2010/11
ANNUAL REPORT

technology innovation
AGENCY

An initiative of the Department of Science and Technology


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INTRODUCTION

The Technology Innovation Agency (TIA) is an initiative of the Department of Science & Technology (DST) that came into existence through the promulgation of the Technology Innovation Agency Act No. 26 of 2008. It merged seven DST entities that were previously responsible for supporting and promoting innovation in South Africa. These entities were: the Innovation Fund, Tshumisano Trust, Cape Biotech Trust, PlantBio Trust, EcoBio LIFElab, BioPAD Trust, and the Advanced Manufacturing Technology Strategy (AMTS).

BUSINESS OF TIA

TIA's mandate is to support and enable technology innovation across all sectors of the economy in order to achieve socio-economic benefits for South Africa, thereby enhancing its global competitiveness. This entails supporting the development and commercialisation of research outputs from higher education institutions, science councils, public entities and private research institutions, with a view to bringing them to the market.

VISION, MISSION AND STRATEGIC GOALS

VISION

To become a world-class innovation agency that supports and enables technological innovation to achieve socio-economic benefits for South Africa through leveraging strategic partnerships.

MISSION

To enhance South Africa's global competitiveness and to deliver socio-economic value through technological innovation across various sectors of the economy.

STRATEGIC GOALS

The goal of TIA is to use South Africa's science and technology base to develop new industries, create sustainable jobs and help diversify the economy from commodity exports towards knowledge-based industries equipped to address modern global challenges.

In order to meet the strategic goals the following were set as business objectives:

- governance,
- human capital management and development,
- investment management,
- business development and support,
- technology innovation management
- knowledge management

Dr Mamphela Ramphele - Chairperson

CHAIRPERSON'S OVERVIEW

In 2008, the TIA Act was promulgated, thus marking the inauguration of the Agency as a legal entity. The Cabinet approved the appointment of the Board in April 2009. The Minister of Science and Technology inducted the Board in July 2009. Since then, this important addition to the Science and Technology community, the Board commenced with the task of operationalising the Agency. This entailed the assumption of the work of the Project Management Office (PMO). The Board called on one of its own, Dr Nhlanhla Msomi to assume the executive duties by acting as an interim CEO until a permanent candidate had been employed.

The merger of seven disparate entities is a logistical and emotional challenge that was under-estimated by many of the key players. The Board pulled together and was able to stabilise the Agency through this period. The Board also had to assume prematurely the responsibilities of one of the seven entities on January 2010 instead of April 2010. This meant that TIA was also technically responsible for the last quarter of the Innovation Fund's activities. Whilst the year under review represent TIA's real inaugural annual report, the Agency has tabled the last quarter of 2009/2010 Innovation Fund's Financial Statements as its own.

After an extensive search both internally and externally, the Board finally recommended Mr Simphiwe Duma as its choice for appointment as CEO by the Minister. The Cabinet approved Mr Duma's appointment on 18 August 2010 and he commenced duties on 01 September 2010. The organisation has since been launched nationally, in Gauteng, KwaZulu-Natal, Western Cape and Eastern Cape Regions with the support of the Minister of Science and Technology, the Director General and his officials; and the members of the Portfolio Committee on Science and Technology.

The energy and resource intensity of bringing TIA into operation is well worth it considering the opportunity costs of South Africa's great inventions that could have continued to disappear overseas or remain in inventors' cabinets. The benefits are demonstrated by the success of some of the projects that have been inherited from the seven entities that form TIA. These include:

- The now world famous breakthrough of the Tenofivor gel for prevention of sexually transmitted diseases.
- The successful development and testing of the Adept Engine, a world first aircraft engine that uses biofuels.
- The successful breeding of the Nguni cattle using a TIA funded embryo transfer technology.

At the TIA funded Technology Stations, in the financial year under review, at least 2,177 SME's products where tested and/or analysed for competitive improvement at these Stations. Out of that number, at least 6 SME's secured export contracts on tested products while 51 accessed new/larger markets. From these a total of 87 technological innovations developed. A number of employment opportunities were created through the Agency's intervention.

The TIA Board's performance has demonstrated dedication going beyond the call of duty. The absence of an executive team put pressure on non-executives board members to engage in managing the transition with all the stresses and strains of uncertainty on the part of staff members, recruiting executives, developing policies and mobilizing resources. The support of the Minister of Science and Technology, Ms Naledi Pandor and her Director General, Dr Phil Mjwara were invaluable.

The Board remains concerned about the unfinished agenda of the transition from disparate entities to a unified Agency with a common purpose. Teething problems remain but the leadership of Mr Simphiwe Duma ably supported by the Chief Financial Officer, Ms Barbara Kortjass, has brought stability to the Agency. The Board is also pleased to see how much energy the executive is putting into leveraging synergies with other Agencies in the Science and Technology family as well as with Development Finance Institutions to promote investments in innovation. We are confident that TIA can add value to the government's efforts to use innovation to promote greater and more inclusive socio-economic development.

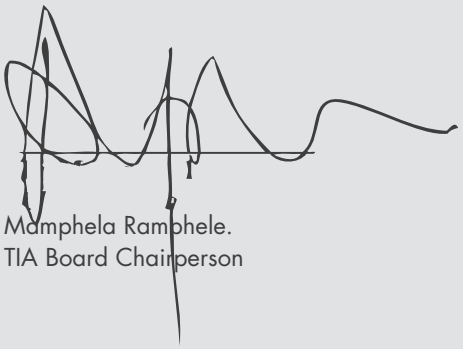
The Board has been confronted by unintended statutory conflicts that make compliance difficult if not impossible. TIA was established as schedule 3(A) Public Entity in terms of the PFMA and at the beginning of the financial year six entities controlled by the Department of Science and Technology (DST) were migrated into the Agency. The migration of these entities with differing procedures, inconsistent application of accounting standards and skills levels into a new integrated organisation presented considerable challenges to the Agency and its senior management, many of whom were only appointed during the course of the financial year. None of these entities had previously been audited in terms of the PFMA or the GRAP standards and had undertaken the promotion of innovation through investments that conflicted with TIA's schedule 3(A) status. Further, the TIA mandate, as expressed in the TIA Act (No 26 of 2008), envisages a business model that conflicts with its PFMA status.

The Agency has conducted extensive dialogue with National Treasury, DST and the Auditor General about the conflicts between its mandate, its inherited entities and the PFMA. It has made considerable progress toward a workable protocol to allow it to fulfill its mandate and regularise its inherited investments. Notwithstanding these efforts, this first full audit of the Agency revealed a number of issues relating directly to these transitional challenges which have resulted in an adverse audit opinion.

The Board accepts the opinion contained in the Auditors report and the challenge it presents to fully comply with the requirements of the PFMA and GRAP. This will require close monitoring of management's action plan to address the shortcomings in capacity and control as well as a continued engagement with inter alia, the DST, National Treasury and the Accounting Standards Board to agree on an operating and accounting regime supportive of its mandate.

Acknowledgements

I wish to express my deep gratitude to Minister Naledi Pandor, the Director General, Dr Mjwara and my fellow Board members.



Mamphela Ramphele.
TIA Board Chairperson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Mr Simphiwe Duma - Chief Executive Officer

CEO'S STATEMENT

The Technology Innovation Agency is privileged to present its inaugural Annual Report for the Financial Year 2010/11. This marks an unequivocal pronouncement that the Agency has commenced with the journey to fulfill its mandate as dictated in the TIA Act of 2008. The activities of the Financial Year under review are summarily captured in the Minister's budget speech on April 2010:

> *The TIA's priority in the 2010/2011 financial year will be to build a high-performance organisation from the merger of the seven entities.*

The Seven Merged Entities

TIA was formed by a merger of seven entities that were programmes of the Department of Science and Technology. These entities are AMTS, BioPad, Cape Biotech Trust, Eco Bio LIFELab, PlantBio Trust, Tshumishano Trust and Innovation Fund. On 1 April 2010, TIA commenced with the process of assuming all the Assets and Liabilities, Staff and other operational matters of all the seven entities. The process of employing close to 200 employees of the entity was completed around June 2010. It is a natural phenomenon that a merger of disparate entities would have an adverse effect on a number of operations, including staff morale. TIA did not escape this as operations were adversely affected during the migration process and staff morale hit some low points in numerous cases. However, once settled, the team went for an organisation wide workshop at the beginning of October 2010, where new processes were hashed out, Agency values developed and a Team Build Exercise was conducted. Once the team had regrouped, TIA was launched nationally and in Gauteng, KwaZulu-Natal, Western Cape and Eastern Cape Regions.

The Agency's Board has assumed full responsibility for the winding down of all the entities. By the end of the year under review, all the Trusts are legal shells that await to be delisted by the Master of the High Court.

The Agency takes this opportunity to apologise unreservedly to the many stakeholders who were adversely impacted by the migration process.

The Agency Management

The Agency was headed by an interim CEO until the 31st August 2010. The new CEO commenced with his duties on 1 September 2010 with a mandate to review the corporate strategy and align it with the organisation's mandate. This included a presentation of an appropriate organisational structure that will take the organisation forward. In November 2010, the Board approved the organisational structure lead by the CEO, CFO, Group Executives (GEs) and Senior General Managers (SGMs). The organisation did lose most of the CEOs of the previous entities. However, appointments were made on a permanent and acting basis on all positions. Notably, the Agency is pleased to have recruited Ms Pontsho Maruping as the Group Executive for Sectors, Ms Makgopela Mkwanazi as GM: Human Resources and Acting GE: Corporate Affairs towards the latter part of the Financial Year. Together with other appointments and other structural adjustments, a dynamic stability has been reached by the organisation.

Strategic Goals

The main goals of the 2010/11 have been to operationalise TIA. The goals entailed in the Corporate Strategy Plan for the Financial Year under review are for the Agency to take its time to develop appropriate management systems. These include:

- governance,
- human capital management and development,
- investment management,
- business development and support,
- technology innovation management
- knowledge management

In addition, to the management systems, the TIA would need to develop a strong brand that will provide a platform for its engagement with its stakeholders. The Agency put most of the these mechanisms in place. This includes the Board Approval of the Investment Framework Policy as required by the TIA Act of 2008.

The TIA Logo

The logo itself shows growth in a stepwise fashion, symbolising the growth that TIA strives to make for innovation in South Africa. This stepwise image symbolises the multiple phases that are required to successfully bridge the research phase to the commercial sector. The lines are streamlined and the letters flow toward the same direction at the top of the logo, symbolises growth of multiple parties towards a single objective. The singe objective will be socio-economic development that TIA's vision endeavours, and the multiple parties could be representative of a number of things including different entities, sectors and technologies. The logo is highly representative of development.

Strategic Partnerships

The Agency is deeply encouraged by the warm reception that it has received from its counterparts within the DST family namely: CSIR and NRF. The interactions have lead to agreed sessions of bilaterals between organisations. The Agency has also managed to sign MOUs with other key stakeholders such as ARC and IDC locally. These relationships are meant to foster collaboration for mutual benefit and to avoid the duplication of effort in other areas. Through the launch of TIA's regional offices, the Agency has initiated partnerships with its regional counterparts. International partnerships have also been established with similar institutions such as OSEO (France), FINEP (Brazil), CTDI (Spain), GTZ/GTi (Germany) and NTBC (Zambia).

Platforms and Technology Stations

The Agency has inherited 14 Biotechnology Platforms, 12 Technology Stations and 3 Tooling Stations. These give TIA a presence in all the Higher Education Institutions within the country. In the year under review, these platforms have been responsible for the rapid prototyping and small scale manufacturing of high end products; and HCD of Science and Engineering skills.

Investment Portfolio

The Agency inherited 126 investment from the seven merged entities. The Agency participates in these investments by holding equity, issuing loans or a royalty agreement. The investments have gone through a process of 'sanitisation' in order to establish their status quo and alignment with the TIA mandate. It is prudent to mention that the seven merged entities had different mandates and modi operandi. Hence the inherited investments carried with them this legacy. In short, all of them carried a different definition of success and failure. Part of TIA's operationalisation is to streamline the definition of success and failure for these investment. In addition, the Agency has to, in consultation, with the National Treasury, DST and the Auditor General, reach a statutory acceptable framework of dealing with some of the investments. As highlighted in the Chairperson's report, investments that were operating perfectly within their mandate within the inherited entities are now being tripped by the different statutory requirements of TIA. The Agency is in the business of investing in technology innovative projects. The nature of this business is such that some investments will be successful and others won't. By the close of the current Financial Review, the Agency has identified 26 investments to be successful (i.e. proven their concepts) and 4 that are ready for commercialisation.

Financial Performance

The Agency is a Schedule 3(a) entity in terms of the PFMA and has to adhere to the relevant statutory requirements. The TIA Act of 2008 has not factored a two year transitional provision clause for streamlining of activities, hence TIA's investments were not captured in line with the requirements of the PFMA. This is due to differing year ends and other GRAP requirements that the previous entities were not tuned to. As a consequence, the Agency has received an adverse opinion on this technicality. However, TIA is pleased that this has not been as a consequence of the mismanagement of funds and other misdemeanours that society normally frown upon.

At the commencement of April 2010, TIA was still having it's line created with the National Treasury, hence it only received its MTEF allocation of R 410m in two tranches in October 2010 and December 2010. This created havoc in terms of forward planning but the Agency was able to stay afloat with the assistance of DST and internal rationalisation. Under the circumstances, the Agency is pleased that there was no approved project that was shut down because of the lack of funding. A moratorium of funding for new projects was effected temporarily (July to September), but was lifted as soon as funds were received. The Agency closed the year with the Income of R 606 million for the year and a net surplus, to be carried over to the next financial year of R 198 million.

The organisation has been cleared by the external auditors as a going concern entity.

Acknowledgements

I wish to express my deep gratitude to the Members of the Board under the leadership of the Chairperson, Dr Ramphele, for guiding the Agency through a very daunting merger and their constant availability to lend a helping hand to management. This has been behaviour beyond the call of duty. My heartfelt appreciation also goes to Minister Pandor, the deputy Minister Hannekom, Director-General Dr Philemon Mjwara, Deputy Director General Val Munsami and other members of the DST community for supporting TIA to find its feet. My profound gratitude also goes to the many man and women who work at TIA. They are TIA's heart beat. Thank you for steadying the ship at some critical times of the organisation. Lastly, the CFO, Ms Barbara Kortjass, has the thanks of a very grateful Agency for all her counsel, hardwork and leadership.

Simphiwe Duma
Chief Executive Officer

The establishment of the agency, once the TIA Act was promulgated, started with the development of the governance structure of the agency. This section outlines the achievements related to the agency's governance structures. This includes the appointment of the board, board committees and their functions, the risk management and the investment framework policy which supports the key business of the agency

Section One

technology innovation agency Governance

PROFILE OF BOARD MEMBERS

The board is chaired by Dr Mamphela Ramphele, former vice-chancellor of the University of Cape Town (UCT) and a former Managing Director of the World Bank, with Dr Patrick Ngwenya as the deputy chairperson.

Chairperson
Dr Mamphela Ramphele
MBCHB, PhD (Social Anthropology), BCom (Administration), and Diplomas in Tropical Health and Hygiene, and Public Health.

Position/Affiliation

Founder of Letsema Circle, Chair of Goldfields, Chair of Eduloan and Director of Anglo American Plc. Former Chair of Convenors of the Dinokeng Scenarios, Former Managing Director of the World Bank, Former Co-Chair on the Global Commission for International Migration, Former Vice-Chancellor of the University of Cape Town.

Field of Expertise

Physician and anthropologist. Academic governance structures, education and health policies, monitoring and evaluation.

Deputy Chairperson
Dr Patrick Ngwenya
MBA, PhD (Chemistry)

Position/Affiliation

Executive Director of Tsiya Group (Pty) Ltd, former chairman of the Nuclear Energy Corporation of South Africa (NECSA), non-executive director of Unisys Africa and CKS Investments.

Field of Expertise

Academic scientific research and lecturing at institutions of higher learning, public and private sector consulting in business strategy.

Ms Cheryl Carolus
BA Law, B. Ed

Position/Affiliation

Chairperson of South African Airways (SAA), Executive Chairperson of Peotona, board member of Investec Ltd and Investec plc, Mercedes Benz SA, International Marketing Council, PG Group, Gold Fields Limited, International Crisis Group, World Wildlife Fund and The Constitution Hill Trust.

Field of Expertise

Legal, tourism, business and biodiversity.

Mr Craig Venter

BCom, BA, MBA, MSc

Position/Affiliation

Chief Executive Officer (CEO) of Altech Group, board member of Altron Executive Committee, patron of the Altech Academy, honorary member of the Altron Young President's Club.

Field of Expertise

Strategy, transformation and restructuring.

Ms Helen Brown

BA (Social Sciences),HDPM (post-graduate diploma in management), DELF 4

Position/Affiliation

Senior Project Manager at MERSETA (Manufacturing Engineering & Related Sector Education Training Authority). Former board member of the Tshumisano Trust, technical advisory committee member of both the National Nuclear Manufacturing Centre at NECSA and the Institute of Advanced Tooling, and review panel member of AMTS-IU.

Field of Expertise

Human capital development, industrialisation of emission reduction technologies and project management.

Mr Ilan Lax

B Proc

Position/Affiliation

Attorney at Ilan Lax Attorneys, Chairman of Federation of South African Flyfishers, Wilderness Action Group, Rainman Landcare Foundation, Ukulungisa Project Preparation Fund, deputy chairman of KZN Town Planning Appeals Board, Association for Rural Advancement; Treasurer of NADEL and Project Preparation Trust KZN.

Field of Expertise

Legal and justice system.

PROFILE OF BOARD MEMBERS CONTINUED

Dr Nhlanhla Msomi

BSc (Hons), PhD

Position/Affiliation

Executive Chairman of CityWorks (Pty) Ltd., President of the South African Society of Biochemistry and Molecular Biology, chairman of the executive committee of the United World College Trust (South Africa), member of the board of Governors for the Centre for Genetic Engineering and Biotechnology, non-executive director of Trade and Investment KwaZulu-Natal and former member of the National Advisory Council on Innovation.

Field of Expertise

Biotechnology, finance and investments and corporate governance.

Mr Ross Norton

BSc (Chemical Engineering), PMD

Position/Affiliation

Co-founder and chairman of SA Bioproducts, chairman of Ufion Pty Ltd and former chairman of LIFElab.

Field of Expertise

Technology development and commercialisation.

Dr Steven Cornelius

BSc (Hons), BVMCh, BVSc (Hons), SEP

Position/Affiliation

Senior Lecturer in Veterinary Physiology at the University of Pretoria, chairman of the Meat Industry Trust, acting chairman of Onderstepoort Biological Products Board, external audit committe member of the Agricultural Research Council and member of the South African Veterinary Council. Former chairman of BioPad and Head of Department of Agriculture and Rural Development in Gauteng.

Field of Expertise

Veterinary science

Prof Susan Harrison

BSc (Chemistry and Microbiology), PhD (Chemical Engineering)

Position/Affiliation

Professor of Chemical Engineering at the (UCT), NRF-DST SARChI Research Chair in Bioprocess Engineering, former head of the department of Chemical Engineering at UCT, former chair of Cape Biotechnology Trust, Board member of the UCT Research Committee and previously UCT Council.

Field of Expertise

Bioprocess engineering, metal extraction from minerals ores, bioenergy from algae and production of final chemicals, research experience is in both academic and industrial contexts, research management in the academic environment and commercialisation of research.

Chief Executive Officer
Mr Simphiwe Duma

BSc (Electrical Engineering and Computer Science), Post Graduate Diploma (Engineering Business Management), M.Eng (Electronic Engineering)

Postion/Affiliation

Former chief executive and chief engineer at Psidot Technology Holdings, former Chief Engineering Consultant at Lebone Engineering, Senior member of the South African Institute of Electrical Engineers, Professionally registered Engineer with the Engineering Council of South Africa, Fellow at South African Academy of Engineering

Field of Expertise

Engineering and Technology Innovation.

BOARD RESPONSIBILITIES

The responsibilities of the Board are governed by the Technology Innovation Agency Act, 2008. The Board approves the strategy, goals, operating policies and priorities for the Agency and monitors compliance with policies, as well as the Agency's achievements against objectives.

With the exception of the CEO, all members of the Board are non-executive. TIA Board members are actively involved in and bring independent judgement to bear on Board deliberations and decisions. The Board, whose current number of members conforms to the minimum statutory requirements, meets quarterly. For the year under review, the Board met on 20 May 2010, 20 August 2010, 12 November 2010 and 21 February 2011.

The Annual Financial Statements for the 2010/11 financial year were approved on 11 August 2011. TIA Board has the following sub-committees: Chairpersons' Committee, Infrastructure Committee1,Human Resources Committee, Audit and Risk Committee and the Investment Committee. These committees are selected according to the skills sets required for the committees to fulfill their function. For the 2010/11 financial year, the committees complied with their respective terms of reference.

2010/11 BOARD AND COMMITTEE MEETINGS REGISTER

SUMMARY OF ATTENDANCE

Board Member	Board meetings	Chairpersons' Committee meetings	Audit and Risk Committee	Human Resources Committee	Investment Committee
Dr Mamphela Ramphele	4	4			
Mr Ilan Lax	4	4		9	8
Mr Ross Norton	4	4	4		8
Ms Helen Brown	4			9	
Ms Cheryl Carolus	4				3
Dr Steven Cornelius[2]	3		3	2	5
Prof Susan Harrison	4		3		6
Mr Craig Venter	1	1			2
Dr Patrick Ngwenya	4	1		9	
Dr Nhlanhla Msomi[3]	1	1	1	2	2
Mr Simphiwe Duma[4]	2	2	2	4	3
Ms Barbara Kortjass[5]	3	3	3	4	4

BOARD MEETINGS

Board Member	20 May 2010	20 August 2010	12 November 2010	21 February 2011
Dr Mamphela Ramphele	•	•	•	•
Dr Patrick Ngwenya	•	•	•	•
Prof Susan Harrison	•	•	•	•
Ms Cheryl Carolus	•	•	•	•
Mr Ross Norton	•	•	•	•
Ms Helen Brown	•	•	•	•
Mr Ilan Lax	•	•	•	•
Mr Craig Venter		•		
Dr Steven Cornelius		•	•	•
Dr Nhlanhla Msomi[1]	•			
Mr Simphiwe Duma			•	•
Ms Barbara Kortjass[5]		•	•	•

[1] The infrastructure committee was dissolved by the Board at its meeting of 20 May 2010.
[2] Dr Cornelius was appointed to the Human Resources Committee at a Board meeting held on 12 November 2010.
[3] Dr Nhlanhla Msomi was Interim Chief Executive Officer effective from 9 September 2009 till 19 August 2010.
[4] Mr Simphiwe Duma was appointed Chief Executive Officer with effect 1 September 2010.
[5] Ms Barbara Kortjass (CFO) is permanent invitee to all Board and Board Committee meetings as per Board decission of 12 November 2010.

