10.2.2 Provide HIV/AIDS related services

- i) Introduce more awareness campaigns for staff by 12/2004
- ii) Provide counseling services for staff affected by 12/2004
- iii) Assess possibility of providing free ARVs to affected staff and implement proposals by 05/2005

4.10.2.3 Provide Occupational Health Services

- i. Identify and promote potential stakeholders by 12/2004
- ii. Strengthen internal capacity by 6/2005
- iii. Provide occupational health services by 12/2005

4.11 STRATEGIC OBJECTIVE 11: IMPROVE ESTATES INFRASTRUCTURE AND MANAGEMENT

4.11.1 Performance Indicators

- Improved utilisation of the TIRDO land
- Enhanced income from third party investments and fees
- Improved physical facilities for TIRDO core function

4.11.2 Strategies and Activities

4.11.2.1 Ensure Optimal Utilization of the TIRDO Land

- (i) Develop a land use plan for TIRDO by 12/2005
- (ii) Implement the land use plan by 06/2006

4.11.2.2 Enhance Security of TIRDO Assets and People

- i) Supply security guards with firearms by 6/2004
- ii) Provide security guards with internal communication system such as radio call, patrol car and alarm system by 09/2004
- iii) Assess feasibility of improving effectiveness and efficiency in security through outsourcing by 07/2004

4.12 STRATEGIC OBJECTIVE 12: IMPROVE FINANCIAL MANAGEMENT AND SUSTAINABILITY

4.12.1 Performance Indicators

- Increased government funding of TIRDO
- Increased operational sustainability
- Increased internally generated funds
- Increased donor funding for strategic investments
- Improve financial management, budgeting, financial control and reporting

4.12.2 Strategies and Activities

4.12.2.1 Convince the Government to Increase Subventions to TIRDO to Cover other Charges and Development

- (iv) Negotiation and lobbying to the Government
- (v) Promotion of R&D to Government and Parliament

4.12.2.2 Increase Income Generation Capacity

Promote private investment at TIRDO in line with the land use plan by 06/2006
Introduce and market a variety of income generation products, which are in line with TIRDO core function, such as short courses in a variety of areas in line with findings of the market study by 12/2004
Solicit assignments from private companies for developing specific technologies at a fee

4.12.2.3 Improve Financial Management

- (i) Computerize financial information system by 6/2005
- (ii) Train accounting and finance staff on use of ICT by 04/2005
- (iii) Develop financial and accounting regulations by 12/2004

- (iv) Carry out annual performance auditing from 06/2005

4.13 RISKS

The risks involved in implementing the corporate strategy shall be constantly monitored and relevant mitigation measures taken at the appropriate time.

External risks

- The government might not put substantial resources to TIRDO's transformation.

Donors may not be forthcoming in making significant contribution towards the Corporate Strategy

The government may not respond fast enough in reviewing the legal framework to give TIRDO more autonomy in making key decisions

Internal risks

- Low remuneration to R & D staff might result into high labour turn over.

5. MONITORING AND EVALUATION

5.1 Introduction

A monitoring and evaluation system is needed for effective and efficient implementation of this plan. Both monitoring and evaluation will be participatory, whereby key stakeholders, including staff members will be involved.

Two types of monitoring and evaluation information will be required: -

- Information originating from within and pertaining to the monitoring of Action/Activities and Results of TIRDO as an institution.
- Information related to the reactions of stakeholders of TIRDO on the impact of TIRDO's Corporate Strategy on them and the monitoring of the external environment, which underline the assumptions of the Corporate Strategy.

The Director General will have the overall responsibility for monitoring and evaluation of TIRDO Corporate Strategy and will ensure that a participatory approach is emphasized. He will appoint an officer who will be largely responsible for collecting, compiling and analysis of the monitoring data. The officer will also be responsible for developing the monitoring and evaluation instruments.

The monitoring and evaluation reports will be discussed at Departmental Research Committees (DRC), Management, TPC and Council meetings. There will be two review meetings, bringing all TIRDO staff and selected stakeholders to review progress and problems in achievement of each objective. This will also be an opportunity to enhance awareness and ownership. The recommendations adopted by Council will be implemented and included in the revised Corporate Strategy each year

5.2 Monitoring

Table 1 and 2 show the format of the progress reports to be prepared by the divisions for presenting progress reports for discussion by the respective committees.