CHAIRPERSONS' COMMITTEE MEETINGS

Board Member	13 May 2010	03 August 2010	08 November 2010	14 February 2011
Dr Mamphela Ramphele	•	•	•	•
Dr Patrick Ngwenya		•		
Mr Ross Norton	•	•	•	•
Mr Ilan Lax	•	•	•	•
Mr Craig Venter		•		
Dr Nhlanhla Msomi	•			
Mr Simphiwe Duma			•	•
Ms Barbara Kortjass[5]		•	•	•

AUDIT AND RISK COMMITTEE MEETINGS

Board Member	10 June 2010	29 July 2010	08 November 2010	03 February 2011
Mr Ross Norton	•	•	•	•
Prof Susan Harrison	•	•		•
Dr Steven Cornelius		•	•	•
Ms Lynette Milne[6]	•	•	•	•
Dr Nhlanhla Msomi	•			
Mr Simphiwe Duma			•	•
Ms Barbara Kortjass[5]		•	•	•

INVESTMENT COMMITTEE MEETINGS

Board Member	14 April 2010	20 May 2010	20 June 2010	13 July 2010	03 August 2010	14 October 2010	13 January 2011	15 March 2011
Mr Craig Venter	•				•			
Prof Susan Harrison	•	•	•			•	•	•
Mr Ilan Lax	•	•	•	•	•	•	•	•
Dr Steven Cornelius				•	•	•	•	•
Mr Ross Norton	•	•	•	•	•	•	•	•
Ms.Cheryl Carolus	•	•						•
Ms Lynette Milne[6]		•	•	•	•	•	•	
Dr Nhlanhla Msomi		•	•					
Mr Simphiwe Duma						•	•	•
Ms Barbara Kortjass[5]				•	•		•	•

HUMAN RESOURCES COMMITTEE MEETINGS

Board Member	29 April 2010	13 May 2010	16 July 2010	06 August 2010	17 August 2010	16 September 2010	14 October 2010	10 February 2011	31 March 2011
Dr Patrick Ngwenya	•	•	•	•	•	•	•	•	•
Ms Helen Brown	•	•	•	•	•	•	•	•	•
Mr Ilan Lax	•	•	•	•	•	•	•	•	•
Dr Steven Cornelius								•	•
Dr Nhlanhla Msomi	•	•							
Mr Simphiwe Duma						•	•	•	•
Ms Barbara Kortjass[5]				•	•			•	•

[5] Ms Barbara Kortjass (CFO) is permanent invitee to all Board and Board Committee meetings as per Board decission of 12 November 2010.
[6] Ms Lynette Milne is not a member of the Board but was co-opted to be a member of the Audit and Risk as wel as the Investment Committees by virtue of her qualifications.

BOARD COMMITTEES

APPOINTMENT OF THE BOARD

The TIA Board was appointed at the Cabinet meeting of 15 April 2009.

POWERS AND FUNCTIONS OF THE BOARD

The Board is established in terms of section 5 of TIA Act and is responsible for the management and control of the Agency. In undertaking this mandate the Board is subject to the provisions of the Technology Innovation Agency Act, 2008, the Public Finance Management Act, 1999 and any other applicable statutory or regulatory provision.

The Board's responsibilities include:

- Acting as the focal point for, and custodian of, corporate governance by managing its relationship with management, the shareholders and other stakeholders of the Agency along sound corporate governance principles.
- Providing effective leadership on an ethical foundation.
- Giving strategic direction to the Agency, recommending to the Minister of Science and Technology the appointment of the chief executive officer and ensuring that succession is planned.
- Preparation and integrity of the annual financial statements and all related information.
- Defining levels of materiality and significance, reserving specific power to itself and delegating other matters with the necessary written authority to the chief executive officer.
- Determination of policy and processes to ensure the integrity of the Agency's risk management and internal control procedures.

HR COMMITTEE

The purpose of the Board's Human Resources Committee is to ensure that TIA develops a framework, policies, guidelines and environment that allows it to employ, reward and retain dedicated, motivated, efficient and loyal employees. This to achieve TIA's long-term strategic plans and compliance with and oversight of human resources related matters.

AUDIT AND RISK COMMITTEE

The committee assists the Board to discharge its responsibilities through due care, diligence and skill in relation to the Agency's:

- reporting of financial information;
- application of accounting policies;
- financial management;
- internal control systems;
- risk management systems;
- protection of the Agency's assets; and
- compliance with applicable laws, regulations, licenses, standards and best practice guidelines.

In so doing, the committee reviews:

- the effectiveness of the internal control systems;
- the effectiveness of internal audit;
- the risk areas of the entity's operations to be covered in the scope of internal and external audits;
- the adequacy, reliability and accuracy of financial information provided to management and other users;
- any accounting and auditing concerns identified as a result of internal and external audits;
- the entity's compliance with legal and regulatory provisions;
- the activities of the internal audit function, including its annual work programme coordination;
- the reports of significant investigations, external auditors and the responses of management to specific recommendations; and
- where relevant, the independence and objectivity of the external auditors.

INVESTMENT COMMITTEE

This committee is mandated to approve investments of a specific threshold, which the Board deems to be appropriate in pursuit of TIA's mandate and strategic objectives. In the transitional stages the committee was guided by the interim operational framework (approved by the Board) in undertaking its mandate. The Investment Framework Policy, as prescribed by the Technology Innovation Agency Act, which governs investment decisions of the Agency, is in the process of being promulgated by the Minister of Science and Technology.

The committee is responsible for:

- reviewing and approving the asset allocation policy and associated prudential limits within funds at least annually;
- making decisions to acquire or dispose of investment assets within the Significance Framework (if applicable);
- making decisions to write off investment assets, within the Significance Framework;
- making decisions in respect of shareholder consensus matters for companies where TIA has a shareholding;
- recommending investment decisions to the Board where the proposed decision falls outside of the approved limits;
- providing guidance and assistance to the executive committee in investment related matters; and
- considering appeals to all investment decisions.

CHAIRPERSONS' COMMITTEE

This is the "executive committee" of the Board which defines the agenda for Board meetings and reviews recommendations from management and Board committees before they are presented to the full Board. The committee comprise of all chairpersons of the committees, the Deputy Chairperson of the Board and the chairperson.

GOVERNANCE SUPPORT

RISK MANAGEMENT

TIA has a dedicated unit responsible for enterprise risk and internal audit, which is aimed at ensuring proper management of risks and implementation of the risk management process throughout the agency. TIA adopted both local and international best practice in all its risk management processes, policies, frameworks and structures.

TIA therefore aligns itself with the King III guidelines on corporate governance, SANS 31000:2009, as adopted from the ISO 31000: International Risk Management Standard for South Africa and COSO (Committee of Sponsoring Organisations) Risk Management Framework. Importantly, TIA complies with the requirements of the Public Finance Management Act (PFMA) and with the National Treasury's Risk Management Framework.

The PFMA requires that an Audit Committee be established to provide oversight of the risk management process, especially internal audit, and financial governance of the entity. This Committee is accountable for risk management governance within the Agency, including approval of the risk management policy, strategy, regular review of TIA's strategic risks and approves the internal audit charter and internal audit coverage, in addition to reviewing financial matters. The following principles are catered for in the execution of the Enterprise Risk Management process:

- Risk-based audit: TIA follows a risk-based approach when formulating its internal audit coverage and ensures risk-based audits are performed. An annual review of the strategic risk is performed and a regular review of risk management/treatment of the risks, as well as identification of emerging risks.
- Information Technology Governance: Part of the risk management processes is to ensure that TIA reviews the information technology risks and that mitigation actions are in place.
- SANS 31000:2009 (ISO 31000): This standard provides principles to be followed by an entity, including a government agency, to ensure a standardised risk process, culture and reporting mechanism is in place.
- Understanding of the organisation and its context: TIA operates in the technology innovation space which poses specific risks regarding funding services and establishing client base. TIA should ensure that measures are in place to mitigate such risks.
- Establishing Risk Management Policy: TIA's risk management policy states the position of risk management with clear accountabilities and reporting mechanisms, as well as other accompanying policies and strategies related to risk.
- Accountability: TIA promotes accountability of risk management at different levels throughout the agency, as evidenced by its policy and strategy documentation.
- Resources: TIA has enterprise risk and internal audit resources for combined assurance. In a continuous review of the adequacy of resources the agency ensures value can be added in these activities.
- Internal communication and reporting mechanism: Risks are reported and discussed at Exco on a regular basis, with quarterly reporting to the board's audit and risk committee. Communication on risk by means of awareness training and risk assessment workshops are regularly conducted throughout the agency.
- External communication and reporting: Besides the risk management report in the annual report, the agency's reporting to DST includes risk identification and management of strategic risks.

GOVERNANCE SUPPORT CONTINUED

For TIA to consistently and effectively manage its risks, the Board approved the following governance processes:

a) Enterprise Risk Strategy and Plan: This document provides insight on the broad activities and delivery mechanisms to be undertaken by the enterprise risk function.

b) Fraud and Corruption Prevention Policy: The aim of this policy is to facilitate development of controls which will assist in the prevention and detection of fraud and corruption, as well as to provide guidelines on the appropriate response to instances of fraud and corruption.

c) Fraud and Corruption Prevention Strategy and Plan: The strategy provides for appropriate measures to respond to detection and remedies for fraud and corruption.

d) Internal Audit Charter, including the Risk-based Internal Audit Coverage Plan for the TIA's operations.

INTEGRATED RISK MANAGEMENT

The provision of an integrated assurance as required by King III calls for TIA's risk management function to incorporate the following:

a) Occupational Health and Safety (OHS): TIA provides an occupational health and safety programme that ensures a safe work environment for all. The activities in this programme will include conducting OHS risk assessments, promote occupational health and safety awareness, ensure health and safety measures are in place as required by the Health and Safety Act, monitor safety related functions and promote best practice in health and safety matters, as well as disseminate information across TIA. The approved Enterprise Risk Stratergy & plan incorporates the facilitation of Occupational Health Safety Compliance by TIA.

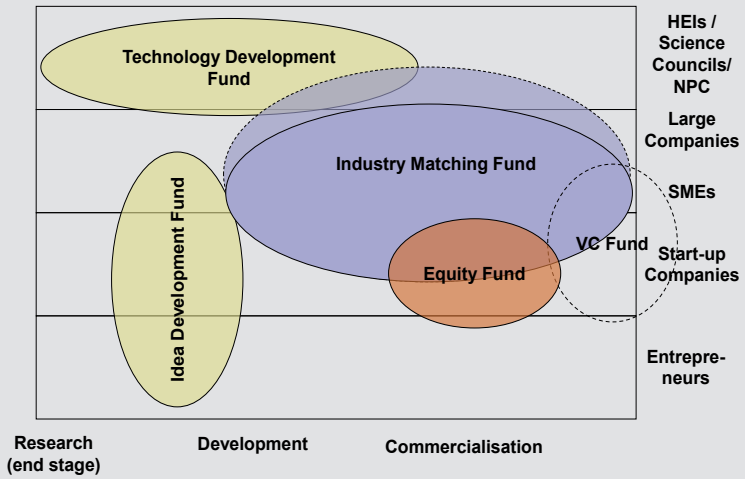
b) Business Continuity Management (BCM): a management process that identifies potential impacts on TIA's activities and building the necessary capability for an effective response. BCM activities will include conducting business impact assessments, ensuring disaster and business recovery, as well as providing emergency and incident management to ensure continuity of TIA's activities, as part of the Enterprise Risk Strategy and Plan for TIA.

INVESTMENT FRAMEWORK

TIA Investment Framework Policy and the Investment Policy have been approved by the Board. The Policy established five funding instruments (Funds). The Funds are financial products offered by TIA to its clients. Each Fund is specifically targeted to a cluster of client types, applicable investment instruments and stage of innovation, in a particular risk profile, thereby enabling coherent management of similar risk investments. The Funds address the needs of different TIA clients including Science Councils and Higher Education Institutions as well as Start-up, small, medium and large companies.

The process of gazetting the Investment Framework Policy has been initiated for completion in the following year. The instruments are:

TIA INVESTMENT FUNDS/PRODUCTS



The following table introduces the different Funds' mandates and clients served.

FUND	MANDATE	CLIENT CATEGORY
Industry Matching	Investments into small, medium and large companies (where partnerships with small companies, HEIs and SCs will be incentivised) to drive Technology Innovations. Funding is typically provided as matched funding (from any source) for a Royalty or matching Loan- or preference shares.	• Entrepreneurs • SMEs • Science Councils • Higher Education Institutions
Equity	Investments into Start-up companies with a prototype or similar to drive Technology Innovations which may not have the capital to match TIA's investment or have the track record or balance sheet to secure loan finance. Funding is typically provided for equity and preference shares.	• Entrepreneurs • Start-ups
Technology Development	Investments provided for pre-competitive end-stage research and development projects, where TIA considers the merit of the projects sufficient to warrant support without partnership with industry.	• Science Councils • Higher Education Institutions
Idea Development (Including Patent Support)	Limited funding provided to assist with patenting costs and/or enable development of a fundable proposal/ business plan including market studies and prototype construction.	• Entrepreneurs
Venture Capital	TIA will investigate the feasibility of a future programme to catalyse the venture capital industry in South Africa.	• Not yet applicable

INNOVATION VALUE CHAIN

The Innovation Value Chain has been broken down as follows:

Stage 0 - (Pre-commercial)	Basic research	To be supported by other members of the NSI.
Stage 1 - (Pre-commercial)	Applied research	TIA will only fund where absolutely necessary.
Stage 2 - (Pre-commercial)	Development	TIA's focus is on the development of technology through to a working prototype.
Stage 3 - (Commercial)	Commercialisation	TIA's focus is on the initial steps to enter the market, manufacturing of sufficient volumes to cross regulatory hurdles and win customers towards self-sustainability.
Stage 4 - (Commercial)	Expansion	TIA will typically be a passive partner or, if appropriate, seeking exit on success.

INVESTMENT INSTRUMENTS

TIA will utilise the following suite of financial instruments either independently or in combination, based primarily on the type of client (and their needs), the stage in the investment life cycle and the instruments deployed by co-investors:

INSTRUMENT	STAGES	BENEFITS AND OUTCOMES	ATTRIBUTE
Grant	1,2	• Reported outputs	NA
Royalty	2,3	• Reported outputs • Royalty	Royalty (direct revenues and/or net receipts)
Matching grant	1,2	• Reported outputs	Matching funding
Matching with Royalty	1,2	• Reported outputs • Royalty	Matching funding and a Royalty
Preference shares	3,4	• Reported outputs • Other outcomes i.e. Interest and capital	Matching funding
Ordinary equity (with preference shares)	3,4	• Reported outputs • Other outcomes i.e. Interest, capital • Potential capital gain	Risk mitigation-based call and put options and conversions
Loan (matching)	3,4	• Reported outputs • Other outcomes i.e. Interest and capital	Matching funding

Note: Matching funding requirements are 50% or less as determined on a case by case basis according to the guidelines provided in the Investment Policy Procedures Manual.

INVESTMENT FRAMEWORK

INSTRUMENT/ENTITY MATRIX

TIA will generally deploy the suite of financial instruments to entities engaged in activities falling in the stages of the Innovation Value Chain as shown in the matrix below.

The colours imply the following for TIA:

- red: inappropriate or rare
- green: most common/normal
- yellow: less common

The matrix should be used in "lookup" mode and not as a representation of the sequence that a given entity/opportunity should follow. In the pre-commercial stages the instruments are Grants with Royalties while in the post commercial stages the instruments are Loans and Equity. Financial returns to TIA will typically come out of the commercial success eventually achieved. However in the case of established small, medium and large companies the entity will be required to service and repay the Loan.

Table 2: Instrument entity matrix

	Stage 0 (Basic research)	Stage 1 (Applied research)	Stage 2 (Technology & product development)	Stage 3 (Market validation & launch)	Stage 4 (Expansion)
HEIs and SCs (Stages 3 & 4 to happen with companies)	NA	Grant and Grant(Royalty)	Grant and Grant(Royalty)	NA	NA
Consortia (Stages 3 or 4 to happen with companies)	NA	Grant, Grant (Royalty) and Matching Grant (Royalty)	Grant, Grant (Royalty) and Matching Grant (Royalty)	NA	NA
Entrepreneurs / Start-up companies (Not yet financially robust)	NA	Grant (Royalty) and Matching Grant (Royalty)	Grant (Royalty) and Matching Grant (Royalty)	Equity (26%-49%) + Pref Shares	Matching Pref Shares and Matching Loan
Small Companies (Established)	NA	Grant (Royalty) and Matching Grant (Royalty)	Matching Grant (Royalty)	Matching Pref Shares	Matching Pref Shares and Matching Loan
Medium and large companies	NA	Grant (Royalty) and Matching Grant (Royalty)	Matching Grant (Royalty)	Matching Loan	Matching Loan

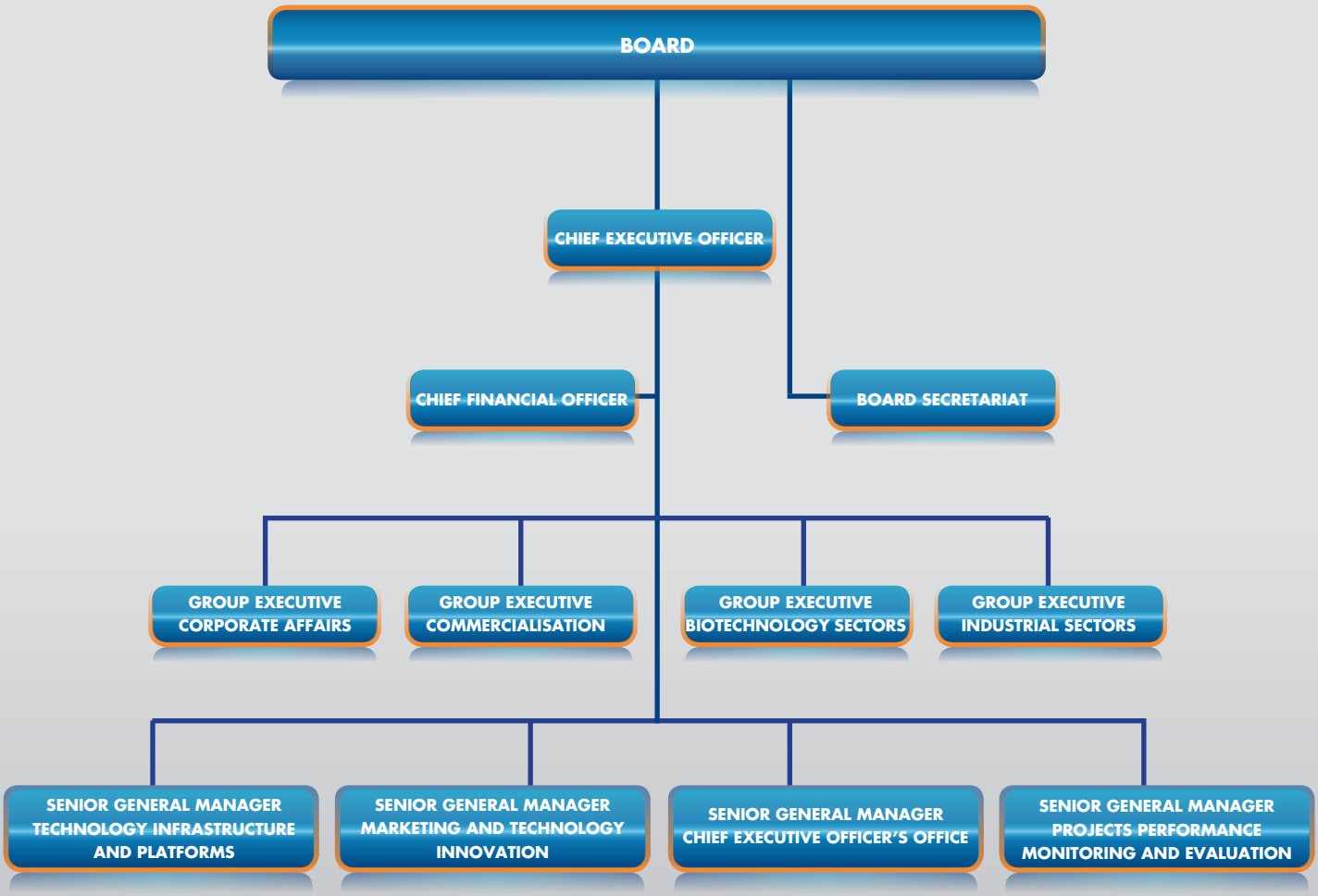
Section TWO

Agency Management

technology innovation agency

ORGANISATIONAL STRUCTURE

The process of migrating entities into a single agency resulted in an organisational structure being defined prior to the corporate strategy being finalised. It was therefore, always understood that the initial structure will be reviewed in order to better align the agency functions to the mandate and strategic objectives. The structure presented below was approved by the board in November 2010.



BUSINESS OVERVIEW

TIA's business was arranged around nine Divisions, each supporting a number of business units.

DIVISION	BUSINESS UNITS
Office of the CEO	Operations
	Strategic Partnerships
	Board Secretariat & Legal Advisory Services
	Human Capital Development
	Special Projects
Office of the CFO	Investment Audit and Compliance
	Financial Management
	Supply Chain Management
Biotechnology Sectors	Agriculture
	Health
	Industrial Biotechnology
Industrial Sectors	Advanced Manufacturing
	Energy
	ICT
	Mining
Technology Infrastructure & Planning	Centres of Competence
	Technology Platforms
	Technology Stations
Marketing & Technology Innovation	Marketing & Branding
	Technology Innovation
Projects Performance Monitoring & Evaluation	Post-Investment Performance Management
Corporate Affairs	Legal Services
	Human Resources
	Corporate Strategy
	Risk, Audit, IT and Knowledge Management
Commercialisation	Business Support & Advisory Services
	Expert Services
	Fund Management

THE OFFICE OF THE CEO

The Office of the CEO comprises the units directly supporting the CEO's activities and are regarded as strategically important to the Agency as outlined below.

OPERATIONS

This unit is charged with operational management of the CEO's office, including the provision of strategic advocacy and secretarial services for the Executive Committee (Exco) and the Investment Assessment Committee. Furthermore, the unit assists in the management of all investment related information, from process management to data on the overall investment outlook for TIA.

The unit is also the contact point on matters such as parliamentary and DST matters and related stakeholder issues addressed to the Office of the CEO.

STRATEGIC PARTNERSHIPS

Through the Strategic Partnership office, TIA leverages relationships with institutions such as the IDC and NEF for funding collaboration, and international relations with counterpart entities like OSEO (France), FINEP (Brazil), CDTI (Spain), GTZ/GTI (Germany) and NTBC (Zambia). These relations are also used in developing markets in South Africa and abroad for TIA supported innovations.

The strategic partnership function pursues four key objectives in the short, medium and long-term:

- To develop a stakeholder management framework that promotes a value proposition and strategic capital for TIA, which will include consolidation of existing partner relations and launching of high impact stakeholder events to increase TIA's visibility;
- To build partnerships and relations with provincial structures in under-serviced provinces to expand TIA's national footprint;
- To establish strategic relations with key funding and development agencies to enhance TIA's sustainability and bolster its service offerings beyond its current funding capacity;
- To develop strategic relations with selected international partners with an eye on leveraging resources for human and institutional capacity development, in-bound technology transfer and opportunities for technology collaboration.

BOARD SECRETARIAT

Working closely with the CEO in preparing for Board meetings and other related matters, this Unit provides secretarial services to TIA Board and committees. It also provides advisory services to the CEO and the Board on statutory matters related to governance of TIA.

HUMAN CAPITAL DEVELOPMENT

This unit is charged with managing TIA programmes geared towards developing the requisite human capital for technology innovation. These programmes included the continued support of the IP & Patent Attorney programme and the Commercialiasation Managers' programmes.

OFFICE OF THE CFO

Headed by the CFO, the Finance Unit is tasked with financial compliance to statutory requirements, such as the PFMA; PPPA; and other related Acts. It is also responsible for constant investment audit and compliance checks of all TIA investments, to ascertain that all TIA's investments are in line with the relevant corporate governance laws.

INVESTMENT AUDIT & COMPLIANCE UNIT

The Unit provides independent and objective assurance and consulting to TIA through deploying a structured and systematic audits of selected investments and projects. The Unit also provides compliance reviews to investments in terms of laws, rules and relevant regulatory frameworks.

FINANCIAL MANAGEMENT

The primary role of the Financial Management Unit is the management of the financial resources available to the Agency.

The main functions of the unit are:

- planning and controlling of budgets within the Agency
- monthly management information reporting

- ongoing development of the financial management system; and
- ensuring custody and control of assets

SUPPLY CHAIN MANAGEMENT

The Unit manages all stages of supply chain for TIA, in line with the PFMA and the related Treasury regulations.

BIOTECHNOLOGY SECTORS

TIA's Biotechnology Sectors focus is influenced by the current portfolio of investments inherited from the BRICS and Innovation Fund. This sector comprises three business units, namely Agriculture, Health and Industrial Biotechnology.

AGRICULTURE

TIA's interventions in the agriculture sector focused on providing innovation assistance to stakeholders in the agricultural industries to introduce crops that are resistant to negative environmental changes. It also works with local and international partners to identify new market opportunities, notably also identifying opportunities in agricultural areas that have positive impact on the government's rural development agenda.

HEALTH

The health sector's strategic objectives, in line with national imperatives, include the reduction of dreaded diseases like HIV/Aids and TB, and are summarised as:

- To provide appropriately structured financial and non-financial interventions for the commercialisation of health products and services that address health needs of the country;
- To form strategic public-private partnerships with key stakeholders in the local and global drug development and diagnostic industries with a view to support the development of diagnostic, preventative and therapeutic products with a special focus on HIV/Aids, TB and malaria; and
- To support applied research, development and commercialisation of new medicines from indigenous plants, whilst also establishing an indigenous knowledge-systems pharmaceutical industry.

INDUSTRIAL BIOTECHNOLOGY SECTOR

Industrial biotechnology overlaps with other technology sectors, such as energy, health and agriculture, in the sense that it makes use of micro-organisms and enzymes in the production of chemicals, food and feed, paper and pulp, textiles and energy. Projects in this sector will encompass bioremediation, bio-industrial products, biochemical products and bio-energy areas.

INDUSTRIAL SECTORS

TIA's Industrial Sectors are influenced by investments in its inherited portfolio, which consists of both the resource and applications based sectors of Advanced Manufacturing, Energy, ICT and Mining.

ADVANCED MANUFACTURING

TIA's Advanced Manufacturing Unit will focus on the following objectives:

- TECHNOLOGY - Building on existing manufacturing capabilities to increase and create new competitive advantages in manufacturing.
- INDUSTRY - Facilitate development of competitive Advanced Manufacturing (AM) industry.
- KNOWLEDGE NETWORKS - Foster the development of AM networks to co-ordinate and direct research activities in the sector.
- GREEN MANUFACTURING - Facilitate the greening of the brown economy to position the AM industries to take advantage of the increasing demand for environmentally friendly products.

ENERGY

The Energy sector encompasses two areas, namely energy supply and energy management, with the main technology focus on energy supply, which consists of:

- Renewable energy technologies (solar, wind, hydro, geothermal, ocean power, bioenergy);
- Energy recovery;
- Combined heat and power (including fuel cells);
- Energy storage; and
- Energy efficiency.

INFORMATION COMMUNICATION TECHNOLOGY

The Agency inherited a number of ICT projects that include CAD software for superconductor microchips, hence its ICT activities will aim to complete the commercialisation of the existing projects. In addition the Agency will develop a more comprehensive strategy in the next financial year which will include the investigation of applications that can be developed to support the national space programme and the government's digital terrestrial television programme.

MINING

Some mining related projects were inherited from the Innovation Fund and the draft Mining Innovation Strategy has been developed. As a major mining and minerals producer, South Africa has a high level of technical and production expertise, along with comprehensive research and development capabilities. Although it is regarded as a leader of new technologies, such as a groundbreaking process to convert low-grade superfine iron ore into high-quality iron, the government has identified beneficiation, or value-adding to raw mineral materials before export, as a major growth area. Therefore, TIA will focus on research and development activities and lucrative value adding opportunities for downstream processing of iron, carbon steel, stainless steel, aluminium, platinum group metals and gold.

The overall objectives for the Mining Unit are defined as:

- Productive Exploration: Use advanced technologies to improve discovery and knowledge of South African mineral reserves.
- Efficient, safe and competitive production: Use advanced technologies to improve process efficiencies from exploration to final product and reduce worker exposure to hazards as well as maintain a competitive mining sector.
- Environmental Management: Support the development of technologies to minimise the impact from mining activities on the environment and the community.
- Beneficiation: Support beneficiation of South Africa's minerals.
- Lateral migration: Exploit the knowledge and capacity in the mining sector to create new high-value economic sectors.
- Innovation culture through skills development: Build an innovation culture through leadership, skills and support infrastructure.

TECHNOLOGY INFRASTRUCTURE & PLANNING

TIA's technology infrastructure function consists of Centres of Competence, Technology Platforms and Stations, housed at the different HEIs, from where TIA can deliver technology assistance to SMMEs. These technology platforms and stations are equipped with state-of-the-art equipment and are resourced with highly competent individuals in specialised fields. TIA aims to use its infrastructure to address a number of national priorities.

This infrastructure and planning portfolio will be servicing not only TIA-specific sectors, but also other public and private sectors. Currently more than 13 technology platforms and 15 technology stations have been established throughout South Africa.

MARKETING & TECHNOLOGY INNOVATION

TIA's national footprint is being developed by the Marketing and Technology Innovation unit, who also provides the regionalisation of the Agency. It is mandated to create an enabling environment for the core structure to evaluate, monitor and manage the technology innovation interventions. Though represented in the TIA regions, the unit will drive TIA's national aims through:

- Supporting knowledge and technology transfer from researchers to the community in order to develop new products and stimulate technology-based enterprises in the various regions of the country;
- Building partnerships with relevant regional funding agencies, business networks and communities of innovators in order to enhance TIA's operations within that region;
- Promoting the development of technology innovation activities in the regions through participation in regional innovation strategies with the intention of supporting economic development initiatives;
- Managing TIA's regional investment portfolio to ensure delivery on its mandate; and
- Building a strong brand identity through clear articulation of the TIA brand, including value propositions, establishing meaningful differentiators and branding of all TIA offices and technology stations.

PROJECTS PERFORMANCE MONITORING & EVALUATION (PPME)

The PPME unit monitors the performance of TIA's investments to ensure the realisation of returns. Key to this function is to ascertain that the relevant structures are in place for all TIA investments, including board representation, reporting on company performance and adherence to all relevant statutory requirements.

CORPORATE AFFAIRS

LEGAL SERVICES

TIA's Legal Unit plays a dual role; that of providing legal advice to the organisation on related internal matters; and that of providing advice with regard to investments that TIA participates in. On internal matters, the Unit is responsible for general legal counsel to the organisation. On investments, the Unit assists with interacting with the co-investors on structuring deals (together with Fund Management) and eventual conclusion of investment deals.

HUMAN RESOURCES

TIA's Human Resources provides a centralised service to the organisation for all personnel management activities. The Unit plays a major role in integrating the cultures from the merged entities into a common TIA culture. It is also tasked with monitoring performance of the human resources of the Agency.

CORPORATE STRATEGY

The Unit is set to monitor and report on the performance of TIA based on its strategic plan and targets. Further, the Unit is set to assist with the development of long-term strategic planning for the agency, in line with new policy directions that the country or the market may be taking.

RISK, AUDIT, IT AND KNOWLEDGE MANAGEMENT

The Unit incorporates the IT and KM services together with Risk and Internal Audit functions. It is tasked with managing the information technology and systems requirements for TIA, including consolidating the different platforms of merged entities. With regard to Risk and Audit functions, this is the internal function that constantly reviews organisational risks and manages mitigation strategies.

COMMERCIALISATION

Commercialisation forms a crucial element for delivery of TIA's objectives through expert services, business support and advisory services, as well as fund management.

BUSINESS SUPPORT AND ADVISORY SERVICES (BSAS)

Many technology start-ups in South Africa are often established by first-time entrepreneurs who lack the necessary resources or 'operational critical mass' to cover every business function. This underscores the need to enhance the chances of success of TIA's investments through support and advisory services in a state-funded incubation service. Therefore the BSAS's objectives are:

- To provide business support and enterprise development capability for commercialisation, aimed at reducing the risks associated with the establishment of viable technology based businesses, i.e. post-investment activity; and
- To lend support, expertise and resources to pre-investment processes and activities.

EXPERT SERVICES

The Expert Services unit's major emphasis is on pre-investment evaluation to ensure appropriate ideas/technologies are supported by TIA through risk quantification and qualification, and optimisation of market opportunity. The Business Support & Advisory Services unit looks at post-investment with a view to increasing commercialisation prospects of TIA investments. The skills within Expert Services will be directed towards providing inputs to opportunity evaluation in the pre-investment phase and also specific interventions during the post-investment phase in support of Business Support & Advisory Services. This service will comprise:

- technology assessment;
- intellectual property assessment and management (e.g. novelty of the technology and hence potential competitive advantage and freedom to operate);
- market-related issues, including market size, dynamics, barriers, competitors, as well as commercial viability and marketability of technologies presented to TIA for support;
- regulatory issues, notably also commercial law; and
- inputs into valuations as part of deal structuring.

Expert Services mostly comprises individuals with specific technical domain expertise or specialisation combined with further qualifications or specialisation, like intellectual property or commercialisation management.

FUND MANAGEMENT

TIA is focussed on establishing six funds to house the existing portfolio of viable investments and provide branded products with which it can use the South African economy and society. Each will have its own financial instrument or a set of instruments customised for intended customers except for the strategic investment portfolio (SIP) that will make use of any of the instruments. The Fund Management unit will ensure proper financial portfolio management, including asset allocation and portfolio risk of the following six funds: Strategic Invesment Portfolio (SIP) Fund, Industry Matching Fund, Start-up Seed Fund, Technology Infrastructure and Development Fund, Idea Development Fund (incorporating the Patent Support Fund) and Venture Capital (VC) Fund.

HUMAN RESOURCES REPORT

During the 2010/11 financial year the Human Resources department geared itself towards development and implementation of an organisational structure to enable TIA to deliver on its mandate.

A key focus was to base all employees from the merged entities appropriately within the Agency, fill new positions in the organisation structure, develop HR policies and procedures and introduce essential benefits to attract and retain staff.

STAFF COMPLEMENT

The table below indicates the Employment Equity status as at the 31 March 2011.

Table 1: Status and representation of TIA employees by occupational level as at 31 March 2011

Occupational Level	Designated Group										Non-Designated Group		Total Non-Designated Group	Grand Total
	Male					Female					Foreign nationals			
	A	C	I	W	Total	A	C	I	W	Total	M	F		
Level 1	4	0	0	0	4	3	0	0	0	3	0	0	0	7
Level 2	12	0	1	4	17	6	0	1	2	9	0	0	0	26
Level 3	16	0	1	5	22	12	0	5	11	28	2	0	2	52
Level 4	18	0	1	4	23	48	8	5	10	71	1	0	1	95
Level 5	1	0	0	0	1	5	0	0	0	5	0	0	0	6
Total	**51**	**0**	**3**	**13**	**67**	**74**	**8**	**11**	**23**	**116**	**3**	**0**	**3**	**186**

STAFF MOVEMENT

Table 2: Staff movements by reason, race and gender

Occupational Level	Designated Group										Non-Designated Group		Total Non-Designated Group	Grand Total
	Male					Female					Foreign nationals			
	A	C	I	W	Total	A	C	I	W	Total	M	F		
Recruits	8	0	0	0	8	16	1	0	0	17	0	0	0	25
Resignations	12	0	1	8	21	2	1	0	1	4	0	0	0	25
Retirements	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contracts expiring (interns)	11	0	0	0	11	6	0	0	0	6	0	0	0	17
Dismissals	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**31**	**0**	**1**	**8**	**40**	**24**	**2**	**0**	**1**	**27**	**0**	**0**	**0**	**67**

In keeping with TIA's focus to design and implement a structure that will enable achievement of its mandate 40% of all recruited employees were senior management and 64% females.

TIA experienced a turnover rate of 13.4%, slightly above the norm of 9.5%. Senior management resignations constituted 12% of the total. In most mergers it is not unusual to experience a somewhat higher turnover rate, which can be attributed to the uncertainty of the process.

HUMAN RESOURCES REPORT CONTINUED

PERFORMANCE MANAGEMENT

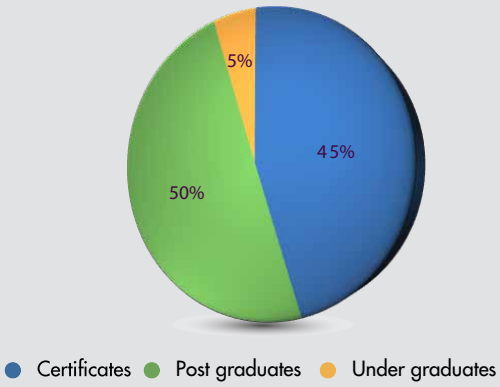
During the year under review an external service provider was contracted to develop and grade job profiles, and benchmark the salaries against similar organisations. The exercise was completed in March 2011.

The availability of job profiles forms a solid foundation for performance management which will be a focus area in the next financial year.

TRAINING AND DEVELOPMENT

Expenditure on training amounted to 0.24% of total payroll, against a target of 1%. Most of the training involved continuous studies. An interim skills development committee was set up to approve these studies, with a permanent chairman appointed within the last quarter of the financial year.

TRAINING BREAKDOWN



LABOUR RELATIONS

With most management level staff appointed during the 3rd and 4th quarter of the financial year, TIA employees were functioning without necessary leadership and guidance. This lack of management intervention and key performance indicators impact somewhat on issues of misconduct and performance.

Currently no employees within the agency subscribe to trade unions.

EMPLOYEE ASSISTANCE

An employee assistance programme was launched during the last quarter of the financial year to assist employees with issues that might affect their job performance. The services include counselling in areas like trauma, interpersonal relationships and legal matters.

Section Three

Business Development

technology innovation agency

MARKETING AND TECHNOLOGY INNOVATION

TECHNOLOGY INNOVATION

The Technology Innovation (TI) unit has two core capabilities namely, business development and managing technology development projects. The TI team works closely with a number of other business units within the TIA having specialist skills to complement the work of the TI team.

The Technology Innovation Strategic Objectives are:

1. Identify and support knowledge and technology transfer from researchers to the community in order to develop new products and stimulate technology-based enterprises in the various regions of the country.

2. Source and build partnerships with the relevant regional funding agencies; business networks and communities of innovators in order to enhance TIA's operations within that region.

3. Promote the development of technology innovation activities in the regions through participation in the implementation of regional innovation strategies with the intention of supporting economic development initiatives.

4. Managing TIA's regional investment portfolio to ascertain delivery on mandate.

5. Promote cross-sectoral and inter-regional collaborations.

During the course of this financial year, General Managers: Technology Innovation for Gauteng and Western Cape regions were appointed. In addition, Business Development Managers for the Eastern Cape, Limpopo and Free State regions were appointed. The aim of the Business Development arm of Technology Innovation business unit is opportunity identification. The Business Development Managers worked closely with the General Managers for Sector Strategy and Strategic Partnerships in identifying opportunities worthy of TIA to pursue in order for TIA to meet its objectives. All opportunities identified have to demonstrate strategic fit with the TIA set strategies, that is both TIA sector fit and a regional fit.

The other arm of TI is actively involved in project management of TIA investments. Projects were managed via quarterly reporting and projects were measured against set key parameters: Milestones; within project scope and within budget.

TIA REGIONAL OFFICES

TIA is the key implementer of the National System of Innovation. This is driven via the TIA central office and TIA's regional presence. The TIA regional offices were established in part to be the "face" of TIA and it houses functions which offer support to TIA investments, Technology Platforms and Technology Stations.

TIA has three regional offices, in Gauteng, KwaZulu-Natal (KZN) and Western Cape respectively. The entities migrating into TIA were based in three provinces, namely Gauteng, KwaZulu-Natal and the Western Cape. The offices of LifeLAB in Durban and the offices of Cape Biotech Trust in Cape Town became the regional offices for KZN and the Western Cape respectively. The Gauteng based migrating entities were consolidated into a TIA head office and a TIA regional office, both of which are based in Pretoria. TIA will establish additional regional offices in provinces where TIA identifies a strong potential capacity for technology innovation.

In order for TIA to succeed in its objectives, it is vital that through its regional offices it links into other regional players and their respective innovation efforts. The players of the Provincial System of Innovation (PSI), Regional Innovation System (RIS) and Sectoral System of Innovation (SSI) were engaged with, in order to drive alignment and achieve strategic partnerships, such that through collective efforts the region can realise economic growth and improvement in the lives of its people. The key role players (stakeholders) which have been identified in the Regional Innovation System range from policymakers (Provincial department of Economic Development, Provincial Innovation Council, DTI, DST, Department of Provincial and Local governments etc); financers (IDC, NEF, Trade and Investment Agencies, Development Agencies etc); operators (Universities, FETI's, Science councils, public R&D centres etc); and the private sector (industry societies, foundations, enterprises, Venture Capitalists etc).

Each regional office has developed a TIA Regional Strategy, which is aligned to the TIA national Sector Strategies, but also to the Regional Innovation Strategies within the region. TIA recognises the geographic concentration of economic activity per industry or industry group and aims to contribute to the growth of these industries through its Regional strategies.

Technology Innovation Business Unit is responsible for implementing the TIA Regional Strategy.

INVESTMENTS

These investments were distributed and managed across three regions as previously stated. The allocation of investments per project was based on historical commitment. The total actual disbursement of the investments within the TIA portfolio was R 311 million.

The investments included the opportunities within the following sectors:

Number of Project investments per sector

SECTOR	NO OF PROJECTS
Agriculture	37
Industrial Biotechnology	21
Energy	2
Health	35
ICT	8
Advanced Manufacturing	39
Mining	3
Special Projects	2
TOTAL	**147**

MARKETING AND BRANDING

In its broadest sense, the mandate of the marketing and branding management is to support TIA build social and political capital so that it can achieve its operational and strategic priorities.

Given that TIA is a new brand formulated from existing brands of the 7 entities, for the 2010/11 financial year, a substantial financial investment needed to be set aside for building the brand's profile in the minds of TIA stakeholders, particularly the South African public. In order to realise its vision of becoming a world class innovation agency the TIA brand needed to have international and local presence. Building of the TIA's brand awareness and recognition is a long term exercise which requires a repetition of key messages in various platforms.

For the better part of the 2010/11 financial year, the Marketing team concentrated on the TIA launch and brand awareness amongst the primary target audience. This included the main launch hosted in Midrand, Johannesburg with the honourable Minister of Science and Technology; Ms Naledi Pandor as guest of honour. This was followed by regional launches in Durban, Cape Town and the launch of the new TIA office in Port Elizabeth in December 2010. TIA participated at an international Biotechnology Conference hosted by the Biotechnology Industry Organization in May 2010, in Chicago USA. The Chairperson of the TIA board represented TIA and South Africa at the Partnering for Global Health Forum hosted by Bio-ventures for Global Health. This was part of TIA's brand awareness campaign aimed at international audience. The next main task of the TIA marketing team was the branding of the TIA's new premises now located in Menlyn, Pretoria.

STRATEGIC PARTNERSHIPS

As a new organisation, created from the merger of seven entities, TIA has been fortunate to take advantage of several pre-existing relationships and a strong stakeholder base. A key challenge has been to consolidate and align these with the Agency's new mandate that emphasises technology development and commercialisation. Moreover, it has been necessary to establish new ones that will enable TIA to appropriately respond to the challenges that are peculiar to the innovation environment. As such, TIA strategic partnerships framework has sought to achieve four objectives, namely;

(a) Develop and implement a stakeholder management framework that promotes value to TIA's stakeholders, thus creating strategic capital for TIA;

(b) Build partnerships and relations with the relevant structures in the provinces to effectively grow the agency's national footprint;

(c) Establish strategic relations with key funding and development agencies to enhance TIA's financial sustainability and bolster its service offerings beyond its available means; and

(d) Develop strategic relationships with selected international partners to leverage resources for human and institutional capacity development, in-bound technology transfer and technology collaboration opportunities.

PROJECT CONSOLIDATE

TIA has embarked on a process of consolidating relationships with key partners within the National System of Innovation (NSI) that have been migrated through the merger process of the seven entities. This initiative forms part of TIA's "Project Consolidate" that seeks to retain value-adding relationships by aligning these to the organisation's strategic objectives. It also aims to identify synergies and create an overall atmosphere of cooperation with key entities, like the National Research Foundation (NRF), the Council for Scientific and Industrial Research (CSIR), the Agricultural Research Council (ARC) and the Industrial Development Cooperation (IDC). High-level bilateral meetings that have been held with them will be formalised through appropriate Memoranda of Understanding (MoU).

NATIONAL/PROVINCIAL PARTNERSHIPS

As part of promoting innovation within the South Africa's provinces, TIA has engaged with a number of regional development agencies in the Free State, Eastern Cape, KwaZulu-Natal, Gauteng and Limpopo. These relationships could lead to the creation of instruments and programmes geared towards supporting technology innovation initiatives aligned with the provinces' regional economic development strategies. South Africa's provinces possess institutional support mechanisms for driving economic development, mostly, regional agencies that provide funding and non-financial business support to SMMEs through investment banks and trade and investment agencies (IPAs).

A critical role for TIA in the current financial year has been to work closely with the various regional agencies to help grow their appetite and sharpen their focus on technology innovation projects and techno-based start-up companies. Therefore TIA has initiated MoU discussions with provincial agencies to stimulate the growing interest in technology innovation through various programmes. Key among these are:

- Support for the implementation of regional innovation system strategies;
- Joint identification of near-market projects, pipeline projects and high impact projects that may be of benefit to the provinces, and which could be jointly funded;
- Cooperate in the provision of business support and advisory service to technology-based start-up companies in the provinces;
- Cooperate in market development activities through trade promotion instruments to internationalise South African based technology, products, services and processes;
- Support the building of capacity within the development funding agencies with specific focus on innovation management and funding; and
- Support for initiatives to promote a culture of innovation in the provinces.

INTERNATIONAL RELATIONS

On the international front TIA hosted a multi-stakeholder delegation from Zambia during November 2010. This visit followed a request by the Zambian National Technology Business Centre (NTBC), a TIA equivalent institution within the Zambian National System of Innovation (NSI) with the mandate to commercialise products resulting from research and development. TIA hosted this capacity-building visit as part of the Agency's efforts to implement the International Cooperation Agreement between the Department of Science and Technology and Zambia's Ministry of Science, Technology and Vocational Training signed in December 2007. Through this visit TIA's hoped to strengthen linkages with similar institutions within the African continent and is in the process of finalising its MoU with the NTBC.

Concerted efforts are being made to identify opportunities to leverage the cooperation agreement with OSEO, a French TIA equivalent organisation and the Centre for Industrial Innovation (CDTI) in Spain. In this regard, TIA has successfully secured the secondment of a French technical advisor to provide support in the areas of commercialisation and international networking, especially in Europe. In addition to OSEO, TIA has also initiated consultations with FINEP, TIA's Brazilian equivalent that presents specific opportunities, especially on the development of the venture capital fund.