**TABLE 1 PROGRESS REPORT ON THE IMPLEMENTATION OF THE CORPORATE STRATEGY FOR THE PERIOD TO
DIVISION/UNIT**

Strategy Objectives	Planned	Achievements	Remedial Action
	Planned Activities	Planned Activities	
			Performed Activities

**TABLE 2 FINANCIAL REPORT ON THE IMPMENTATION OF THE CORPORATE STRATEGY PLANS FOR THE..... TO
DIVISION/UNIT**

S/ N.	Objective	Activity	Planned Budget (Tshs.)	Actual Expenditure (Tshs.)	Deviation	Remedial Action

5.3 Evaluation

The evaluation of the TIRDO Corporate Strategy Plan will aim at:

- Justifying the use of resources
- Assessing the reasons for success or failure of specific aspects of the corporate strategy.
- Assessing whether the corporate strategy is achieving its objectives
- Finding out whether the effects of the corporate strategy are contributing to a better fulfillment of the mission of TIRDO.
- Assessing the adequacy of resources being mobilised to implement the plan.
- Determining whether available resources are being utilized efficiently to achieve the objectives of the plan.
- Determining whether the process of corporate strategic planning and implementation has serious problems.

Two types of assessments will be done, one every two years using internal evaluators, and one during the fifth year using external evaluators working with the internal evaluators. The Director General will appoint the internal and external evaluators and the management will prepare and issue comprehensive terms of reference. The feedback from the evaluations will be used to improve the planning process at TIRDO.

6. OPERATING PLAN AND BUDGET

6.1 Introduction

TIRDO plans to restructure and transform itself into a world-class research and technology development organization, which can meet the Tanzanian needs in industry and other relevant sectors. In the year 2003/2004 the government planned allocation was 29% of the institution's budget. The other sources were to be administrative income (22.6%), donors (11.8%) and consultancy (36.6%).

In the recent years, the government has been paying salaries and a small amount development budget while research activities have been financed mainly by donors. Other recurrent expenses have been met through the administrative and consultancy income.

6.2 Transformation Costs

Transformation costs are estimated at Tshs 4,307,000,000/= over the next five years, without taking inflation into account. The costs per strategic objective are as shown in figure 6.1. For detail breakdown of costs see Appendix A.

Table 6.1 Transformation Costs

		Tshs.in '000s
1	Improved Legal Framework, Organization and Management	81,000
2	Improved Technical Capacity	2,292,000
3	Improved Marketing of TIRDO and its Products	212,000
4	Enhanced Quantity and Quality of R&D Outputs	77,500
5	Improved Quality and Value of Consultancy and Technical Services	22,000
6	Improved Human Resources Capacity and Management	1,372,000
7	Increased Number and Productivity of National and International Linkages	51,500
8	Improved Gender Mainstreaming	8,000
9	Improved Environmental Management	38,000
10	Improved Occupational Health Services	16,000
11	Improved Estate Infrastructure and Management	62,000
12	Improved Financial Management and Sustainability	75,000
	TOTAL	4,307,000

6.3 Financing Resources

6.3.1 Internally Generated Funds

In the long term, TIRDO expects to finance its activities mainly from consultancy, training, technical services and commercialization of technologies. Another source will continue to be non-core income, mainly from renting off of land and facilities.

6.3.2 Government Funds

TIRDO expects to continue getting some financing from government to meet personnel emoluments and for development purposes, in order to be able to address needs of sectors which cannot pay as well as doing research whose outputs may be very strategic, but not of immediate commercial value.

However, in the next five years, TIRDO will be mainly engaged in building the necessary capacity for it to substantially increase income from its core functions. Therefore, TIRDO will, during this period, rely significantly on the support of the government and development partners for capacity building as part of the transformation process.

6.3.3 Donor Funds

Donor funds are expected to come in two ways. First is to directly support capacity building in the framework of the Corporate Strategy. Secondly, development agencies/partners will continue to offer TIRDO assignments on contract basis as well as design and implement collaborative programmes. Some of this money will be won competitively or provided within the execution of the sectoral policies and strategies.