All of these initiatives form part of TIA's initiatives to seek partnerships with like-minded institutions both on the African continent and abroad. The primary objectives for these initiatives are to seek opportunities for co-funding of technology innovation projects; international markets for commercialisation of South African technologies; in-bound technology transfer as a vehicle to drive TIA projects through the innovation chasm; and human capital development focused on technology innovation skills for the benefit of the South African National System of Innovation (NSI).

Section Four

Investment Portfolio

technology innovation agency

INFRASTRUCTURE AND PLANNING

The Infrastructure and Planning portfolio comprises of the technology platforms, technology stations, Centers of Competences (CoCs) and the Human Capital Development Unit. During the 2010/11 financial year, TIA managed 15 technology stations, 14 platforms and 3 DST Health Innovation Initiatives.

TECHNOLOGY PLATFORMS

Technology Platforms are investments in infrastructure, state-of-the-art equipments, technologies and expertise (capabilities) that provide solutions and predefined services to South African researchers and industries to enable them compete with their peers internationally. The value proposition for technology platforms is to lower innovation hurdles for the researchers and entrepreneurs who could neither afford the equipment/infrastructure nor possess the necessary skills and know how to develop new products and services.

KEY HIGHLIGHTS

Institute of Diagnostic Research (IDR)

The IDR based in Durban has developed malaria monoclonal antibody (LDH) using the hybridoma technology. This antibody will be used in developing rapid diagnostic kits for malaria diagnosis. The antibody is currently been tested and validated by commercial laboratories. If the results are positive, the product will be commercialised. The platform has also optimised the hollow fibre bioreactor technology for producing monoclonal antibody. This therefore means animals will no longer be used for antibody production.

Metagenomics Platform

The metagenomics platform at the University of the Free State has developed the technology for the treatment of single-contaminant water and soil in an industrial setting. The technology and know-how has matured to a level where it can be commercialised as part of a suite of technologies to address Acid Mine Drainage in the country. TIA is currently investigating the viability of the different technologies and will soon package these technologies for commercialisation.

Bioprocessing

In 2010/11, the Bioprocessign platform hosted five start-ups at its facilities in Umbogintwini, Durban. During this period, one of the start-ups, Femtech, has consistently met its targets of producing high quality Insulin-like Growth factor-a recombinant protein first of its kind at this facility. The product is currently been evaluated for the export market. The platform also contributed to capacity development by hosting seven interns.

Metabolomics

The Metabolomics platform at North-West University has developed and optimised the screening tests for identifying inherited metabolic in newborn children. This it has achieved through a network of private laboratories. This technology has matured sufficiently to be rolled out to the South African public health system through provincial partnerships.

Drug Delivery Systems

The Drug Delivery Systems Platform at Wits University has developed a pipeline of 6 technologies for possible commercialisation. These technologies will improve and maximise the delivery of various drug molecules in a manner that will ensure the highest possible efficacy from the drugs. Three technologies (Wafer Delivery System rapid release, Doughnut-shaped mini-tablet for intra-ocular implantation and wafer matrix system prolonged release system) have been identified and prioritised for commercialisation during 2011/12.

TECHNOLOGY STATIONS

The Technology Stations initiative is aimed at cultivating an entrepreneurial spirit within the country and addresses mainly pressing socio-economic goals of the government, by empowering previously disadvantaged individuals (PDI) and women owned enterprises. This is accomplished by providing a package of comprehensive solutions for complex challenges within the relevant industry sector.

In the current financial year, the Technology Stations Programme (TSP) and Institute for Advanced Tooling (IAT) helped in stimulating and accelerating mutually beneficial inter-actions between universities, industry and manufacturing industry, especially SMEs. The stations provided comprehensive technological and Innovative solutions for Science and Engineering challenges within the relevant industries with the aim of strengthening and upgrading technological innovation activities and related skills, to increase their competitiveness. The targeted sectors of technology based clients, included automotive, agro-food processing, electronics, metal value adding, chemicals, metal casting, composite, moulded plastic, Tooling and Die Making (TDM) industries.

KEY HIGHLIGHTS

Applied Research and Development
In partnership with host universities (of Technology) the programme registered more than 10 new patents that were awarded during this period. In partnership with South African Technology Network (SATN) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GTZ), TIA has established a database of expertise, technologies, equipments and services available at the technology stations, platforms, and some of TIA funded companies (http://www.heda.co.za/satnsearchengine/formsa/). The website is now one of the most favourite web site for researchers, entrepreneurs and students.

Knowledge and Skills Transfer
One of the stations Cape Peninsula University specialising in agro processing and food technology was acknowledged by food sector education and training authority (SETA) to become a center of excellence in agro processing and food technology. The technology stations has collectively conducted 78 events on skills transfer to 207 companies. The stations also developed and executed 217 tailor made training and technology demonstration sessions for SME's that they are supporting.

Technical Innovation
The technology station programme assisted 1,791 clients in innovative services to produce over 323 prototypes and pilot manufacturing resulting in 619 new and/or improved products and processes for different targeted sectors ready for commercialisation. A total of 647 new SMEs became internationally competitive and started exporting their products and services as a result of interventions made by the technology stations.

Applied Engineering and Technology Development
In partnership with industry, the programme completed a total of 255 major projects while developing technologies that compete globally.

CENTRE OF COMPETENCE

Centre of competence (CoC) is a new concept in South Africa and it refers to industry-university-science council collaborative alliance, the main purpose of which is the performance of Research and Development (R&D) with a view to commercialising the R&D outcomes in this regard. CoCs consist of multidisciplinary teams that will, under the protective umbrella of longer-term funding, build a critical mass of science and engineering competencies. Participants may include, but are not limited to, universities, research councils, regulatory and standards bodies, and private and public companies. Currently, the business unit is managing the Health Innovation initiatives and the Biofuels Technology Demonstration Programme. The DST health Innovation initiatives include South African HIV Research Platform (SHARP), South African TB Research and Innovation Initiative (SATRII) and the South African Malaria Initiative (SAMI).

HUMAN CAPITAL DEVELOPMENT (HCD)

TIA's ability to successfully meet its objectives and mandate will depend

- Having a high caliber of human capital within TIA that is highly skilled, experienced, motivated, flexible , commercially and technologically proficient;
- Having human capital with the requisite skills, competences and capabilities necessary for successful technology innovation within the National System of Innovation.

The HCD programmes run by TIA included the internship linked to industry or research groups, post-doctoral bursary, patent attorney and commercialisation manager programmes. Other HCD activity includes the National Innovation competition.

In the year under review, 173 interns participated in the programme. 90% of the interns are currently been employed by industries or furthering their studies while 10% got employment in non-engineering fields.

Table 1: Qualification Level of interns in TIA/TSP Industry Support Internship Programme

		2010/11		2009/10	2008/09
P1/P2		**39**	**22%**	38%	40%
N. Diploma /BSc	M + 3	**97**	**56%**	27%	26%
B. Tech (Incl. Honours)	M + 4	**26**	**15%**	24%	27%
M. Tech	M + 5	**7**	**4%**	8%	7%
D. Tech (Doctorates')	PhDs	**4**	**3%**	2%	0%
No. of Interns participation per financial year		173	-	**126**	136

Patent Attorney Development Programme

In response to lack of capacity, the Patent Attorney Development Programme was initiated to develop IP expertise amongst the community especially in the technology and engineering sectors.

Objectives

- Provide in-house capability and accelerating the development capacity in the area of IP management and make capacity available to research institutions and agencies in the public sector.
- Contribute towards addressing the imbalance that exists within the patent attorney profession in the country and ensure that there is an increase in the number of patent attorneys or at least, IP management expertise.
- Expose candidates to experiential training and develop them in to high calibre patent attorneys.
- 7 Candidates enrolled in this program.

Aerospace Industry Innovation Programme (Ex AMTS Program):

This was an AMTS intervention designed to provide a selected group of engineering students with business training at the Innovation Training Centre at Aerosud, as well as an international student exchange programme between Aerosud and Airbus. The training was completed in November 2010. 30 Students enrolled into this program in 2010.

National Innovation Competition (NIC)

Objectives

- To promote a culture of entrepreneurship in respect of technological innovation among students at all HEIs in South Africa;
- To develop the capacity of HEIs to support innovation activities; and
- To develop the regional and national innovation system through relationship building between the various stakeholders

The National Innovation Competition (NIC) for students was a resounding success. Once again the students showed their innovative capacity and appetite to help solve the problems and challenges they identified through their business plans. The final exhibition and awards ceremony happened at the iconic Moses Mabida Stadium in Durban in August 2010. The students went to great effort to put on an enlightening exhibition showcasing their various innovations. The exhibition was open to the public with hundreds of visitors, including numerous schools, come through the doors.

NIC winners

POSITION	INSTITUTION	PRIZE	PROJECT
1	Nelson Mandela Metropolitan University	R300,000.00	Weldcore Pty Ltd
2	University of Cape Town	R200,000.00	NecroChronometer
3	Stellenbosch University	R150,000.00	Patient-Specific Knee replacement - uMove

The prizes are all structured as grants to be used to further commercialise the technologies, and are administered through the university Technology Transfer Offices.

Science, Engineering and Technology (SET) Database

SET Database was an instrument, initiated by ex-AMTS in collaboration with the Mpumalanga Provincial Government, to link students/interns to industry and HEIs. The database is a platform whereby students and industry can meet at a click of a button, thereby assisting with the recruitment of students for internship programmes or for specific projects. This was a 50/50 co-funding initiative that was a response to the challenge of the province of not having any HEI and not knowing where their students register once they pass matric. Through this initiative they are able to track and engage with their students

National Science Week 2010

TIA HCD participated in the NSW 2010 which was held in Eastern Cape, Alice under the leadership of the Department of Science and Technology. 700 Learners and more than 50 teachers attended the talk hosted TIA.


Applied Biosyste

Sector Portfolio

A. AGRICULTURE
B. INDUSTRIAL BIOTECHNOLOGY
C. HEALTH
D. ADVANCED MANUFACTURING
E. ENERGY
F. INFORMATION COMMUNICATION TECHNOLOGY
G. MINING

A. AGRICULTURE

SECTOR FOCUS AREAS

Agricultural & Agroprocessing biotechnology refers to the "use and application of biotechnology for the sustainable production of Agricultural and Agroprocessing products". The agriculture and agroprocessing biotechnology sector unit has four core focus areas: Industrial crops; Food and ornamental crops; Animal production; enablers of agricultural biotechnology.

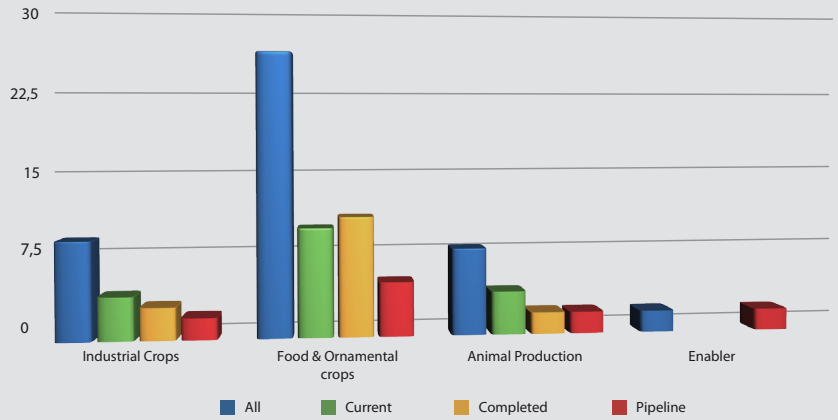


Figure 1: Agricultural Investments distribution by focus area.

KEY HIGHLIGHTS

ANIMAL PRODUCTION

- The Nguni cattle Embryo Transfer and Artificial Insemination initiative was successfully developed and is now a strategic priority for the next two years. Pilot projects are progressing well in Limpopo and the Eastern Cape province where rural farmers have received recipient cows. Following training in animal husbandry and breeding, they will get to keep calves born from the projects as part of their herd improvement programme. The project will be rolled out nationally, by creating a Public-Private Partnership (PPP) to recover the operational costs of producing, storing and transferring embryos.

FOOD CROPS

- R&D investments in the thematic area of cereal improvement (mainly maize with some activities in sorghum and millet) have progressed well in commercial and small scale farming. TIA collaborated with seed industry to explore commercialisation of new potential varieties by investments in breeding programmes. The participatory initiative with small scale/subsistence farmers in the Eastern Cape to test new and high yielding open pollinated varieties of maize is performing well. The project, established in line with initiatives of the Eastern Cape regional government, creates a basis for the adoption of high yielding maize varieties in rural areas of that province. Extending the initiative to other provinces, notably KwaZulu-Natal and Limpopo, in future can be implemented through partnerships with relevant national and regional government agencies.

- TIA has also initiated a specific investment portfolio on sugarcane in collaboration with some major research and industry players. Included in this project are improvement of sugar production processes and new technologies for producing high value food supplements from sugar. The portfolio will be developed in coming years with the aim of establishing a sugarcane platform or centre of competence.

ENERGY CROPS

- Several active R&D investments in the priority area of bio-ethanol production from agricultural feedstock have been coordinated to maximise synergies. Some of the initial outcomes of the investments in this thematic area are new varieties of energy crops that have been protected by plant breeders rights' applications and have reached the commercialisation stage. Fermentable sugar crops (sugar/energy cane, sweet stem sorghum, sugar beet, triticale

grain) for short to medium term impact, and ligno-cellulosic biomass crops (high biomass sorghum, triticale and millet), for long-term commercial impact, have been considered. Agronomic trials of specific crops identified as suitable for biofuels production in different areas of South Africa have been carried out in collaboration with industry players. The theme integrates both upstream (crop production) and downstream (processing) aspects of the sector value chain and has been also supported by the Industrial Biotechnology Sector Unit. Links to biofuels programmes funded by DST, DTI/IDC and CEF have been established for co-investment and coordinated support of this important thematic area. TIA has also been active in networking with the private sector in this area during this financial year.

- Algal biomass feedstock has been a priority focus in 2010/11 financial year with a new R&D investment being evaluated and approved for funding within the DST Biofuels Technology Demonstration Programme managed by TIA.

FRUIT INDUSTRY

- TIA coordinated several active projects in these thematic areas. The citrus theme has performed well in 2010/11 financial year with most commercial investments increasing sales and social impact and with two having reached sustainability (profit break-even) and one generating profit and return on investment to TIA. The collaborative network with the industry, both farmers' association and individual private and institutional players, has been well developed and is set to generate a significant flow of new valuable investment deals for TIA in the immediate future.

ORNAMENTALS

- The investment portfolio of this focus area has been restructured, with only one active commercial investment in a start-up company having reached initial sales at year-end. The global financial crisis and difficulties with accessing international markets have been the major impact on these investments. TIA has developed capacities for multiplication of plant material using tissue culture technologies , which can be applied in the next years to different commercial projects identified in collaboration with different industry players.

ENVIRONMENT-FRIENDLY AGRICULTURAL PRACTICES

- As another investment portfolio that has been restructured during the 2010/11 financial year, several active projects have been concluded in this thematic area. The focus for the next years will be development of technologies for sustainable production of specific high value crops/products to improve the potential for creating commercial value.

SUMMARY OF PROJECTS PORTFOLIO

Agricultural Biotechnology Investments

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Biofuels/Bioethanol	Triticale Sorghum Pre treatment	Pre treatment, hydrolysis, and fermentation of triticale and sorghum and lignocellulosic biomass for cellulosic bioethanol production.	Optimised processes for ethanol production from sugarcane bagassee, sorghurm and triticale biomass.	The steam gun is operational and samples from triticale, sorghum and sugarcane are continuously fed to be analysed.
Biofuels/Bioethanol	Triticale Agronomy Trials	To investigate the suitability of locally produced triticale for ethanol production in the Western Cape and Eastern Cape.	Improved varieties of Triticale for ethanol production.	Both Western Cape and Eastern Cape trials have progressed well and on schedule. Two varieties were given Plant Breeder's Rights and TIA is in the process of finalising licensing to the third party.
Biofuels/Bioethanol	LEAF	To bioprospect for enzymes that will degrade lignocellulosic material from feedstocks used in bioethanol production.	Novel patented enzymes for degradation of ligno cellulose biomass.	The consortium has selected two strains of enzymes for provisional patenting.
Biofuels/Bioethanol	ACCI Sweet Stem Sorghum	Improved varieties of sweet stem sorghum for ethanol production. Testing of Indian varieties that would be supplied by Metahelix for South African conditions.	Sweet stem sorghum varieties from India adapted to South African conditions.	The Plant Breeder's Rights were obtained for one variety, however, the stakeholder intends to submit a motivation for an extension of the project phase 2 where it would be possible to apply for patents.
Biopolymers/ Starch	Cassava GMO	Use of RNA interference to increase the resistance of cassava varieties to Cassava mosaic virus (CMV).	Cassava GM varieties resitant to CMV.	The trials were successful. A patent application has been filed.
Forestry/ Fibre	Project Pulp	To generate Eucalyptus trees with improved pulp qualities.	Improved tree varieties.	New tree clones have been generated and are undergoing evaluation of growth properties.
Field crops/ Grains - Maize	Maize eQTL (1)	To identify novel markers linked to GLS resistance in maize.	Molecular markers for selection of maize varieties resistant to GLS.	Four genomic regions that contain genetic markers affecting disease resistance to GLS were identified.

SUMMARY OF PROJECTS PORTFOLIO

Agricultural Biotechnology Investments

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Field crops/ Grains - Maize	Maize EQTL (2)	To develop maize varieties with improved resistance to GLS.	Development of maize varieties with improved resistance to GLS.	A seed bank for 20 maizelines has been developed. SSR tags were developed for each QTL that were discovered in phase I. All eQTL's have been classified and several were selected for sequencing. Currently BC1 hybrid progeny is being screened using SNP analysis.
Field crops/ Grains - Maize	OPV Trials (PB)	To perform demonstration trials of improved maize OPVs for adoption by small scale farmes in the EC.	Succesful demonstration trials of improved maize OPVs for adoption by small scale farmes in the EC.	Open pollinated varieties were harvested and selection of the best performers was done. The next stage will be validation and increase of trial sites.
Field crops/ Grains - Maize	ACCI Crop Mutagenesis	To identify new maize varieties resistant to herbicides.	New maize varieties resistant to herbicides.	The project has produced resistant varieties and the TIA team, inclusive of Business Support Services will meet the stakeholder to channel promising results for commercialisation.
Field crops/ Sugar Cane	Sugarcane Promoters Phase I	Identification of new gene promoters for tissue specific gene expression in GM sugar cane.	New gene promoters for tissue specific gene expression in GM sugar cane.	Two sugar cane promoters were identified.
Field crops/ Sugar Cane	scFOS	Identification of new enzymes for the production of nutraceuticals from sucrose.	New enzymes for the production of nutraceuticals from sucrose.	Specific enzymes have been selected.
Horticulture: Citrus	CitroGold	To commercialise PBRs of crop varieties (citrus, subtropicals) in South Africa and Sub-Saharan African region.	Commercialisation of PBRs of crop varieties (citrus, subtropicals).	Loan to TIA has been repaid. Dividends have been declared and paid.
Horticulture: Citrus	XSIT	Implement a biological control strategy for false codling moth, a major pest of citrus.	Commercialisation of product and service for the bio-control of FCM in citrus farms in Citrusdal WC.	Sales expansion had reached profit break-even.

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Horticulture: Ornamentals	Azitu Biotech	To provide an initiation and protocol resource foundation to optimise skills development and tissue culture production capacity for elite mother stock plant material.	Tissue culture production of mother stock and initiation plant material for local and export market.	Sales have been initiated and are growing.
Horticulture: Ornamentals	Flower Bulbs	New varieties of ornamental plants.	New varieties of ornamental plants.	Commercialisation plan under preparation.
Horticulture: Mushrooms	Control Maze	Development of a process for production of mushroom spawn in liquid culture.	Production and commercialisation of mushroom spawn.	A fermentation process for production of mushroom spawn in liquid culture was successfully developed.
Sustainable agriculture: Biological control/ Biofertilisation/ adjuvants	Biosurfactants	The development of an adjuvant to improve efficacy of pesticides/ fertilisers.	An adjuvant to improve efficacy of pesticides/ fertilisers.	The process for producing the biosurfactant was successfully developed at bench scale. The project is in progress to scale up the production.
Sustainable agriculture: Biological control/ Biofertilisation/ adjuvants	Biological Agents Africa	Development of agents to serve as biocontrol agents against plant diseases.	Novel biocontrol agents.	Dossiers have been submitted to the Department of Agriculture for evaluation of one of the product as a biocontol agents against potato wilt disease.
Aquaculture/ Abalone	Abalone	New technologies and services in abalone genetics for the industry.	New technologies and services in abalone genetics for the industry.	An abalone genetic analysis was successfully completed. A programme for breeding abalone has been developed and the abalone spat can now be produced at commercial scale.
Aquaculture/ Fish	Biofertilizer from aquaculture	Development of fertilizer from aquaculture waste.	Development of fertilizer from aquaculture waste.	The project demonstrated that Lemma culture can be grown successfully on Koi fish waste if the culture system is designed to minimize ammonia presence in the water. This necessisated the redesign of the culture system.

INDUSTRIAL BIOTECHNOLOGY

B. INDUSTRIAL BIOTECHNOLOGY

SECTOR FOCUS AREAS

Industrial (white) biotechnology refers to the "use and application of biotechnology for the sustainable production of biochemicals, biomaterials and biofuels from renewable resources using living organisms or their enzymes". Adopting and applying industrial biotechnology products, processes and services have the potential to drive South Africa's industrial and economic growth without an increased adverse impact on the environment.

The Industrial Biotechnology Sector Unit has five core focus areas: BioChemicals, BioMaterials, BioEnergy, BioMinerals and BioRemediation.

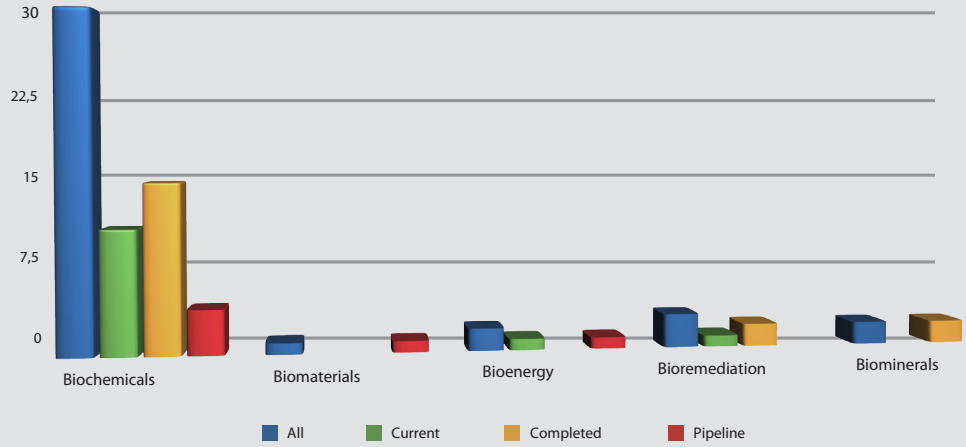


Figure 2: Industrial Biotechnology Investments distribution by focus area.