6.4 Implementation of the Corporate Strategy Plan and Budget Summary

In case of gaps during the implementation the organization has the following options:

- a. Look for more funds from government and donors
- b. Rescale down some activities
- c. Push forward the activities to the next financial year

Prioritization of the execution of the strategic objectives is necessary due to the risks of not getting enough funds from government, donors or other sources. The priority will be given to issues associated with the objectives crucial in building

sustainable competitiveness for TIRDO, which are therefore crucial for the survival of TIRDO. Priority 1 is given to objectives that must be fulfilled. Priorities 2 and 3 are given to those which ought to be done and can be done respectively. The list of priorities is as follows:

Table 6.2 Prioritization of Strategic Objectives

Objective No.	Strategic objective	Priority Level
1	Improved Legal Framework, Organisation and Management	1
2	Consolidate and Improve Technical Infrastructure	1
3	Improved Marketing of TIRDO and its Products	1
4	Improved Quantity and Quality of R&D Outputs	1
5	Improved Quality and Value of Consultancy and Technical Services	1
6	Improved Human Resources Capacity and Management	1
7	Increased Number and Productivity of National and International Linkages	3
8	Improved Gender Balance and Mainstreaming	3
9	Improved Environmental Management	3
10	Improved Occupational Health Services	2
11	Improved Estates Infrastructure and Management	2
12	Improved Financial Management and Sustainability	1

In order to implement the corporate strategy effectively and efficiently, commitment, aggressiveness and transparency are required from both the internal and external stakeholders. Stakeholders will be motivated and a team approach will be taken in implementing the plan.

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STRATEGIC ACTION PLAN

The strategic action plan aims at: improved legal framework, organisation and management; improved technical capacity; improved marketing of TIRDO and its products; enhanced quantity and quality of R&D outputs; improved quality of consultancy and technical services; improved human resources capacity and management; increased number and productivity of national and international linkages; improved gender mainstreaming; improved environmental management; improved occupational health services; improved estate infrastructure and management and improved financial management and sustainability. The Corporate Strategy shows the duration, priority and cost of implementation of each activity. Tables 6.3 and 6.4 shows summary and details of the action plan respectively.

Table A1 Summary of transformation costs for the period 2004/5 – 2006/7 (x 1,000 TShs.)

STRATEGIC OBJECTIVE	2004/5	2005/6	2006/7	2007/8	2008/9	Total
Improved Legal Framework, Organisation and Management	34,000	25,000	11,000	3,000	8,000	81,000
Consolidate and Improve Technical Infrastructure	416,000	456,000	540,000	440,000	440,000	2,292,000
Improved Marketing of TIRDO and its Products	20,000	72,000	40,000	40,000	40,000	212,000
Improved Quantity and Quality of R&D Outputs	48,000	15,500	3500	7500	3000	77,500
Improved Quality and Value of Consultancy and Technical Services	14,000	4,000		4,000		22,000
Improved Human Resources Capacity and Management	219,000	531,000	205,000	212,000	205,000	1,372,000
Increased Number and Productivity of National and International Linkages	23500	10,000	8000	5000	5000	51,500
Improved Gender Balance and Mainstreaming	2000	2500	2500	500	500	8,000
Improved Environmental Management	3000	5000	30000			38,000
Improved Occupational Health Services	3,000	6,000	4,000	1000	2000	16,000
Improved Estates Infrastructure and Management		62,000				62,000
Improved Financial Management and Sustainability	18,000	38,000	3000	3000	13000	75,000
TOTAL:	800,500	1,227,000	847,000	716,000	716,500	4,307,000

Table A2 OPERATIONAL PLAN AND BUDGET

Objective	Strategy	Priority	Activities	BUDGET (“x1000” TShs.)					
				2004/5	2005/6	2006/7	2007/8	2008/9	TOTAL
1. Improved Legal Framework, Organization and Management	Review TIRDO Legal Framework	1	Review the TIRDO Act No 5 of 1979 by 07/2005		10,000				
			Review other regulatory issues which can be addressed outside the Act by 12/2004	2,000					
			Effect necessary changes to structure and decision-making process within three months of gazetting of the changes		2,000	3,000			
	Establish policy and administration of human resources matters	1	Prepare a human resources management policy by 12/2004	5,000					
			Review the scheme of service by 12/2004	3,000					
			Prepare performance appraisal procedures by 12/2005		5,000				
			Devise and promote a mechanism for sabbaticals to TIRDO by 5/2005	2,000					
	Develop and Institutionalize Planning and Function and Culture	1	Preparation of Departmental Strategic plans in line with TIRDO Corporate Strategy and roll them over annually by 04/2005	6,000					