KEY HIGHLIGHTS

Bio-processing

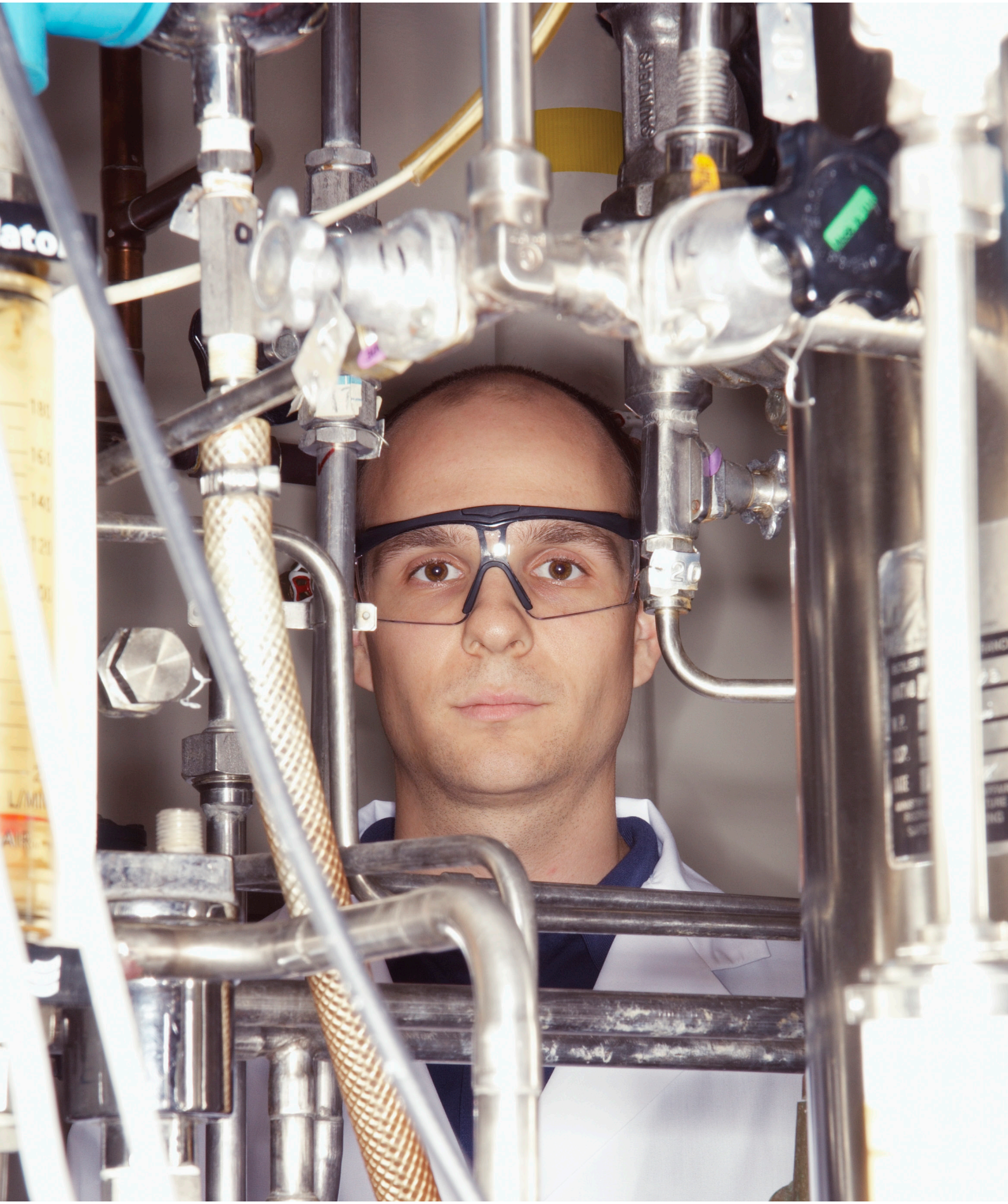
- Fermentation Technology and Innovation (FemTech) was established in 2010 by TIA with the aim of creating a leading biotechnology company focused on the production of recombinant proteins. The company also aims to position South Africa as a key player in the manufacturing of well-characterised competitively priced growth factors for the local and global markets.

  Over the past year FemTech has developed proprietary fermentation and protein purification technologies as well as the necessary expertise and human capital to manufacture insulin-like growth factor (IGF-1) through a commercial license from a bio pharmaceutical company (Biotecnol SA) based in Portugal and USA. FemTech's future target pipeline products includes a range of cytokines, growth factors, hormones, enzymes, viral antigens and many other recombinant proteins.

Low Glycaemic Index (GI) sugar

- Food and Cosmetic Technologies (FaCT) is an existing company in KwaZulu–Natal funded by TIA to execute the Low Glycaemic Index (GI) sugar project for the development of formulated sugar product(s) with a low GI value. The formulation and production of a Low GI sugar would lead to a natural and safe alternative to existing competitive products available for diabetic and health conscious consumers.

  The project has progressed well to date with all the technical developments having been completed and endorsed by GIFSA as Low GI products that meet its prescribed standards to be safe for consumption by diabetic consumers. FaCT now has to reach manufacturing agreements with a large producer, a critical step to mass introduction of the product to the local and international market.


SAUNDERS

KEY PARTNERSHIPS

The following partnerships exist and have been developed with investments:

INVESTMENT	PARTNERSHIPS DEVELOPED	RELATIONSHIP
Algal Bioprospecting	CSIR; MUT; DUT	Consortium members
Enzyme Technologies (Pty) Ltd	DTI; DBSA; Unido	Potential funding partners
Low GI Sugar	Tongaat Hullet; Singapore Sugar	Potential commercial partner
SLIEK (Pty) Ltd	EgoliBio DairyBelle	Incubation support Potential commercial partner
Acid Mine Drainage	Hatch Africa (Pty) Ltd	Techno-economic feasibility studies
RabiVir™ (Green Pharm)	Kentucky Bioprocessing LLC MAPP biopharmaceuticals St Georges, University of London Icon Genetics The Global HealthShare Initiative	Manufacturing knowledge obtained and equipment sourced Partner/Collaborator Partner/Collaborator Technology licensed from Icon genetics Partner/Collaborator
Femtech	Biotecnol, FA Portugal	Technology licensed from Biotecnol

HCD

During the investment period of the Industrial Biotechnology unit's 15 active projects 13 MSc and six PhD graduates were trained, as well as 19 interns. In addition, 64 people employed received TIA support funds, of which 61% were previously disadvantaged individuals.

SUMMARY OF PROJECTS PORTFOLIO

Table 1: Industrial Biotechnology Investments

THEME	PROJECT NAME	OBJECTIVE	EXPECTED OUTCOME	CURRENT STATUS
Biochemicals	Synexa (Quorus Biorector)	Product & Services: Development of novel bioprocess technologies, biological molecules & bioanalytical services.	Bioreactor designed and tested for the production of low volume high value products.	Quorus bioreactor developed and testing completed but no longer a focus of Synexa. IDC funding has been secured for the establishment of a spin-out company, Quorus Biotecnologies, for the commercialisation of the Quorus Bioreactor.
Biochemicals - Additives	Algal Omega 3	Product: Validation of initial techno-economics of EPA/Omega 3 production by SA's algal strains.	Phase 1: Techno-economic model for algal based Omega 3 production developed.	Post-PoC: α-prototype algal pills and powder have been developed. Phase II study can be implemented at 10,000L scale.
Biochemicals - Additives	Low GI Sugar	Product: Development of novel formulation of low glycemic index sugar.	Novel formulation of Low GI sugar products.	Development of Low GI sugar products validated by GIFSA.
Biochemicals - Additives	OM3 South (Pty) Ltd	Technology: Validation of technology for fish waste beneficiation (omega 3 oil extraction).	Business case developed for the production of Omega 3 oils.	Proof of Concept demonstrated for the production of high quality Omega 3 oils.

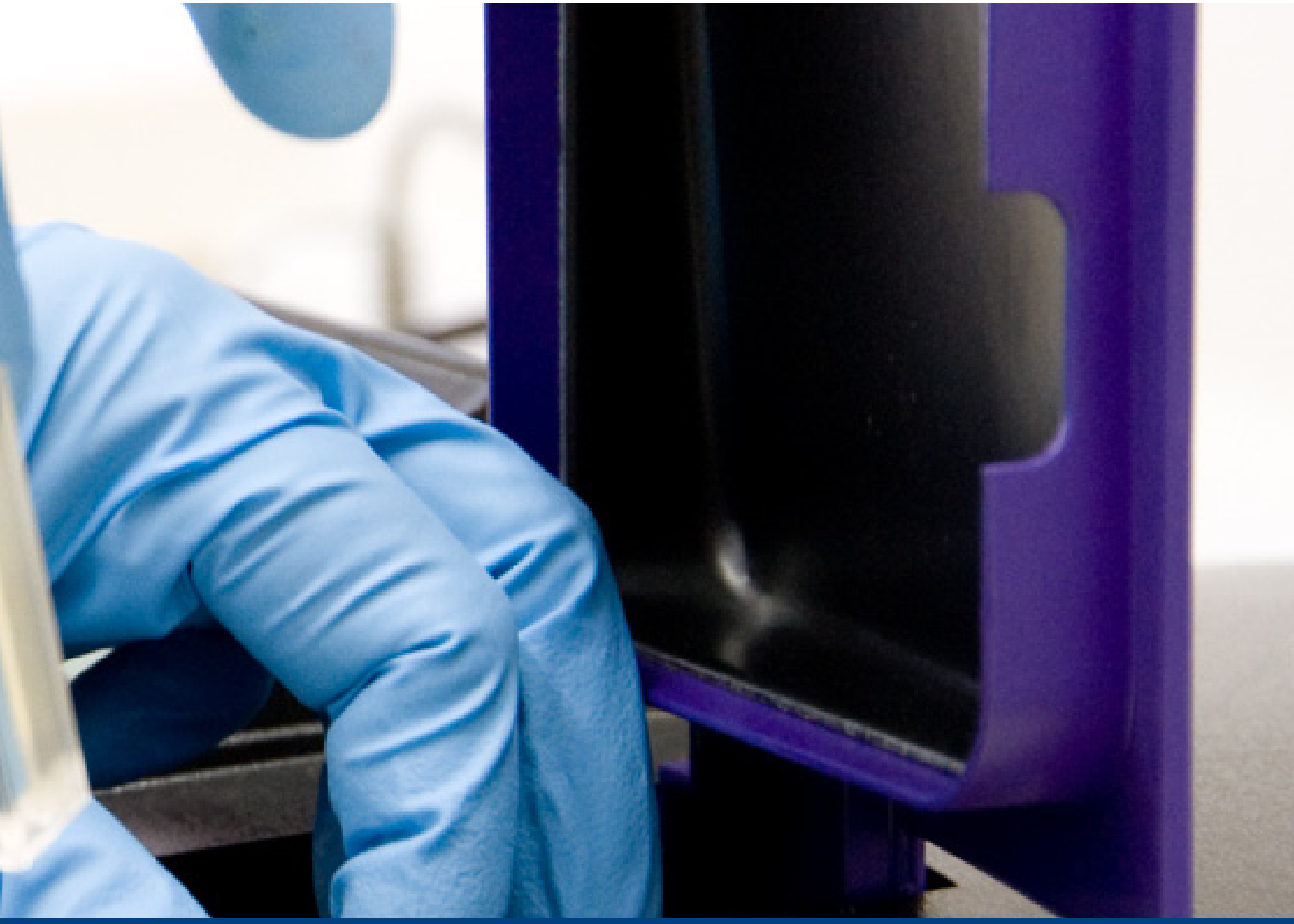
SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	OBJECTIVE	EXPECTED OUTCOME	CURRENT STATUS
Biochemicals - Additives	Everpix	Technology & Product: To develop a unique automated oil extraction technology that will increase the oil extraction yield to produce Marula Oil.	An automated process for nut cracking technology employed for marula oil production and subsequent marula oil sales.	Although Everpix's technology was developed, subsequent commercialisation required further funding which TIA decided not to approve as the business structure and model was not viewed as sufficiently attractive. Project ended: formal closure and TIA exit pending.
Biochemicals - Additives	Pectin	Technology Package: development of a technology package for the extraction of high methoxy pectin from lemon peel.	A process package and market due diligence to assess commercial viability.	A process package has been developed and market due diligence to assess commercial viability completed. The technology package is available for review to prospective investors.
Biochemicals - Additives	Nguni Juice (LL)	Technology Package: development of a technology package for the production of fermented juice products from indigenous fruit.	Phase 1: A Technology Package demonstrating PoC for the production of fermented juice products from indigenous fruit.	A Technology Package and IP in the form of "Know-How" for production of fermented fruit juice products is in place.
Biochemicals - Additives	Nguni Juice (BP)	Products: Manufacture of juice products from indigenous fruit.	Process for the manufacture and sales of juice products from indigenous fruit.	Juice products currently in the market in a few local stores. On-going pure equity investment.
Biochemicals - Additives	Production of perfumery flavours and fragrances	Technology package: development of a technology package for the production of methylketones, a blue cheese flavour.	A technology package for the production of methylketones.	A technology package developed for the production of methylketones and licensed to Puris (Pty) Ltd.
Biochemicals - Additives	Cape Carotene	Technology & Product: technology development for astaxanthin, an organic antioxidant and colourant.	Validated technolonolgy for the production of astaxanthin from alage and subsequent sale of astaxanthin, initially to fish farmers.	Technology failure due to contamination and resulted in operation being stopped. Technology issues arose with regards to biomass production which need to be addressed before scale up.
Biochemicals - Additives	NCSA	Product: production of natural algal-based carotenoids, focusing on production of ß-Carotene.	Demonstrated commercially viable production of beta-carotene from algae and market launch of beta-carotene product.	Although a high quality product was successfully produced and exported, failure of the technology primarily due to contamination amongst other issues resulted in operation being stopped. Efforts to find new entrepreneurs have not been successful.
Biochemicals - Biocatalyst	Enzyme Technologies (Pty) Ltd	Product: Small scale production of bromelain extracted from pineapple stumps.	Technology and market validation of bromelain enzyme to be used as a supplement in animal feed and later as a human supplement.	Development of pilot process for small scale production of bromelain. Small quantities of enzyme produced and benchmarked against competitor products. Shelf life testing and trial quantity production ongoing.

SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	OBJECTIVE	EXPECTED OUTCOME	CURRENT STATUS
Biochemicals - Biocatalyst	SLIEK (Pty) Ltd	Technology: Development of a fermentation and bioprocess technology for lactase production.	Phase 1: Fermentation process developed for lactase enzyme production at pilot scale.	Development of fermentation production process for Lactase enzyme from laboratory strain. Finalisation of process for commercial strain underway.
Biochemicals - Biocatalyst	ZA Biotechnology (Pty) Ltd	Product: Manufacture, Sale and Distribution of Local and Imported Enzymes.	Tactically rescoped from commercialisation (licencing out) of CSIR derived technologies to the manufacture,sale and distribution of industrial enzymes.	ZA Biotechnology's initial on-licensing business model failed and the company has developed a new model for the development and manufacture of enzymes and is requesting further funding from TIA.
Biochemicals - Biocatalyst	Indigenous Fungi	Screening & classifying (database) fungi culture collections for value adding products.	Database of SA indigenous fungi for the production of industrially relevant enzymes available for screening.	The project has come to an end and a database comprising of the physiologically characterised fungi has been generated.
Biochemicals - Biocatalyst	Kapa Biosystems	Products: R&D and the manufacture of next-generation novel molecular enzymes using a directed evolution platform.	Development and commercialisation of new molecular enzyme products with superior characteristics.	Kapa has launched several new molecular enzyme products with superior characteristics onto both the local and international markets. On-going pure equity investment.
Biochemicals - Biocatalyst	Rooibos Processing	Product: Design of a tailor made enzyme mix (cocktail) to enhance the maceration of the Rooibos plant material.	Development of an enzyme cocktail product to enhance the maceration of the Rooibos plant material.	Enzyme cocktail product developed and patents filed. The technology is available for licensing.
Biochemicals - Biophramaceuticals	AzarGen (Pty) Ltd	Technology: Use of plant genetic engineering technologies for the production of high value biopharmaceutical compounds.	PoC for the production of recombinant surfactant proteins using plant expression systems.	PoC for the production of recombinant surfactant proteins using plant expression systems is still under development.
Biochemicals - Biophramaceuticals	RabiVir Green Pharm	Product: Production of rabies anti-bodies in plant systems for the development of therapeutics.	Development of a product: rabies antibodies using plant expression systems.	The plant-expressed antibody has demonstrated efficacy against the major rabies strains from Africa and other parts of the world. The product is currently in preclinical development in preparation for human clinical testing.
Biochemicals - Biophramaceuticals	FemTech (Pty) Ltd	Product: Production of the human recombinant IGF-1growth factor.	Production at least of 100g product: human recombinant IGF-1growth factor.	IGF samples for marketing testing (300g) have been dispatched to the international distribution partner to the value of R3M. First orders are expected this calendar year.

THEME	PROJECT NAME	OBJECTIVE	EXPECTED OUTCOME	CURRENT STATUS
Biochemicals - Biophramaceuticals	Halodurans	Technology: Optimisation of an expression system.	Developed and optimised a *Bacillus halodurans* expression system for the production of therapeutic proteins.	Expression system currently being optimised for the production of therapeutic proteins.
Biochemicals - Biophramaceuticals	Pure Protein Supplies CC	Products: Production of recombinant proteins for use in malaria R&D.	Production of a recombinant malaria protein product.	The PfHsp 70 protein has been expressed and the specificity and stability of the antibodies to this protein is being assessed.
Bioenergy - Biofuels	Algal bioprospecting.	Exploration of SA's algal biodiversity to provide a collection and database of algal strains for the production of biofuels.	Phase 1: Database of SA algal strains showing high lipid production completed and strains identified for Biofuel production.	Best algal strains have been identified and project will enter the second phase where a commercially feasible process for the production of biodiesel from algae will be developed and demonstrated at pilot scale.
Biominerals - Bioleaching	Zinc-Sulphide Bioleaching	Technology package: Development of a technology package for Zinc-Sulphide bioleaching that that is adaptable to & expands existing Zinc Refinery processes.	A Technology package for Zinc-Sulphide bioleaching.	Technology package developed for Zinc-Sulphide bioleaching. Opportunities exist for the technology to be licensed and applied in mine-site applications.
Biominerals - Bioleaching	Copper-Sulphide Bioleaching	Technology package: Development & demonstration of a novel bio-assisted heap leaching process for Copper-Sulphide using iron & Sulphur-oxidising bacteria.	Technology package for a novel bio-assisted heap leaching process for Copper-Sulphide using iron & Sulphur-oxidising bacteria.	Technology package developed for a novel bio-assisted heap leaching process for Copper-Sulphide using iron & Sulphur-oxidising bacteria. Opportunities for licensing and commercialisation of this process are available.
Bioremediation - Wastewater treatment	Acid Mine Drainage	Technology package: Development of technology for the neutralisation of acid mine water and the biological removal of sulphate using sulphate reducing bacteria.	Technology package for AMD treatment through biological pH neutralisation and sulphate reduction to Sulphur.	The project has come to an end and further technical developments are required before commercialisation.
Bioremediation - Wastewater treatment	The Rhodes BioSURE Process	Technology package: Development of a technology package for the treatment of wastewater (AMD) from closed mines.	A technology package for Zinc-Sulphide bioleaching for the treatment of AMD.	Technology licensed exclusively to ERWAT to integrate mine, domestic and industrial wastes treatment. On-going pure equity investment.
Opportunistic	Verified Technologies (Pty) Ltd	Product: Development of a food diagnostic kit product for the detection of pathogens in processed (cooked) meat products.	Food diagnostic kit for the detection of pathogens in processed meat.	Phase 1 of the project complete where technology can be used to detect food borne pathogens in poultry products.



Health

C. HEALTH

SECTOR FOCUS AREAS

Health biotechnology refers to the "use and application of biotechnology to develop products and services for the prevention, diagnosis and treatment of diseases". The health biotechnology sector unit has five core focus areas: Pharmaceuticals; Medical devices and diagnostics; Indigenous Knowledge Systems (IKS); Biopharmaceuticals and Vaccines.

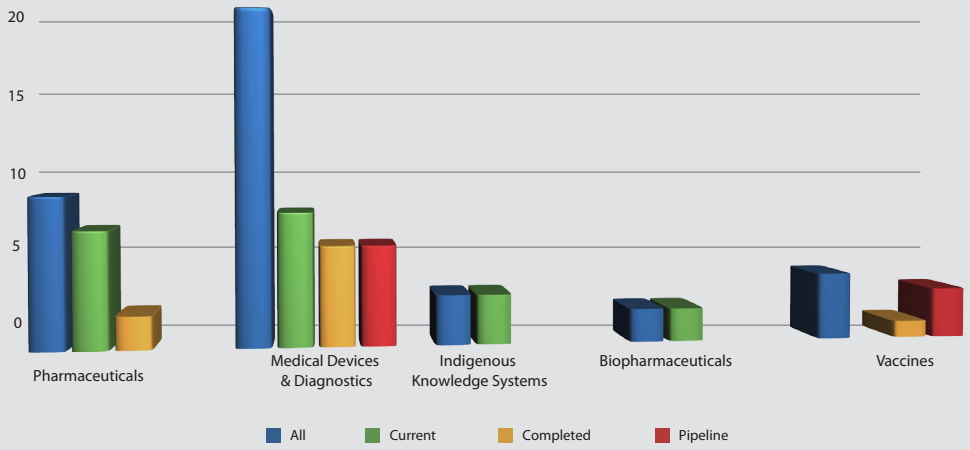


Figure 3: Health Investments distribution by focus area.

KEY HIGHLIGHTS

While much of last year was utilised in consolidating and streamlining the health portfolio, several achievements and successes need highlighting:

CAPRISA 004 clinical trial

Foremost of the year's highlights was the results from the CAPRISA 004 clinical trial, which assessed the safety and effectiveness of Tenofovir gel, a candidate vaginal microbicide for sexually active women at risk of HIV infection. The Phase IIb trial, co-funded by the TIA, USAID, CONRAD and FHI, demonstrated a 39% reduction in HIV infections and 51% reduction in genital herpes infections among women using the gel.

The TIA grant provided a significant opportunity for human capital development in South Africa, especially for clinical trial capacity building. Should the Phase III trial (FACTS001) be successful, the Tenofovir gel will positively impact public health, notably also in South Africa's HIV prevention strategy. TIA has licensed the rights to manufacture and distribute the product in Africa, and also approved funding to the African Clinical Research Organisation (ACRO) to monitor the FACTS001 study as part of the TIA's continued support of the microbicide development.

The Biovac Institute

In the vaccines sub-sector, The Biovac Institute (TBI) has had several noteworthy achievements. Funding was provided to support the establishment of a technology platform for the development and manufacture of polysaccharide conjugate vaccines. South Africa imports EPI vaccines to the value of several hundred million rand annually, of which none is locally formulated or filled. The establishment of such facilities where these products could be developed and manufactured will reduce the country's dependence on multinational vaccine manufacturers, thereby reducing costs, creating jobs and developing infrastructure.

The funding enabled TBI to develop this infrastructure and facilitated other initiatives and projects. Work is in progress for the rollout of the commercial production facility, while agreements with Sanofi Pasteur are in place to fill their hexavalent vaccine on site at TBI. Discussions for the technology transfer of the Hib conjugate vaccines with a Japanese company are at an advanced stage. TBI has played a leading role in the formation of the African vaccine manufacturing initiative, formally launched in April 2011 in Brazzaville, Congo. The Department of Health has extended the supply agreement for vaccines for the South African EPI to December 2016.

Medupi Pharma: Heberprot-P treatment for diabetic foot ulcer
One of the investments in the health portfolio progressing well towards commercialisation is the introduction of Heberprot-P to the South African market by Medupi Pharma. This product was developed at the Centre for Genetic Engineering and Biotechnology (CIGB) in Cuba. It is a pharmaceutical composition containing human recombinant epidermal growth factor (EGF) in an injectable formulation for the treatment of diabetic foot ulcers.

Diabetes prevalence is on the rise in South Africa and it is becoming increasingly important to have effective treatments available. This product would significantly reduce healing time of diabetic foot ulcers, thereby decreasing costs and resources required for hospital stays and aiding amputation prevention. Having submitted a fast-track status application to the South African Medicines Control Council (MCC), Medupi Pharma held successful discussions with the Minister of Health and approached UKZN to be a formal partner in the rollout of Heberprot-P onto the local market. This project has further enhanced South Africa's foreign relations, with President Jacob Zuma visiting CIGB during his state visit to Cuba in December 2010.

Technologies and/or services under development or on the market
Number of products under development: nine (R & D projects)

Number of products on the market: four (LIFEassay Diagnostics)

Number of services in market: five (ACRO)

Number of products developed, but awaiting registration and/or commercialisation: two (Medupi Pharma – Heberprot-P; and Altis Biologics – Porcine osteoinductive fraction).

HUMAN CAPITAL DEVELOPMENT (HCD)

In the financial year under review, TIA health sector investments have supported at least nine MSc and nine PhD students, as well as three interns and 60 employees in projects/investments.

Table Summary of HCD within the Health Portfolio

PROJECT/INVESTMENT NAME	MSC	PHD	INTERN	EMPLOYEES
ACRO				12
Aptamer Technology	1	2	1	4
HIV UP	1	1		1
Medupi Pharma				4
Pavettamine	1	2	2	1
Drug discovery: Anti-TB agents from SA natural products	3	2		9
National R & D platform for novel drug development : Malaria	3	2		13
Disa Vascular				10
QuantuMDx				6
Total	**9**	**9**	**3**	**60**

SUMMARY OF NEW INVESTMENTS

There were five new health sector investments in the 2010/11 financial year as detailed below:

- Wits Drug Delivery Platform: development of a commercialisation plan: R 880,000.00
- LIFEassay Diagnostics: commercialisation of diagnostic tests: R 2,000,000.00
- African Clinical Research Organisation: monitoring of FACTS001 trial: R 29,867,000.00
- African Clinical Research Organisation: new share issue: R 5,500,000.00
- Altis Biologics: Commercialisation of porcine osteoinductive fraction: R995,000.00

SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Diagnostics	APTAMER Technology	Early and middle stage R&D for the development of a TB diagnostic kit.	Development of TB detection aptamers.	Phase I study was completed and aptamers with potential to detect TB were synthesised
HIV/AIDS treatment	Development of HIV-1 Drug therapies	Early R&D for the improvement of HIV/Aids diagnostics and earlier treatment.	Synthesis and evaluation of compounds for treatment of HIV/AIDS.	The compounds with perceived activity against HIV/AIDS have been synthesized and are undergoing activity tests.
Diabetic foot ulcer treatment	Heberprot-P for diabetic foot ulcer	Registration and marketing of Herberprot-P for treatment of diabetic foot ulcer.	Registration and marketing of Herberprot-P for treatment of diabetic foot ulcer.	A dossier was submitted to the MCC for registration of the product.
Diagnostics	MARTI	Development of a serodiagnosis test for tuberculosis.	Serum-based diagnostic tests.	Technology was found to be unsuitable for commercial application.
Diagnostics	Point of care diagostic devices	Nanotech-based components for use in a hand-held device for point of care disease detection.	Hand-held diagnostic kits for use at the point of care.	Project terminated due to technical challenges.
Generic medicines	Generic Biopharmaceutical Pre Feasibility Study	Pre-feasibility study on pilot scale. Commercialisation of technologies emanating from the ICGEB for the production of bio-generics.	Successful study and spinout of successful project having strong commercialisation.	Project terminated due to technical challenges.
Medical devices	Drug-Eluting Stents	Medical device company specialising in coronary drug-eluting stent technologies.	Medical device.	Project on hold as a result of unsuccessful clinical trials.
Human vaccine	Fully integrated vaccine production facility	Development of a fully integrated vaccine production capability.	GLP laboratory facility for production of human vaccines.	GLP facility has been established as well as the vaccine manufacturing facility.
HIV/AIDS treatment	New biologically active molecules derived from a novel natural product as new drug leads acting as reverse transciptase or protease inhibitors against HIV/AIDS	Testing pavettamine analouges for activity against HIV using appropriate targets.	Chemical analogues based on pavettamine with anti-HIV activity.	Two chemical entities with anti-HIV protease activity are undergoing further modifications and evaluation for use as treatment against HIV.
TB treatment	Novel effective therapy for TB	The project aims to develop new chemical entities based on a nitromidazole pharmacophore for the treatment of tuberculosis that will shorten the total duration of effective treatment of latent M.tb treatment and/or significantly reduce the total number of doses required for elimination of the active M.tb.	Chemical entities with activity against TB.	Chemical analogues are being synthesized and being subjected to ongoing evaluation for anti-TB activity.
Drug delivery	An investigation into the probable reversal of drug resistance of antimalarials by Pheroid technology, with specific reference to chloroquine.	Reverse drug-resistance of quinolines, such as chloroquine by entrapping these compounds in Pheroid nano-vesicles for active transport across and beyond the cell membrane into the parasite, thereby negating the drug efflux pump mechanism.	Reformulation of the existing drugs into more effective dosage forms by incorporation of novel and innovative drug delivery technologies.	The manufacturing of Pheroid entrapped malarial drug combinations is being done for bioavailability tests in mouse models.

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Medical devices	Secure Airway Clamp	To develop the device to hold in place endotracheal tube during surgery employed by anesthetist.	Device to hold in place endotracheal tube during surgery employed by anesthetist.	The device has been developed and is ready for commercialisation. Discussions with private investors are underway to commercialize the technology.
Malaria treatment	Anti-malarial medicines from indigenous SA plants	To identify anti-malarial medicinal compunds from SA indigenous plants.	Chemical compounds with potential applications in the treatment of malaria.	A compound with potential to serve as an insecticide against malarial parasite is undergoing field trials.
TB treatment	Anti-TB medicines from SA indigenous plants	Anti-TB medicines from indigenous SA plants.	Chemical compounds with potential applications in the treatment of TB.	A chemical compound showing anti-TB has been identified and is undergoing modification and evaluations to assess its potential for development as a treatment agent against TB.
Contract Clinical Research Management	ACRO	Full service management of Phase I-IV clinical trials (HIV/AIDS, TB & malaria) - provide clinical research design & management services.	Successfully conduct clinical research management, consultations and negotiations with industry and governement stakeholders and provide appropriate training courses.	Regulatory filings with MCC for permission to do trials have been approved.
Diagnostics	Drug resistance TB sequencing	Diagnostics Test for TB.	Diagnostics Test for TB.	Terminated due to technical reasons.
HIV/AIDS/TB/Malaria therapies	iThemba Pharmaceuticals HH09	Therapeutics - discovering and developing medicines for African urgent health care needs (i.e. HIV, TB and Malaria).	Treatments effective against HIV/AIDS, TB and Malaria.	The business plan for the company is under review to evaluate opportunities for ensuring business sustainability.
Cancer treatment	Ribotech	To manufacture and distribute rH0G-CSF worldwide. The product is used in cancer patients & other medical conditions.	Production and sales of rH0G-CSF for treatment of cancer.	The project experienced significant delays in starting.
HIV/AIDS treatment	FACTS001 trial of Tenofovir microbicide gel	Funding of ACRO's services to monitor FACTS001 Phase III trial of tenofovir microbicide gel for prevention of HIV infection in women.	Succesful management of clinical trials.	The clinical trials are about to begin as approvals to conduct trials have been granted by the MCC.
Growth hormone production	Altis Biologics - Commercialisation of porcine osteoinductive fraction	Commercialisation of porcine osteoinductive fraction.	Registration of hormonal product with osteoinductice activity.	Product undergoing evaluations to enable registration.
Diagnostics	LifeAssay Diagnosotics	Operational costs and revision of Business Plan.	Bankable business plan for development of diagnostic products.	Business plan under development.
Drug Development	Wits Drug Development Platform (WDDP)	Development of commercialisation plan.	Commercialisation plan for products developed at WDDP.	Commercialisation plan under development.

ADVANCED MANUFACTURING

D. ADVANCED MANUFACTURING

SECTOR FOCUS AREA

In understanding the scope of the Advanced Manufacturing sector, it is important to note that the distinction between traditional sectors of manufacturing (such as automotive and steel manufacturing) and new manufacturing enabled sectors (including aerospace, medical device, pharmaceutical and chemicals, sensors, advanced materials and robotics) is the basis for a definition of advanced manufacturing. This also includes the characteristics of the two paradigms differing in terms of volume and scale economies, labour and skill content, and the depth and diversity of the network surrounding the industry.

The Advanced Manufacturing (AM) sector aims to support and strengthen South Africa's industrial capability through science-based engineering and technologies that underpin the development of value-adding manufacturing materials, systems, processes and structures.

As such, the Advanced Manufacturing sector portfolio is categorised into four technology groups: manufacturing processes, manufacturing systems, manufacturing structures and advanced materials.

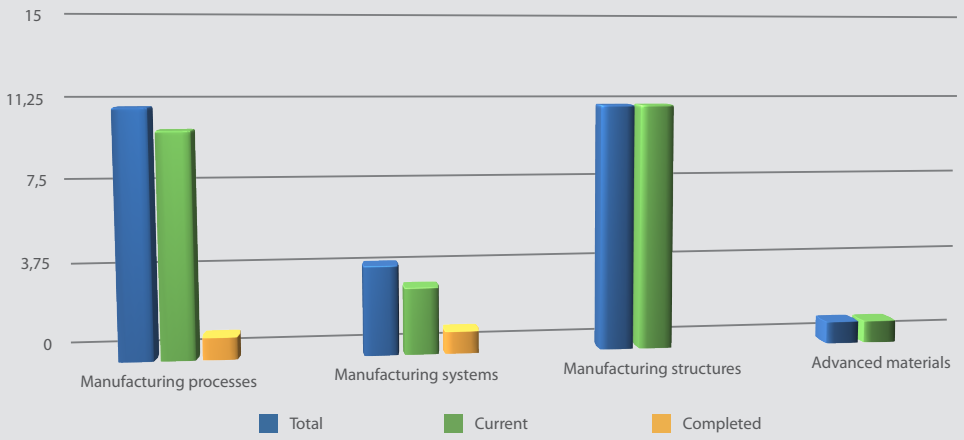


Figure 4: Advance Manufacturing Investments distribution by focus area.

KEY HIGHLIGHTS

NUMBER OF NEW INVESTMENTS

TIA made four new investments during the 2010/11 financial year:

- Grants made through CSIR as host of AMTS IU
  - Laser Micro-Machining of Titanium Implants Submerged in High-Density Liquids (UCT) - R4 225 980.00
  - Fabrication and characterisation of micro-cantilevers based on polymer nanocomposites (CSIR) R4 664 828.70
  - Micro-Fluidic Emulsion System for SphereZyme Production (CSIR) – R6 064 800.00
- Convertible loan
  - General Aviation Engine (Adept Airmotive) – R4 450 000.00

HUMAN CAPITAL DEVELOPMENT (HCD)

The contribution to HCD comprised of students working on current projects at Bachelors', Honours', Master's and Doctoral levels. These include currently registered students and graduates. The table below lists the number of students and graduates who were collectively supported in the current financial year, indicated per project (39 Masters and 30 Doctoral levels.

PROJECT NAME	NUMBER OF MASTERS	NUMBER OF DOCTORAL
Development of a Novel Linear Piezoelectric Motor for use in Reconfigurable Machine Tools as an XY table	1	
Investment casting	5	1
Smartfactory		
Natural Fibre Reinforced Composites		
Development of Reconfigurable Manufacturing Systems (RMS) for South African SMMEs (Cons1)	4	3
Development of RMS for South African SMMEs(Cons3)		6
Development of RMS for South African SMMEs(Cons2)	3	
Information Maintenance Management System	4	
Embedded System for Control Applications	2	
High Perfomance Cutting of light metal alloys	9	5
Micro-Fluidic Emulsion System for SphereZyme Production		2
Fabrication and characterisation of micro-cantilevers based on polymer nanocomposites		3
Laser micro-manufacturing of titanium implants submerged in high-density liquids	1	
Uncooled IR Sensors	2	1
UV sensors photosensitive materials	2	
Complex shaped composite parts		4
Evaluation of biodegradable materials for environmentally friendly packaging solutions (GREENPAC)	1	2
Smart Health Monitoring Composites	2	
Hybrid Thermoplastic Composites	1	3
NATFIBIO (development of a nutural fibre/bio-composites cabin interior component)	2	
Continuous Fibre Reinforced Thermoplastic Development (CFRTP)		
Grand Total	**39**	**30**

TECHNOLOGIES AND/OR PROCESSES AND/OR COMPANIES DEVELOPED

TIA developed 15 designs/processes, 21 prototypes and nine demonstrators in the past financial year. Although no new products have been commercialised yet, there are up to ten commercialisation opportunities that need to be assessed and exploited in the next financial year (2011/12). The outputs per project are summarised on the table below.

PROJECT NAME	DESIGN/ PROCESSES / SYSTEMS	PROTOTYPES	DEMONSTRATORS	COMMERCIALISATION OPPORTUNITIES
Development of a Novel Linear Piezoelectric Motor for use in Reconfigurable Machine Tools as an XY table			1	
Investment casting	4	3	1	1
Smartfactory			1	1
Natural Fibre Reinforced Composites				
Development of RMS for South African SMMEs(Cons3)			1	
Development of Reconfigurable Manufacturing Systems for South African SMMEs (Cons1)	3	2		
Information Maintenance Management System		1	1	1
Embedded System for Control Applications	2			
High Performance Cutting of light metal alloys	1	2	1	
Micro-Fluidic Emulsion System for SphereZyme Production			1	
Fabrication and characterisation of micro-cantilevers based on polymer nanocomposites				
Laser micro-manufacturing of titanium implants submerged in high-density liquids				
Uncooled IR Sensors	1	1		1
UV sensors photosensitive materials				
Complex shaped composite parts	3	7	1	
Evaluation of biodegradable materials for environmentally friendly packaging solutions (GREENPAC)				3
Smart Health Monitoring Composites	1	1		1
Hybrid Thermoplastic Composites				
NATFIBIO (development of a nutural fibre/bio-composites cabin interior component)		1		
Continuous Fibre Reinforced Thermoplastic Development (CFRTP)		2	1	2
Grand Total	**15**	**20**	**9**	**10**

SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Processes	Natural Fibre Reinforced composites	Increasing regulatory requirements and the focus on green (organic) products with their associated environmental advantages are key drivers for the development of natural fibre-reinforced composites. The use of these products is currently limited to automotive components due to low impact properties, poor moisture resistance and surface quality. The project addresses these technological problems which, once overcome, will allow South Africa to beneficiate existing natural resources, such as kenaf and hemp.	Improved impact, tensile and bending strength of flax and kenaf fibre reinforced composites with polypropylene and polyester matrices.	The project have identified two potential project for commercialisation: ceiling/wall panels and parcel trails from kenaf and polypropylene.
Manufacturing Processes	Hybrid Thermoplastic Composites	This project focuses on hybrid thermoplastic composites, combining different types of fibres/ fillers, which offer improved mechanical properties over those of thermoset composites. Autoclave and vacuum-bag curing are not required and simple press forming can be used to manufacture these tough thermoplastics. Furthermore, thermoplastic reformability offers the potential to correct anomalies or to achieve repair.	Feasibility of Advanced Hybrid Composites Based on thermoplastic and Thermosetting Resins.	MBV consulting and SU have competed their project work package. WITS is working on improving the strength of Kenaf fibre material and a commercialisation plan.
Manufacturing Processes	Continuous FR Thermoplastic Development	Some of the most challenging aspects surrounding the conventional manufacturing of continuous fibre-reinforced thermoplastics (CFRTP) are the extensive processing times and processing parameters which are currently required. These materials are used extensively in leading new aircraft programmes such as the Airbus A380, the A400M and the Boeing 787. The project focuses on thermoplastic matrix systems which will reduce or eliminate existing constraints.	The development of analysis and processing technology and production parameters, associated with CFRTP materials, using existing qualified aircraft materials.	The project has been completed and has led to Aerosud receiving 10 year Airbus contract to supply clips; Apsilon is redirecting efforts towards CFRTP rally car parts.
Manufacturing Processes	Manufacture of complex shaped composites	The project is specifically aligned with the international trend towards the utilisation of out-of-autoclave materials and manufacturing methods including the use of resin transfer/infusion based processes.	This project will integrate with the activities of the DUT Technology Station and significantly enhance the human capital capacity in this field. Technicians and artisans in this field of hi-performance composite manufacturing processes are in short supply particularly in the automotive and aerospace sector.	The project has developed low cost prototyping techniques and generic manufacturing methods for the manufacture of complex-shaped high performance composites components.

Table 2: Current Advanced Manufacturing Portfolio with TIA Commitment - continued

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Processes	Composite manufacturing standards	The complexity of fibre-reinforced composite products make it essential that OEM design offices and manufacturing facilities be fully aware of all the elements of the fabrication process. The project aims to develop standardised workshop practices for use by composite manufacturers, centres of learning and designers of composite products in South Africa, in support of a globally competitive composites industry with uniformly trained personnel.	The developed Standardised Workshop Practice (SWP) documents that can be used by composites manufacturers, centres of learning and designers of composites products within South Africa. They will help to ensure that all suppliers quote to the same standard of workmanship and guarantee quality of workmanship.	The project has been extended to allow completion of Standard Workshop Practices to align with students academic year and to allow validation of outcomes by industry.
Manufacturing Processes	Smart Health Monitoring Composites (SHMC)	The stress health of composite materials is critical to the integrity of the materials. The development of 'smart' composites that can monitor their own structural health could provide a technological breakthrough in overcoming integrity-related problems. The project explores embedding specialised fibre-optic or polymer sensors as a solution to the challenge.	The development of "smart" composites with proposed effort focussed on employing optical fibres as well as polyvinyldiene fluoride (PVDF) piezoelectric polymer sensors that can be embedded directly into composites.	Fibre laser based smart health monitoring system has been successfully developed and demonstrated on a lab scale.
Manufacturing Processes	NATFIBIO	The project will focus on the delivery of a generic natural fibre and bio-composite panel. The use of a natural or bio-thermoplastic composite component has the advantages of weight, recycle-ability and biodegrade-ability.	The facility developed will result in a fully equipped laboratory to characterise natural fibre based composites (in terms of mechanical properties) for the aerospace industry including a Fire/Toxicity/ Smoke testing capability.	The project have developed Woven flax reinforced phenolic sandwich panels for replacing currently used secondary structures in aircrafts has also developed and successfully tested to required standards.
Manufacturing Processes	Continuous Fibre-Reinforced Thermoset Development (CFRTS)	The Continuous Fibre-Reinforced Thermosets (CFRTS) programme aims to improve the local capability for design and manufacture of structural composites. The project's objective is to develop structural composite capability for aircraft components using the most widely applied materials for this type of application, which is CFRTS.	Enable the rapid manufacture CFRTS parts locally to satisfy production requirement set by Original Equipment Manufacturers.	The project is progressing well in line with the project plan.
Manufacturing Structures	Uncooled Sensor Technology	The project involves the establishment of a photolithography facility which is key to a number of other projects in the advanced electronics programme. The equipment will enable universities and industry to research and develop micro- and nano-structures, micro-sensors and memory devices.	Improvement of the availability of the photolithography facility to the industry for nano and sensor manufacturing.	The project has established a facility where the first discrete micro-bolometers were processed. The project outcomes are planned to be commercialised through the DST Centre of Competence in micro-sensors.

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Structures	GreenPac	The Greenpac project is aimed at establishing proof of concept that fibre-reinforced biodegradable polymers can be used for the construction of rigid packaging crates, hence providing an alternative to plastic and/or a potentially lower carbon footprint relative to corrugated. If successful, this technology will be suitable for multiple pack types, not only fruit. The second objective is to ascertain whether or not biodegradable flexible packaging can be used to replace polyolefin based plastics and if any benefits can be derived due to the different permeability characteristics impacting on atmosphere modification.	Replacement of traditional materials used in the construction of packaging crates with biodegradeable polymers and an assessment of the potential use of biodegradable flexible packaging and any benefits associated with the use.	The project consortium is currently working on achieving the production of bio-plastic crate prototypes by February 2012.
Manufacturing Structures	Photosensitive Materials/ UV Sensors	UV sensors have significant market potential with applications in the fields of aerospace, automotive, health, energy distribution and environmental monitoring. The project builds on existing expertise to develop working detectors as demonstrators and significantly aims to overcome the current cost, efficiency and packaging constraints. The project will establish a key capability for other advanced electronics projects.	Provision of access to new and improved sensor material compositions and processes that offer new application potential, lower process costs to manufacture and lower manufacturing costs for devices.	The project is progressing well in line with the project plan and could form part of the DST Centre of Competence in micro-sensors.
Manufacturing Processes	Investment Casting	Large structural investment castings are currently seen as a preferred option in the construction of airframes. Investment casting offers the ability to achieve precision tolerances, combine previously used sub-assemblies, achieve predictable levels of static and fatigue resistance and corrosion resistance. Against the background of South Africa's large titanium ore reserves and minimal beneficiation initiatives, this project holds enormous economic potential for the country and industry.	The establishment of the investment casting technology and its use for complex, near net-shape, high value components	The project was completed during the reporting period and now forms part of the Titanium Centre of Competence.

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Systems Manufacturing Systems Manufacturing Systems	Development of RMS for South African SMMEs (Cons-1) Development of RMS for South African SMMEs (Cons-2) Development of RMS for South African SMMEs (Cons-3)	This project is based on systems designed at the outset for rapid change in structure, as well as hardware and software components, in order to quickly adjust production capacity and functionality within a part family in response to sudden market changes or intrinsic system change. A three phase implementation plan for this consortium-based project includes: Architectural Design, Detailed Design and System Integration. Consortium 1: aimed at developing a modular reconfigurable machine based on commercial off the shelf (COTS) and customised modules. Consortium 2: aimed at developing Reconfigurable Assembly Systems (RAS) that will impact positively on the manufacturing industries in the South Africa that assemble miniature parts Consortium 3: aiming to develop a design of a reconfigurable manufacturing system for mould and die making fabrication.	Groundwork for introduction of low cost reconfigurable manufacturing in South African industries.	Good project progress with three technical reports already submitted by project participants. Good project progress with three technical reports already submitted by project participants. Good project progress with strong industry partner, Circuit Breaker International (CBI).
Manufacturing Systems	Smart Factory	The smart factory concept focuses on providing affordable automation to assist small, medium and micro enterprises. Small and Medium Enterprise (SME) manufacturers need to measure their productivity and production problems in real-time on the factory floor, but are unable to do so because of the prohibitive cost of existing systems and the complexity of such systems. The SmartFactory™ project therefore provides low cost factory floor automation to SMEs.	An affordable, simple system with low maintenance, periodic monitoring and possibly basic control for small factories.	The project is not currently funded by TIA but is continuing as part of the DST technology localisation at foundries.
Manufacturing Systems	Embedded System for Control Applications	The aim of the project is to develop algorithms and software in support of real-time applications deployed on microcontroller and reconfigurable-computing platforms. The project activities comprise the following: development of microcontroller and reconfigurable-computing hardware platforms for real-time control and emulation applications; and development of computational intelligence.	Algorithms and software in support of real-time applications deployed on microcontroller and reconfigurable-computing platforms.	The project is reached final stages and the project leader in a process of preparing final reports.
Manufacturing Systems	Information Maintenance Management System for RMS	The aim of this research project is to design and develop an affordable, open-source based remote information and maintenance management system for easy integration into a reconfigurable manufacturing system, or an existing industrial plant or factory environment.	This project will form the base for e-manufacturing and condition-based process monitoring.	The project was completed in the current year, one of the outcome, the "RF tag reader" will be investigated for further exploitation.