			Review and roll-over TIRDO Corporate Strategy annually in a participatory way from 06/2005		3,000	3,000	3,000	3,000	3,000
			Appoint a qualified and competent officer to take responsibility for initiating and co-coordinating planning activities by 07/2004	2,000					
	Improve governance and management capacity among top management	1	Carry out a Training Needs Assessment for top management by 09/2004	2,000					
			Develop and implement a training programme (according to findings of needs assessment) from 04/2005	5,000		5,000		5,000	
			Carry out annual performance auditing from 06/2005						
	Strengthen the Marketing function	1	Develop a three year business plan for TIRDO by 09/2004		5,000				
			Expose the marketing officer to skills required for marketing of technologies by 02/2005	5,000					

* Covered by regular budget

			Develop operational guidelines for marketing activities by 01/2005	2,000						
Subtotal				34,000	25,000	11,000	3,000	8,000	81,000	
2. Consolidate and improve technical infrastructure	Upgrade physical infrastructure	1	Carry out market assessment to identify areas to build competitive advantage by 7/2004	10,000						
			Carry out a capacity mapping exercise to identify critical capacity upgrading and consolidation needs by 09/2004		10,000					
			Solicit funds to develop physical research infrastructure in selected areas by 12/2004	6,000						
			Acquire equipment and supplies from 2004	400,000	400,000	400,000	400,000	400,000	400,000	
			Accreditation of at least one laboratory a year from 2005		40,000	40,000	40,000	40,000	40,000	
			Install a Local Area Network and connect all facilities and offices to Internet by 07/2006			100,000				
			Optimize utilization of technical infrastructure in TIRDO and other R&D institutions	1	Assess availability of complementary technical infrastructure in other institutions and their willingness to collaborate with TIRDO on a reciprocal basis to ensure optimal utilization by 06/2005		3,000			

			Establish Memorandum of understanding with selected institutions to share complementary capacity on reciprocal basis		2,000				
			Introduce good housekeeping measures and budget for maintenance, calibration, chemicals, etc by 12/2005		1,000				
Subtotal				416,000	456,000	540,000	440,000	440,000	2,292,000
3. Improved Marketing of TIRDO and its Products	Develop an awareness of the market in which TIRDO is operating on a continuous basis	1	Conduct a study to establish needs and effective demand as well as competitive situation in the business in which TIRDO is involved by 07/2004 and update every after two years						
	Create and sustain awareness and interest in TIRDO and its products among potential customers	1	Introduce TIRDO awards for successful application of locally developed technology by 07/2004		10,000	10,000	10,000	10,000	10,000
			Improve and update TIRDO website as a marketing tool by 07/2004		3,000				

* Covered by regular budget

			Design and conduct sensitization campaigns on the role of TIRDO, its products and importance of R&D for competitiveness of industries by 12/2004	10,000	3,000	3,000	3,000	3,000	3,000	
			Establish a mechanism of encouraging entrepreneurs and the general public to come up with product ideas in product design and development	10,000	2000	2,000	2,000	2,000	2,000	
			Prepare an integrated marketing programme for consultancy services through the mass media, website, direct mail, etc and review it annually		10,000	5,000	5,000	5,000	5,000	
	Improve Library, Documentation and Dissemination Services	1		Organise at least one highly publicized workshop to share and promote information on new technology and TIRDO services from 8/2005		15,000	15,000	15,000	15,000	15,000
				Establish critical publications needed in TIRDO library and procure by 7/2005		4,000				
				Computerize library services and subscribe to at least three web-based resources for literature by 08/2005		25,000	5,000	5,000	5,000	5,000

Subtotal				20,000	72,000	40,000	40,000	40,000	212,000
4. Improved Quantity and Quality of R&D Outputs	Strengthen the Administration of Research at all levels	1	Improve relationships with potential funding agencies by 07/2005		500	500	500	500	500
			Appoint a research standard coordinator by 07/2005		2,000				
			Review and strengthen departmental research committee and processes by 06/2005	6,000					
			Establish a data bank of TIRDO research programme by 06/2005	5,000					
	Set research priorities	1	Carry out an impact assessment of research programs undertaken by TIRDO by 9/2005		10,000				
		1	Develop a concept research agenda and a research programme tied to development priorities through stakeholder's consultative forum by 12/2004.	5,000					
	Strengthen research funds mobilization and budgeting	1	Establish a modality/formula for costing research by 12/2004.	5,000					
			Soliciting funds (by consulting potential funding organizations) for TIRDO research programmes by 6/2005	6,000					
	Ensure increased	1	Prepare annual research plans by 07/2004	4,000					

	research and publications productivity and quality		Introduce half year progress reporting on research and publication progress by 07/2005	2,000	2,000	2,000	2,000	2,000	2,000
			Introduce a compulsory research methodology training by 07/2004	4,000			4,000		
			Establish performance-based remuneration by 12/2004	3,000					
			Re-introduce departmental staff seminars by 12/2004	1,000	1,000	1,000	1,000	1,000	1,000
	Improve Technology sourcing, adoption adaptation and transfer	1	Establish guidelines on technology transfer by 01/2005	4,000					
			Establish a system for documentation of developed technologies by 06/2006	3,000					
Subtotal				48,000	15,500	3,500	7,500	3,000	77,500
5. Improved Quality and Value of consultancy and technical services	Strengthen Consultancy and technical services activities	1	Develop a consultancy policy and operational procedures including acceptability criteria for job orders by 08/2004	4,000					
			Conduct workshop on consultancy skills for all staff by 08/2005		4,000		4,000		4,000
	Manage the quality of consultancy and technical	1	Establish a mechanism for screening/editing consultancy proposals by 07/2004	2,000					

	services		Establish and institute a simple mechanism for soliciting consultancy clients satisfaction with services by 08/2004	1,000					
	Strengthen training services	1	Appoint a secretariat (an office) to take responsibility for training by 08/2004						
Carry out a demand assessment for training activities in areas where TIRDO has or can easily develop competence and competitive advantage by 07/2004			5,000						
Introduce and aggressively promote schedule of training courses which are highly demanded by 12/2004			2,000						
Subtotal				14,000	4,000		4,000		22,000
6. Improved Human Resources Capacity and Management	Ensure optimal staffing level	1	Work out the optimal staffing levels for R&D and non R&D staff by 06/2005	3,000					
			Carry out manpower audit by 4/2005 to identify those unable to cope with demands and for staff development	5,000					

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			Retrench excess and unproductive staff by 7/2005		100,000				
Improve staff remuneration, motivation and retention	1		Provide optimal office space for R&D staff by 12/2005	200,000	200,000	200,000	200,000	200,000	
			Review of incentive scheme by 09/2005		4,000				
			Institute an effective housing policy by 06/2005	2,000					
Improve recruitment, deployment and development	1		Introduce contractual employment for new staff 6/2006		1,000				
			Develop and implement TIRDO training policy and program by 12/2004	4,000					
Streamline staff appraisal and facilitate staff publication efforts	1		Review annual performance system for technical and administrative staff by 12/2004	3,000					
Improvement of Professional Skills and Exposure of Staff	1		Facilitate better sabbaticals for R & D staff by 08/2005		10,000				
			Enhance project formulation and design skills through short courses by 12/2005		5,000		5,000		5,000
			Enhance the consulting skills of R & D staff through short courses by 12/2005		2,000		2,000		2,000

			Develop research skills through short courses on research methodology and exchange programmes with local and international institutions from 07/2004	5,000		5,000		5,000	
			Develop entrepreneurial attitudes and skills through short courses by 12/2005 and continuously encourage and reward enterprising behavior		5,000		5,000		5,000
Subtotal				219,000	531,000	205,000	212,000	205,000	1,372,000
7. Increased number and productivity of national and international linkages	Strengthen Management of Links at all Levels	3	Establish modalities and procedures on external relations and funds by 08/2004	5,000					
			Appoint an officer to manage links and assign terms of reference by 07/2004	500					
	Strengthen and Expand Relations with Government	3	Consult government ministries and agencies and request to make TIRDO a technical backstopping point for related matters by 07/2004	1,000					
			Prepare and sign formal memorandum of understanding with key partners by 07/2005		2,000				

	Strengthen and Expand Relations with Local Institutions	3	Organize forum with associations every year from 2004	2,000	2,000	2,000	2,000	2,000	2,000	
			Consult all key training and research institutions to agree on areas of collaboration by 09/2004	1,000						
	Strengthen Relationships with Development Agencies	3	Consult selected donors to discuss collaborative potentials and arrangements by 12/2004 and follow up continuously	2,000	1,000	1,000	1,000	1,000	1,000	
	Strengthen and Expand Links with Foreign R&D Institutes	3	Encourage each research division to have at least one link with other reputable R&D institution by 07/2006		3,000	3,000				
			Monitor and control the productivity of existing links							
Improve Coordination of applied Research	3	Establish an electronic network of institutions involve in developing applied research to share information by 12/2004	2,000							