SUMMARY OF PROJECT PORTFOLIO CONTINUED

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Processes	High Performance Cutting	The aim of this project is to open up new productivity potential for related South African aerospace and automotive companies of the first and second tier supply chain, i.e. reduce lead times, decrease development and production cost and focus on high value-added aerospace and automotive components, manufactured by means of multi-axis high performance machining. The study will include titanium, aluminium and magnesium based alloys.	The development of High Performance Cutting technology for integral Titanium parts.	The project is progressing well in line with the project plan, has resulted in optimised machining strategies for structural aerospace components.
Manufacturing Processes	Fabrication and characterization of micro-cantilevers based on polymer nanocomposites	The need for micro-cantilevers with tolerable elastic modulus & stiffness together with the advancement of nano-technology made it possible for researchers to conceptualized the novel idea of utilizing "nano particles incorporated polymers or polymer nano-composites" to fabricate micro-cantilevers. This will enhance the range of applications of the novel 'nano-composite micro-cantilever' and thus advance the existing technology. The objectives of the project are: • To develop advanced nano-composite materials with tolerable elastic properties. • Fabrication of micro cantilevers to strengthen South Africa's advanced manufacturing capabilities • Human capacity development in the advanced micro-manufacturing area.	Opportunity to identify and understand the elastic properties, long term stability and optimise candidate Nanocomposite polymers for the purpose fabrication of cantilevers.	The project officially started in the current year and is progressing well in line with the project plan.
Advanced Materials	The development of advanced nanocomposite ceramics for articulating orthopaedic applications	To develop new materials for hip, knee and spine replacements. Phase 1 of the project, of which 3-year funding is approved, is to develop a technology package for the new materials. The second phase of the project is for the production of new materials and getting FDA approved.	Technology package for the development of new materials for hip, knee and spine replacements.	The project has completed studies contributing towards the manufacture of a six station tribometer for the specific purpose of testing the linear reciprocating wear properties of ceramic composite samples.
Manufacturing Structures	Knockdown Modular Fixture (EDGI)	Development of a modular fixture for knockdown products that are sold as ready-to-assemble.	Fittings for use on pre-manufactured board-based components.	The company is finalising the commercialisation plan.
Manufacturing Structures	Multi-threat integrated body amour	To develop a flexible and thin steel alloy inserts which in conjunction with soft body armour can results in improved ballistic resistance.	The development of a novel alloy inserts which will be used in conjunction with soft body armour for improved ballistic resistance.	The project is progressing well in line with the project plan.

THEME	PROJECT NAME	PROJECT OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Manufacturing Processes	Micro-Fluidic Emulsion System for SphereZyme Production	This project aims to develop a micro-fluidic emulsification system (MES) technology demonstrator utilising micro-fluidic design elements and approaches. While the MES has many potential applications, the technology demonstrator will be specifically designed for the production of SphereZymes. Enzymes have a wide application in biocatalysis, but are typically expensive, unstable and difficult to recycle. The objectives of the project are: develop inexpensive and competitive method for manufacturing self-immobilising enzymes using an emulsion as intermediary step.	The development of this system should yield a platform capability with many other potential applications, from drug delivery, diagnostics and food and water safety devices.	The project officially started in the current year and progressing well in line with the project plan.
Manufacturing Processes	Laser Micro-Machining of Titanium Implants Submerged in High-Density Liquids	The aim is to develop laser-based micro-machining process for surface machining of titanium and titanium alloys using a short-pulsed Nd:YAG laser. This process will assist the existing South African biomedical industry in securing and expanding its current global orthopaedic implant market share; and develop the first pool of skilled engineering labour at a South African university in the discipline of laser materials processing.	To introduce a high-tech, high-precision laser manufacturing tool into South African manufacturing, and to establish a first pool of skilled engineering labour who are trained in the innovative use of such a manufacturing tool.	The project officially started in the current year and progressing well in line with the project plan.
Manufacturing Structures	General Aviation Engine	To develop and produce a first South African general aviation engine for light aircraft.	A range of light-weight, multi-fuel, environmentally friendly piston engine prototypes for light aircrafts.	The company has successfully designed three General Aviation engines and prototyped two of these engines. The company is currently evaluating commercialisation opportunities.
Manufacturing Structures	Multi-threat integrated body amour	To develop a flexible and thin steel alloy inserts which in conjunction with soft body armour can results in improved ballistic resistance.	The development of a novel alloy inserts which will be used in conjunction with soft body armour for improved ballistic resistance.	The project has produced alloy inserts which are currently been validated by an end user and are currently assesing possible patenting options. The team experiencing problems claiming value added tax from South African Revenue Services, which is affecting their cashflow and delaying project delivery.
Manufacturing Structures	General Aviation Engine	To develop and produce a first South African general aviation engine for light aircraft.	A range of light-weight, multi-fuel, environmentally friendly piston engine prototypes for light aircrafts.	The company has successfully designed three General Aviation engines and prototyped two of these engines. The company is currently evaluating commercialisation opportunities.

Energy

E. ENERGY

SECTOR FOCUS AREAS

As the Energy Unit was not yet a stand-alone unit during the 2010/11 fiscal year , projects related to energy conversion, bioenergy and biofuels technologies were administered by the Industrial Biotechnology or Advanced Manufacturing units.

Since April 2011 the Energy Unit has been established with the following focus technologies:

- Renewable energy technologies (solar, wind, hydro, geothermal, ocean power, bioenergy)
- Energy recovery
- Combined heat and power (including fuel cells)
- Energy storage and
- Energy efficiency.

KEY HIGHLIGHTS

The slurry energy optimiser appears to have reached the point where the product can be sold through the supply chain of Weir Minerals (one of South Africa's leading pump suppliers). This would allow TIA products to penetrate the industry, including mining. The consortium was a classical setup, with a science council (CSIR), private company (Peterson & Cooke Consulting Engineers Pty), a BEE applicant (Stoner Pty) and a key pump supplier in industry (Weir Minerals).

NUMBER OF NEW INVESTMENTS

The Energy Unit is newly established within TIA and is building a pipeline and hence there were no new investment in 2010/11. A total of 12 proposals were received and three moved to the evaluation stage.

SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Energy infrastructure optimisation	Energy optimiser in slurry pipelines	The team has developed an innovative slurry flow control technology which enables the critical deposition velocity to be measured online at the invert of the pipeline. The investment was made to enable the project team to test the developed instrument at pilot scale and under various industrial environments to obtain industrial performance data which will be used to quantify the envisaged energy and water savings benefits. The in situ performance during these trials and the response of the mining houses with regard to potential energy and water savings will determine the the commercialisation model of the technology.	Performance data demonstrating that the developed technology and instrument could be used cost-effectively as a flow meter in the measurement of critical deposition velocity with direct application in the detection of slurry setting.	The tests that have been conducted thus far proved that the new technology can detect with relative simple instrumentation the setting of slurry through thick-walled pipelines. The instrument is undergoing advanced tests under controlled environment and infrastructure available at the Weir Minerals test loop facility, Alrode, Alberton.
Alternative energy sources	Joule Optimal Energy (Pty) Ltd -Joule	The long term objective of this project was to establish a South African electric vehicle industry, utilising South African IP and resources, with controlling shareholding by South Africans. Such a vehicle can utilise batteries alone or fuel cells alone, series hybrid ICE or hybrid fuel cells as energy source. The short term objective was to developa prototype battery that is ready to be marketed and industrilised. An on-board direct methanol fuel cell (DMFC) charger may be designed as part of the system specification as a strategic growth part.	South African electric vehicle industry.	They have produced four custormer ready vehicles and currently developing commercialisation plan.
Alternative energy sources, including fuel cells and hydrogen	Low cost consumer power source	The primary technical aim of the project is to provide proof of concept for a printed 2W photovoltaic module produced on a sheet of A4 paper. The primary objective will focus on one specific application for an existing market - low power solar cells which can power a portable radio, a cellular telephone, or provide 3 hours lighting.	A photovoltaic module prototype serving as a low source of energy for a portable radio, a cellular telephone or which can provide a 3 hours lightning.	Fabricated field effect transistors which perform as well as transistors used in industrial applications such as flat panel displays have been developed providing the proof of concept of the entire platform technology under development.

INFORMATION COMMUNICATION TECHNOLOGY

F. INFORMATION COMMUNICATION TECHNOLOGY

SECTOR FOCUS AREAS

The ICT Unit was not a standalone sector during the 2010/11 financial year. The current portfolio of investment projects is made up of investments that were inherited from the previous entities that were eventually merged into TIA. The ICT unit has now been established and as such, the sector strategy will be developed in the next financial year.

KEY HIGHLIGHTS

- **Bandwidth Adaptive Real-Time Video Broadcasting Over Internet**

  The aforementioned project has successfully progressed to pilot phase and the prototype was installed and commissioned at Y-FM Radio station in order to test the operational efficiency of the system before commercialisation.

- **Electro-Mechanical Price Label System**

  The main aim of this project is to develop an Electronic Price Label (EPL) Technology that uses a single electronic or electro-mechanical pack to control any number of EPL's placed in an extrusion which is attached to the shelf edge. The working prototype has been developed. The technology is undergoing in-store trials to optimise operational efficiency before commercialisation.

SUMMARY OF PROJECTS PORTFOLIO

PROJECT NAME	THEME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Bandwith Adaptive Real-Time Video Broadcasting over Internet	Electronic infrastructure	To develop a real-time live video broadcast service over internet for both fixed lines and wireless networks. The final software product is to be a real-time video broadcast platform consisting of a set of functional units consisting of the transcoder server, the media cross-point switching server, the media web server, and a client application distributed as a Windows Media Player plug-in mode.	Real-time video broadcast software product.	A pilot system has been developed, installed and commissioned at or for Y-FM Radio station to test the operational efficiency of the system before commercialisation.
Electro-mechanical Price Label System	Electronic infrastructure	To develop an Electronic Price Label (EPL) Technology that uses a single electronic or electro-mechanical pack to control any number of EPL's placed in an extrusion which is attached to the shelf edge.	Working electronic pricing labelling system/product.	The working prototype has been developed. The technology is undergoing in-store trials to optimise operational efficiency before commercialisation.

SUMMARY OF PROJECTS PORTFOLIO

PROJECT NAME	THEME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
Integrated Mine safety system	Electronic infrastructure	The main project objective is the development of a commercial Integrated Mine Safety System prototype in order to improve mine safety and productivity and reduce the industry cost of safety equipment. The main components of the proposed system, and hence the two major areas of innovation/ development are the miner's tag (electronic circuitry), which is built into each miner's cap lamp battery, and underground propagation planning software package, vital for the successful development of the system electronics.	Commercial prototype of the integrated mine safety system.	The Miner Unit and the Locator Unit are undergoing laboratory testing which will be followed by underground testing and evaluation of the complete system.
Centre for quantum technology	Electronic infrastructure	To establish a fully fledged and capable Centre for Quantum Technology.	Establishment of the Centre for Quantum and Technology.	The Centre for Quantum Technology has been established.
A body composition health care analyser for home and professional use	Electronic-Health	Develop a body composition system that is capable of analysing body components that when taken together make up a person's body weight against standard healthy body compositions. It is envisaged that the system analyser will eliminate the need for a technically skilled operator but will at the same time provide scientifically validated data that is easily interpreted by the user.	Working prototype of the body composition health care analyser.	The developed prototype undergoing functional tests.
Multi-Spectral Microsatellite Imager (MSMI)	Software	To develop and flight test a proto-flight MSMI, an instrument which combines different types of sensors in a manner small enough to be a payload for a microsattelite and to develop typical applications for use of the remote sensed data from MSMI to demonstrate its value to prospective customers.	The project has reached a stage for Proto-Flight Test of the instrument on an airplane platform.	A prototype MSMI imager electronics and optical alignment model telescope have been developed, a design data pack for MSMI has been designed and the applications of MSMI have been validated using simulated data from existing remote sensing space craft.

PROJECT NAME	THEME	OBJECTIVES	EXPECTED OUTCOMES	CURRENT STATUS
NioCad	Software	Completion of research and development of the Electronic Design Automation (EDA) software called NioCad, a product aimed to enhance the productivity of SME circuit designs by allowing users of different tools to seamlessly exchange "live" designs between tools, and by giving them the freedom to use software components as replacement parts of extensions to other EDA suites.	An integrated suite of EDA tools, specifically designed for super conductive electronics.	The research and development has been completed with the prototype having been generated. The NioCad team are currently securing sales in Europe and USA.
Biocareers	Software	To position BioCareers as a national career centre and leading brand for recruitment and career management in the South African biotechnology and life sciences industry. This was achieved through: - digital recruitment software - media partners for marketing exposure - provision of career specific information - various complementors with revenue-sharing agreements - establishment of relationship with key stakeholders in life sciences industry - establishment of a community forum/ networking ability via the portal.	An online portal that is widely used within Africa and is the preferred choice for biotechnology professionals and students.	BioCareers have a enquiry from monster.com to use them as part of their offering in Africa.

MINING

G. MINING

SECTOR FOCUS AREAS

The MINING Unit was not a stand alone sector during the 2010/11 financial year. The current portfolio is made up of investments inherited from the previous entities which have been merged into TIA. The Unit has now been established and a draft sector strategy has been developed and will be finalised in the next financial year.

KEY HIGHLIGHTS

- Geratech (Pty) Ltd an equity investment of TIA and is the only zircon chemical beneficiation plant in Africa. Zircon, one of South Africa's strongest natural resources and which is a widely occurring zirconium containing mineral mined commercially, is used in ceramic and refractory compounds as an alloying agent and in nuclear reactors as a highly corrosion resistant alloy. Geratech has successfully consolidated years of research and development on zirconium by several organisations into a strong technology base serving as a platform for a cost effective, high-tech commercial producer of performance chemicals and oxides. The range of products produced by Geratech have the potential of being marketed and sold to a diverse industry in more than 60 countries across the world.

- Blue Cube(Pty) Ltd is a private company that has developed a real-time ICT system for mining applications and has key clients in South Africa and Australia. The 'world-first' technology is an in line mineral quantification system (MQi) based on Diffused Reflective Spectroscopy (DRS) and generates profitable revenue for Blue Cube (Pty) Ltd wherein TIA is a shareholder. The value proposition of the technology is that it provides a valuable new tool to operators of mineral beneficiation plants, assisting them to improve their efficiencies by better grade control, improved recoveries, increased production levels and better utilisation of the scarce natural resources.

- The Grinding Ball Media project is a joint initiative between Mintek, Anglo Platinum and Prima Industrial Holdings. The current high chrome grinding media market is monopolistic in nature with very few suppliers dominated by one major producer and the need to create additional sources of supply, particularly to replace imported grinding balls. As grinding media costs represent a significant portion of the cost associated with the reduction process of platinum-based materials the effective cost of grinding media would represent a major reduction on producer costs in this very important sector of the mining industry. Mintek has been working with Anglo Platinum and Prima Industrial Holdings to target a range of alternative materials for grinding balls, which is being followed by a series of cost effective tests. Primary testing at Mintek utilizing existing equipment was completed in actual working conditions as designated by Anglo Platinum. The next phase is to identify a narrow range of product to undertake full casting production at Prima followed by full product testing on a selected mine.

- Advance Imaging Technologies (Pty) Ltd have developed the Myriad technology which is an online condition monitoring of mine conveyor belts using digital magnetic imaging. The Myriad system which is fitted to the conveyor superstructure immediately above the conveyor belt obviates the historical practice of performing tedious and unreliable walk-through inspections of the mine's steel cord reinforced conveyer belts. The Myriad magnetic condition monitoring system utilizes a novel magnetic array sensing system which runs a real-time damage detection algorithm that allows for continuous monitoring. The digital magnetic imaging technology enables early and accurate detection of damages to the conveyor belts and therefore less unforeseen plant down times. The Myriad system has attracted interest worldwide and the technology is currently being licensed.

SUMMARY OF PROJECTS PORTFOLIO

THEME	PROJECT NAME	OBJECTIVE	EXPECTED OUTCOME	CURRENT STATUS
Real-time IT systems for mining applications	Mineral Quantification System (MQi)	To develop an online mineral quantification system (MQi) based on Diffused Reflective Spectroscopy (DRS) which is a world first.	Supply of monitoring systems to mines in key mining countries worldwide.	Blue Cube Systems (Pty) Ltd is an operating company that has continued to generate revenues in 2010.
	Myriad System	To Develop an online monitoring of mine conveyor belts using digital magnetic imaging.	Fully commercialised systems implemented on ore processing mines globally.	Advance Imaging Technology (Pty) Ltd currently licencing technology to Goodyear Veyance.
Recovery of precious metals	Process technology for recovering platinum group metals from industrial wastes	The project has developed a novel adsorption technology for recovering Platinum Group Metals from dilute multicomponent halide solutions using novel adsorbents.	Technically viable process to extract Platinum Metal groups based on Adsorption technology.	Review of the technical audit conducted by an independent metallurgists to assess technical viability of the process is underway.
New mining materials	Development of a cost effective grinding media for platinum industry	To develop and produce cost effective grinding balls that will match or exceed the performance of the present commercially available products.	Local availability of a grinding ball product and the presence of local expertise in the manufacture of grinding media for mining houses in South Africa.	The grinding balls are undergoing plant trials at Anglo Platinum.
Mineral Beneficiation	Zirconium Beneficiation	Development of a cost effective process for the production of high-tech performance chemicals.	Export of high value chemicals.	A bankable feasibility study has been commissioned with co-shareholders.

technology innovation
AGENCY

ANNUAL FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2011

MEMBERS' RESPONSIBILITY FOR THE FINANCIAL STATEMENTS
For the year ended 31 March 2011

The entity's accounting authority is responsible for the preparation, integrity and fair presentation of the Annual Financial Statements, comprising the Statement of Financial Position as at 31 March 2011 and the Statement of Financial Performance, the Statement of Changes in Accumulated Funds and the Statement of Cash Flows for the year then ended, and the Notes to the Annual Financial Statements, which include a summary of significant accounting policies and other explanatory notes, and the Board's report, in accordance with South African Statements of Generally Recognised Accounting Practice ("GRAP").

The Board's responsibility includes: designing, implementing and maintaining internal controls relevant to the preparation and fair presentation of these financial statements that are free from material misstatements, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

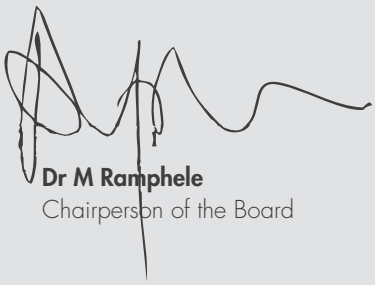
The Board's responsibility also includes maintaining adequate accounting records and an effective system of risk management.

The Board has made an assessment of the entity's ability to continue as a going concern and has no reason to believe the business will not be a going concern in the year ahead.

The auditor is responsible for reporting on whether the financial statements are fairly presented in accordance with the applicable financial reporting framework.

Approval of the Annual Financial Statements

The Annual Financial Statements set out on pages 111 to 148 have been approved by the Board on 25 August 2011 and are signed on their behalf by:



Dr M Ramphele
Chairperson of the Board

REPORT OF THE AUDIT COMMITTEE
For the year ended 31 March 2011

We are pleased to present our report for the financial year ended 31 March 2011

Audit and Risk Committee members and attendance

The Audit and Risk Committee, consisting of the members listed below, met four times during the year under review to undertake its responsibilities (see dates and attendance shown on page 23 of the Annual Report).

J H R Norton (Member and Chairperson)

Dr S Cornelius (Member)

Prof S Harrison (Member)

L Milne (C-opted Member)

S Duma (CEO – ex officio)

B Kortjass (CFO – ex officio)

In addition the meetings were attended by the Enterprise Risk Manager, Ms L Moalusi after her appointment in 1 July 2010 and the External and Internal Audit teams as appropriate.

Audit Committee responsibility

The Audit Committee's responsibilities arise from section 51(1)(a)(ii) of the Public Finance Management Act and Treasury Regulations 3.1.13 and 27(1), which include the following roles and responsibilities of the Audit Committee:

- Control and direct a system of internal audit and review the effectiveness and activities thereof including its annual work programme, coordination with the external auditors, the reporting of significant investigations and the responses of management to specific recommendations;
- Review the effectiveness of the internal control systems;
- Review the risk areas of the TIA's operations to be covered in the scope of the internal and external audits based on the regular conduct of a risk assessment and risk management strategy adopted by management and the Board;
- Review the adequacy and reliability of the financial information provided to management, the Board and other users thereof;
- Review any accounting and auditing concerns identified as a result of internal and external audits;
- Review TIA's compliance with legal and regulatory provisions.

The Audit Committee has prepared an appropriate Committee Charter in terms of this legal and regulatory framework which has been adopted by the Board. The Audit Committee has regulated its affairs in compliance with this Charter and has reported quarterly in this regard to the Board.

Effectiveness of Internal Control

As the Agency was in the process of becoming operationalised during the financial year under review, the necessary control systems have not been in operation for the full period and only limited internal audit review of these systems was possible during the year. Accordingly evidence of immaturity of the control systems was noted during the external audit and plans to rectify shortcomings have been prepared. Notwithstanding this qualification the Committee is satisfied that the control systems are becoming effective and no serious breaches of control have resulted during this establishment phase.

Risk management

The Committee is satisfied that the TIA has established a risk management process, focused on identifying, assessing, managing and monitoring all known forms of significant risks across all operations. This was established during the year under review and was successfully operational by the end of the Financial Year.

Management of the Financial Function

The financial function at TIA was established with staff from the six entities that combined to form TIA, strengthened by a number of key external appointments. The Board recognises that the inherited composition of skills, competence and experience is not yet sufficient for the more complex organisation of TIA and significant development is necessary to bring the skills to a level appropriate for the organisation. Evidence of these inherited skills and systems shortcomings was highlighted during the external audit and a program of skills development coupled with selected additional recruitment has been drawn up.

Evaluation of Annual Financial Statements

The Audit Committee has

- reviewed and discussed with the External Auditors and Management the audited annual financial statements to be included in the annual report;
- reviewed the proposed impairment provisions proposed by management;
- reviewed the going concern of the business;
- reviewed the external auditors management letter and Management's responses thereto;
- reviewed the appropriateness of accounting policies and practices; and
- reviewed significant adjustments resulting from the audit.