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			Establish a simple form and procedure for other institutions to share their ongoing research and research outputs with TIRDO by 12/2004	1,000					
			Establish a database of outputs of applied research done in Tanzania or relevant to Tanzania by 12/2004	6,000	1,000	1,000	1,000	1,000	1,000
			Establish a simple newsletter for TIRDO to disseminate applied research results to R&D, academic institutions, business associations and other stakeholders bi-annually by 12/2004	2,000	1,000	1,000	1,000	1,000	1,000
			Establish formal relationships with key local and regional media whereby TIRDO can disseminate information on new technology by 12/2004	1,000					
Subtotal				23,500	10,000	8,000	5,000	5,000	51,500
8. Improved Gender Balance and Mainstreaming	Co-ordination of gender issues	3	Establish a gender dimension program committee by 6/2005	2,000	500	500	500	500	500
	Addressing Root Problems	3	Study and address the causes of low gender balance and mainstreaming at all levels by 12/2005		2,000				

			Sensitize R&D staff and TIRDO management on familiarity with gender issues by 06/2008			2,000			
			Provide deliberate preference for women candidates when employing staff while maintaining qualification standards by 07/2004.						
Subtotal				2,000	2,500	2,500	500	500	8,000
9. Improved Environmental Management	Establish Guidelines for Good Practice	3	Establish garbage collection and disposal system by 07/2004	2,000					
			Establish guidelines and budget for disposal of hazardous chemicals by 12/2005.		5,000				
	Construct and Maintain an Environmentally Friendly Infrastructure	3	Build and maintain drainage system throughout the TIRDO estate by 08/2006			30,000			
	Sensitize TIRDO Staff on Environmental Issues	3	Prepare guidelines and code of conduct for TIRDO staff on environmental issues by 07/2004	1,000					

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			Include sensitization on environmental issues in at least one training course which will be offered to TIRDO staff to ensure all staff are sensitized by 07/2006						
Subtotal				3,000	5,000	30,000			38,000
10. Improved Occupational health services	Enhance Management of Health Services	2	Carry out a study on alternative options and modalities for enhancing access, quality and efficiency of health services including outsourcing through health insurance scheme by 12/2005		5,000				
			Rationalize provision of health services by 07/2006			2,000			
	Provide HIV/AIDS Related Services	2	Introduce more awareness campaigns on HIV /AIDS by 12/2004	1,000		1,000		1,000	
			Strengthen counselling services for affected staff by 12/2004	1,000	1,000	1,000	1,000	1,000	
			Assess possibility of providing free ARVs to affected staff and implement proposals by 05/2005	1,000					
Subtotal				3,000	6,000	4,000	1,000	2,000	16,000
11. Improved Estates	Ensure Optimal Utilization of	2	Develop land use plan by 12/2005		10,000				

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Infrastructure and Management	the TIRDO Land		Implement land use plan by 6/2006						
	Enhance Security of TIRDO Assets and People	2	Improve working tools to security guards provide security guards with internal communication system such as radio call, patrol car and alarm system by 09/2005		50,000				
			Assess possibility of improving effectiveness and efficiency in security through outsourcing by 07/2004		2,000				
Subtotal					62,000				62,000
12. Improved Financial Management and Sustainability	Convince the Government to Increase Subventions to TIRDO	1		2,000	2,000	2,000	2,000	2,000	
	Increase Income Generation Capacity	1	Promote private investment at TIRDO in line with the land use plan by 06/2006		10,000			10,000	
			Introduce and market a variety of income generation products, which are in line with TIRDO core function by 9/2005		5,000				

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			Solicit assignments from private companies for developing specific technologies at a fee	1,000	1,000	1,000	1,000	1,000	
	Improve Financial Management	1	Develop financial and accounting regulations by 12/2004	5,000					
			Train accounting and finance staff on use of ICT by 04/2005	10,000					
			Computerize financial information system by 06/2006		20,000				
Subtotal				18,000	38,000	3,000	3,000	13,000	75,000
Grand total				800,500	1,227,000	847,000	716,000	716,500	4,307,000