The Audit and Risk Committee has discussed, concurs with and accepts the conclusions of the External Auditors on the annual financial statements, read together with the report of the External Auditors and has recommended these to the Board of Trustees for acceptance.

Ross Norton
Chairperson of the Audit Committee

REPORT OF THE INDEPENDENT AUDITORS
For the year ended 31 March 2011

To Parliament and the Executive Authority, the Minster of the Department of Science and Technology, for the year ended 31 March 2011

Report on the Financial Statements

We have audited the financial statements of the Technology Innovation Agency ("TIA") which comprise the accounting authority's report, the statement of financial position at 31 March 2011, the statements of financial performance, changes in accumulated funds and cash flows for the year then ended, and the notes to the financial statements which contain a summary of significant accounting policies and other explanatory notes, as set out on pages 109 to 148.

Accounting authority's responsibility for the financial statements
The accounting authority are responsible for the preparation and fair presentation of these financial statements in accordance with the South African Standards of Generally Recognised Accounting Practice ("SA Standards of GRAP"), the requirements of the Public Finance Management Act of South Africa ("PFMA"), and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our adverse opinion.

Basis for Adverse Opinion
SA Standards of GRAP, GRAP 6, *Consolidated and Separate Financial Statements*, requires a controlling entity to present consolidated financial statements in which it consolidates its investments in controlled entities and in which the financial statements of the group are presented as those of a single economic entity. As disclosed in note 4 to the financial statements, TIA had control in a number of entities as a result of investments acquired in those entities. TIA did not present consolidated financial statements as required in terms of the financial reporting framework.

The investments in associates balance of R51,6 million as disclosed in note 5 to the financial statements is accounted for at cost and not in accordance with the equity accounting method as required by SA Standards of GRAP, GRAP 7,Investments in Associates. GRAP 7 further requires the entity to present summarised financial information of associates, including the aggregated amounts of assets, liabilities, revenues and surplus or deficit. TIA did not comply with the requirements of the financial reporting framework.

Included in loans and receivables, disclosed in note 7 to the financial statements, were loans and receivables which were not impaired. As a result, the loans and receivables were overstated and operating expenses were understated.

Adverse Opinion
In our opinion, because of the significance of the matters described in the basis for adverse opinion paragraph, these financial statements do not present fairly the financial position of the Technology Innovation Agency at 31 March 2011, and its financial performance and cash flows for the year then ended in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa.

Report on Other Legal and Regulatory Requirements

In terms of the Public Audit Act of South Africa and *General Notice 1111 of 2010, issued in Government Gazette No. 33872 of 15 December 2010*, we include below our findings on the report on performance against predetermined objectives, compliance with laws and regulations and internal control.

Predetermined objectives

We are required to undertake a limited assurance engagement on the "Performance against predetermined objectives", as set out on pages 17 to 54 of the Annual Report, in which the actual performance of the entity for the year ended 31 March 2011 is compared with target key performance indicators (predetermined objectives), and report thereon to those charged with governance. In this Report we are required to report our findings from our engagement relating to non-compliance with regulatory requirements, where the reported information was inadequately presented or not received timeously, and where we have evaluated reported information to be not useful or reliable. We report the following:

Usefulness of information
Findings from our limited assurance engagement are that for all objectives the planned and reported indicators and targets were not:

- specific in clearly identifying the nature and the required level of performance;
- measurable in identifying the required performance;
- time bound in specifying the time period or deadline for delivery;
- well defined in respect of being clear and unambiguous data definitions that will allow for consistent data collection.

Therefore we were unable to audit the reported outcomes against the pre-determined objectives for the purpose of concluding on the reliability of reported performance information as part of our limited assurance engagement.

Compliance with laws and regulations

We are required to report on compliance with laws and regulations in accordance with the guidance contained in the applicable R3: Reporting Guide of the Auditor-General. We report the following material findings on non-compliance with laws and regulations on the basis set out in the Guide.

1. Strategic planning and performance management

1.1 As per the requirements of Section 55(1)(c) read with the 2011 financial year-end circular issued by the office of the Accountant General (OAG) in accordance with section 76(4) of the PFMA, (Circular: Financial year end procedures, closure and submission dates for all PFMA compliant institutions) the Annual Report must be submitted for auditing within two months after the end of the financial year being 31 May 2011.

Although the financial statements were submitted for audit on 31 May 2011, the report on performance against pre-determined objectives was not submitted for audit.

1.2 Treasury Regulation (TR) 30.1.3.(e) requires that a Strategic Plan must include a materiality and significance framework developed and approved by the Accounting Authority in consultation with the Executive Authority as envisaged in TR28.3.1. TIA's strategic plan for 2010/2011 financial year did not include a Materiality and Significance Framework as required.

2 Procurement and contract management

2.1 Section 51(1)(b)(ii) of the PFMA requires the Accounting Authority to take appropriate steps to prevent irregular expenditure, fruitless and wasteful expenditure, losses resulting from criminal conduct and expenditure not complying with the operational policies of TIA. TIA currently has policies and procedures in place which would assist with the prevention of these types of expenditures and losses, however, the current system to prevent these types of expenditures and losses was not always complied with during the 2010/2011 financial year, and as such was not always effective in preventing instances of such expenditure.

As a result of ineffective policies and procedures, TR 16A read with practice note 8 of 2007/2008 was not always followed as three quotations were not obtained for procurement of certain goods and services below R500 000 while the competitive bidding process and tender procedures were not always followed for the procurement of certain goods and services above R500 000.

Notes 25 and 26 to the financial statements indicate instances of irregular expenditure and fruitless and wasteful expenditure incurred by TIA.

2.2 In terms of practise note 8 of 2007/2008 issued by National Treasury, Accounting authorities are required to report within ten (10) working days to the relevant treasury and the Auditor-General all cases where goods and services above the value of R1 million were procured in terms of Treasury Regulation 16A6.4. The report must include the description of the goods or services, the names of the suppliers, the amounts involved and the reasons for not following the prescribed competitive bidding process. TIA did not report such transactions to the relevant authorities as required.

2.3 Treasury Regulation 31.1.3 states that sound cash management includes making payments not earlier than necessary, with due regard for efficient, effective and economical programme delivery and the public entity's normal terms of account payments and avoiding pre-payments of goods or services. Contrary to the above regulation, certain payments were processed prior to the delivery of goods and services or milestones as agreed in the contract.

3 Human resource management

The employees are required to disclose any and all business interests to the Chief Executive Officer according to the Conflict of Interest policy. Employees were found to have interests in companies that could not be supported by signed declaration of interest forms. The lack of a centralised register and monitoring process within the company makes it difficult to track and monitor whether all employees have declared their interests.

4 Internal audit

Section 51(1)(a)(ii) of the PFMA requires the establishment of an internal audit function. Treasury Regulation 27.2.1, read with Treasury Regulation 27.2.7, requires the Internal Audit function, in consultation with the Audit Committee, to prepare a three year rolling internal audit plan. This plan should be risk based and should indicate the scope of each audit. TIA finalised the establishment of the internal audit function through the formal signature of a contract for the appointment of internal auditors in November 2010. As a consequence the 2010/2011 internal audit plan approved by the Audit Committee represented planned activities for a period of one year only.

5 Annual financial statements

Section 55 (1)(a) of the PFMA requires the accounting authority to keep full and proper records of the financial affairs of the entity and the annual financial statements should fairly present the state of affairs of the entity, its business, its financial results, its performance against predetermined objectives, and its financial position as at the end of the financial year concerned. Material misstatements were identified during the audit, and these were corrected by management. Those material misstatements that remained uncorrected form the basis for the adverse opinion as expressed in the Report on the financial statements, above.

Internal control

We considered internal control relevant to our audit of the financial statements, and the reports on predetermined objectives and compliance with laws and regulations, but not for the purpose of expressing an opinion on the effectiveness of internal control. The matters reported below are limited to the significant deficiencies relating to leadership, financial and performance management and governance that resulted in the modification of the auditor's opinion on the financial statements and findings on the reports on predetermined objectives and compliance with laws and regulations, as included in this Report

- Effective oversight responsibility was not exercised during the year regarding compliance with laws and regulations and the related internal controls. This is evidenced by the instances of non-compliance with the PFMA and Treasury Regulations identified in this Report.

- Human resource management to ensure that adequate and sufficiently skilled resources were in place was not always effective. Staff in various areas within the entity lacked capacity to perform their assigned roles and responsibilities, as monthly reconciliations were not performed. In addition, delays were experienced in receiving vital audit information and, in certain instances, audit information received was incorrect. A lack of segregation of duties was noted as certain individuals prepare and review the same information or prepare and authorise the same information.

- Policies and procedures to enable and support the understanding and execution of internal control objectives, processes, and responsibilities were not always established and communicated throughout the organisation to ensure accurate and reliable financial and operational reporting. This resulted in material audit adjustments as reported in paragraph 5 above.

OTHER REPORTS

INVESTIGATIONS

Investigations completed during the financial year as advised to us

A forensic investigation was initiated by TIA into the operations of an investee of TIA. The scope of the investigation mainly covered procurement and payment of general expenses.

The matters contained in the Report on Other Legal and Regulatory Requirements are not considered to affect our opinion contained in our Report on the Annual Financial Statements.

KPMG Inc.

Per *Andronicca Masemola*
Chartered Accountant (SA)
Registered Auditor
Director
27 August 2011

REPORT OF THE ACCOUNTING AUTHORITY
For the year ended 31 March 2011

Introduction

On behalf of the Technology Innovation Agency ("TIA" or "Agency") Board, we hereby submit to Parliament, through the Minister of Science and Technology, this report and the audited Annual Financial Statements of TIA for the period ended 31 March 2011. In the opinion of the TIA Board, with the exception of the matters reported in the auditor's report, the financial statements reflect the financial position of the TIA as at 31 March 2011 and the results of its operations for the period then ended.

Principal activities of the Technology Innovation Agency

The object of the Agency is to support the State in stimulating and intensifying technological innovation in order to improve economic growth and quality of life of all South Africans by supporting the development and exploitation of technological innovations.

Financial results

The financial results of the Technology Innovation Agency are set out on pages 111 to 148 of the Annual Financial Statements.

TIA was established as schedule 3(a) Public Entity in terms of the PFMA and at the beginning of the financial year, five entities and one programme controlled by the Department of Science and Technology (DST) were migrated into the Agency. The migration of these entities with differing procedures, audit standards and skills levels into a new integrated organisation presented considerable challenges to the Agency and its senior management, many of whom were only appointed during the course of the financial year. None of these entities had previously been audited in terms of the PFMA or the GRAP standards and had undertaken the promotion of innovation through investments that conflicted with TIA's schedule 3(a) status. Further, the TIA mandate, as expressed in the TIA Act (No 26 of 2008), envisages a business model that conflicts with its PFMA status.

The Agency has conducted extensive dialogue with National Treasury, DST and the Auditor General about the conflicts between its mandate, its inherited entities and the PFMA. It has made considerable progress toward a workable protocol to allow it to fulfill its mandate and regularise its inherited investments. Notwithstanding these efforts, this first full audit of the Agency revealed a number of issues relating directly to these transitional challenges which have resulted in an adverse audit opinion.

The Board accepts the opinion contained in the Auditors report and the challenge it presents to fully comply with the requirements of the PFMA and GRAP. This will require close monitoring of management's action plan to address the shortcomings in capacity and control as well as a continued engagement with inter alia, the DST, National Treasury and the Accounting Standards Board to agree on an operating and accounting regime supportive of its mandate.

Take-on balances

On 1 April 2010 the businesses of the following Trusts, namely BioPAD, Cape Biotech, LifeLAB, PlantBio and Tshumisano, as well as the AMTS programme were migrated to the TIA as going concerns. All assets and liabilities were taken over at their carrying values.

Events subsequent to the end of the year

The Board is not aware of any event which might impact on the organisation after year end.

Contact persons

Adv. Arthur Maisela, Board Secretariat.

The registered address of Technology Innovation Agency is:

83 Lois Avenue
Menlyn
Pretoria
0181

STATEMENT OF FINANCIAL POSITION
For the year ended 31 March 2011

	Note	2011 R'000	2010 R'000
Assets			
Non-current assets		**191 429**	6 100
Property and equipment	**3**	**28 879**	3 087
Investment in subsidiaries	**4**	**18 269**	-
Investment in associates	**5**	**51 678**	3 013
Other investments	**6**	**482**	-
Loans and receivables	**7**	**92 121**	-
Current assets		**206 817**	124 864
Trade and other receivables	**8**	**4 996**	13 735
Cash and cash equivalents	**9**	**201 821**	111 129
Total Assets		**398 246**	130 964
Funds and liabilities			
Funds			
Accumulated funds		**309 312**	111 659
Non-current liabilities		**33 128**	12 786
Deferred income	**10**	**33 128**	12 786
Current liabilities		**55 806**	6 519
Trade and other payables	**11**	**16 369**	6 519
Income received in advance		**1 869**	-
Provision for onerous contract	**12**	**2 157**	-
Other liabilities	**13**	**35 411**	-
Total liabilities		**398 246**	130 964

STATEMENT OF FINANCIAL PERFORMANCE
For the year ended 31 March 2011

	Note	2011 R'000	3 month period 2010 R'000
Revenue			
Total Income		**606 647**	12 283
Revenue from non-exchange transactions	**14**	**590 909**	9 117
Revenue from exchange transactions	**15**	**15 738**	3 166
Expenditure			
Project funding expenditure	**16**	**(311 348)**	(9 617)
Donations and sponsorships	**17**	**-**	(7 363)
Impairment of investments	**18**	**(60 658)**	(2 780)
Operating expenditure	**19**	**(164 021)**	(10 713)
Surplus/(deficit) for the period		**70 620**	(18 190)

STATEMENT OF CHANGES IN ACCUMULATED FUNDS
For the year ended 31 March 2011

	2011 R'000	3 month period 2010 R'000
Balance at beginning of the period	**111 659**	-
Transfer of business – migrating entities	**127 033**	129 849
Surplus/(deficit) for the period	**70 620**	(18 190)
Balance at 31 March	**309 312**	111 659

STATEMENT OF CASH FLOWS
For the year ended 31 March 2011

	Note	2011 R'000	3 month period 2010 R'000
Cash utilised from operating activities			
Receipts			
Grants		**590 909**	-
Finance income		**4 258**	2 515
Dividend income		**79**	-
Other receipts		**11 642**	-
Total receipts		**606 888**	2 515
Payments			
Employee costs		**(85 202)**	(5 622)
Project funding expenses		**(311 348)**	(9 617)
Other payments		**(131 960)**	(16 445)
Total payments		**(528 510)**	(31 684)
Net cash inflow/(outflow) from operating activities	**21**	**78 378**	(29 169)
Cash outflow from investing activities		**(8 028)**	127 512
Acquisition of property and equipment		**(18 109)**	-
Proceeds on disposal of property and equipment		**177**	-
Acquisition of investment in associates		**(21 000)**	-
Acquisition of investment in subsidiaries		**(5 509)**	-
Cash balances inherited from migrated entities		**83 393**	129 849
Acquisition of other investments		**(466)**	-
Repayment of loans received		**799**	-
Increase in loans granted during the period		**(47 313)**	(2 337)
Cash flows from financing activities		**20 342**	12 786
Increase in deferred income		**20 342**	12 786
Net movement of cash and cash equivalents		**90 692**	111 129
Opening balance of cash and cash equivalents		**111 129**	-
Closing balance of cash and cash equivalents		**201 821**	111 129

1.1 Reporting Entity

The Technology Innovation Agency is an entity domiciled in South Africa. The address of the Agency's registered office is 83 Lois Avenue, Menlyn, Pretoria 0181. The full responsibilities of the Agency are contained in the Technology Innovation Agency Act, 2008 (Act No. 26 of 2008).

1.2 Basis of Preparation

The annual financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practices ("GRAP") issued by the Accounting Standards Board ("ASB") in accordance with the Public Finance Management Act, 1999 (Act No.1 of 1999) ("PFMA"). During the year, a number of standards of GRAP became effective for the current financial period. A brief description of these standards as well as an estimate of the impact is contained in Note 1.3.

A summary of the significant accounting policies, which have been applied, are disclosed below.

In the absence of a GRAP standard, the GRAP hierarchy in GRAP 3 - Accounting policies, changes in accounting estimates and errors is used to develop an appropriate accounting policy. In terms of GRAP 3, judgment must be used when developing an accounting policy.

In applying judgement, GRAP 3 requires that management refers to and considers the applicability of the following sources in descending order:

(a) the requirements and guidance in Standards of GRAP dealing with similar and related issues;

(b) the definitions, recognition criteria and measurement concepts for assets, liabilities, revenue and

(c) expenses set out in the Framework for the Preparation and Presentation of Financial Statements.

1.2.1 Basis of measurement

The annual financial statements are prepared on the historical cost basis and incorporate the following principal accounting policies, which have been consistently applied in all material respects unless stated otherwise. The annual financial statements comply with South African Statements of Generally Recognised Accounting Practice in all material respects, and the Public Finance Management Act, Act 1 of 1999 as amended.

1.3 New Standards and Interpretations

1.3.1 Standards and interpretations effective and adopted in the current year

The entity has adopted the following revised standards and interpretations that are effective for the current financial year and that are relevant to its operations:

GRAP 1: Presentation of Financial Statements

This standard prescribes the basis of presentation of general purpose financial statements, to ensure comparability both with the entity's financial statements of previous period and with the financial statements of other entities. This standard has a material impact on the fair presentation of financial statements.

GRAP 2: Cash Flow Statements

This standard requires the provision of information about the historical changes in cash and cash equivalents of an entity by means of a cash flow statement which classifies cash flows during the period from operating, investing and financing activities. This standard has a material impact.

GRAP 3: Accounting Policies, Changes in Accounting Estimates and Errors

This standard prescribes the criteria for selecting and changing accounting policies, together with accounting treatment and disclosure of changes in accounting policies, changes in accounting estimates and correction and errors.

GRAP 4: The Effects of Changes in Foreign Exchange Rates

This standard prescribes the accounting treatment of foreign currency transactions. The initial application of GRAP 4 will have no impact on the annual financial statements since there were no such transactions at year end.

GRAP 6: Consolidated and Separate Financial Statements

The standard prescribes the circumstances in which consolidated and separate financial statements are to be prepared and the information to be included in those financial statements so that the consolidated financial statements reflect the financial performance, financial position and cash flows of an economic entity as a single entity. The entity is required to prepare consolidated financial statements as a result of significant shareholding in its investments.

The impact of this standard is material.

GRAP 7: Investments in Associates

The standard prescribes the accounting treatment for investments in associates where the investor has significant influence over the investee. The purpose of this standard is to prescribe the circumstances in which the investors should use the equity method, how the equity method is to be applied and requires certain disclosures in respect of investments in associates.

The impact of this standard is material.

GRAP 13: Leases

GRAP 13 incorporates additional guidance on the concept of substance and legal form of a transaction, to illustrate the difference between lease and other contracts and on operating lease incentives.

In certain circumstances, legislation may prohibit the entering into certain types of lease agreements. If the entity has contravened these legislative requirements, the entity is still required to apply the requirements of GRAP 13.

Other than the abovementioned requirements, there is no other impact on the initial adoption of GRAP13.

GRAP 14: Events after the Reporting Date

This is an event, which could be favourable or unfavourable, that occurs between the reporting date and the date the annual financial statements are authorised for issue.

GRAP 14 requires the date of authorisation for issue to be the date on which the annual financial statements have received approval from management to be issued to the accounting authority. The impact of the standard is not material.

GRAP 17: Property, Plant and Equipment

Where an entity acquires an asset through a non-exchange transaction, i.e. for a nominal or no consideration, its cost is its fair value as at the date of acquisition.

The disclosure requirement for temporarily idle, fully depreciated property, plant and equipment and for property, plant and equipment that are retired from active use is required in GRAP 17.

The impact of the standard is not material but will result in additional disclosure.

GRAP 19: Provisions, Contingent Liabilities and Contingent Assets

Outflow of resources embodying service potential also needs to be considered when assessing if a present obligation that arises from past events exists or not.

GRAP 19 gives specific guidance regarding restructuring by way of transfers that will take place under a government directive and will not involve binding agreements. An obligation exists only when there is a binding transfer agreement.

Additional disclosure is required for each class of provision regarding reductions in the carrying amounts of provisions that result from payments or other outflows of economic benefits or service potential made during the reporting period and reductions in the carrying amounts of provisions resulting from re-measurement of the estimated future outflow of economic benefits or service potential, or from settlement of the provisions without cost to the entity.

If an external valuation is used to measure a provision the information relating to the valuation can usefully be disclosed. This standard has an impact on the financial statements of TIA.

GRAP 23: Revenue from Non-exchange Transactions (Taxes and Transfers)

The objective of this standard is to prescribe requirements for the financial reporting of revenue arising from non-exchange transactions, other than non-exchange transactions that give rise to an entity combination. The standard deals with issues that need to be considered in recognising and measuring revenue from non-exchange transactions, including the identification of contributions from owners.

1.3.2 Standards and interpretations approved and issued, but not yet effective

Standards issued but not yet effective up to the date of issuance of the TIA's financial statements are listed below. As at the date of this report, the Minister had not yet announced an effective date for these standards.

GRAP 18: Segment Reporting

The objective of this standard is to establish principles for reporting financial information by segments. This standard will result in additional disclosure.

GRAP 21: Impairment of non-cash-generating assets

The objective of this standard is to prescribe the procedures that an entity applies to determine whether a non-cash-generating asset is impaired and to ensure that impairment losses are recognised. The standard also specifies when an entity would reverse an impairment loss and prescribes disclosures. The impact of this standard is not yet known.

GRAP 24: Presentation of Budget Information in Financial Statements

This standard requires a comparison of budget amounts and the actual amounts arising from execution of the budget to be included in the financial statements of entities that are required to, or elect to, make publicly available their approved budget(s) and for which they are, therefore, held publicly accountable. The standard also requires disclosure of an explanation of the reasons for material differences between the budget and actual amounts.

Compliance with the requirements of this standard will ensure that entities discharge their accountability obligations and enhance the transparency of their financial statements by demonstrating compliance with the approved budget(s) for which they are held publicly accountable and, where the budget(s) and the financial statements are prepared on the same basis, their financial performance in achieving the budgeted results. This standard will result in additional disclosure being presented.

GRAP 25: Employee Benefits

The objective of this standard is to prescribe the accounting and disclosure for employee benefits. The standard requires an entity to recognise:

- A liability when an employee has provided service in exchange for employee benefits to be paid in the future; and
- An expense when the entity consumes the economic benefits or service potential arising from service provided by an employee in exchange for employee benefits.

This standard will have an impact on the entity's financial statement disclosure.

GRAP 26: Impairment of Cash-Generating Assets

The objective of this standard is to prescribe the procedures that an entity applies to determine whether a cash-generating asset is impaired and to ensure that impairment losses are recognised. The standard also specifies when an entity should reverse an impairment loss and prescribes disclosures. The impact of this standard is not yet known.

GRAP 103: Heritage Assets

The objective of this standard is to prescribe the accounting treatment for heritage assets and related disclosure requirements.

This standard is unlikely to have an impact on the entity.

GRAP 104 : Financial Instruments

The objective of this standard is to establish principles for recognising, measuring, presenting and disclosing financial instruments.

This revised standard will have a material impact on the entity. The entity's policy on investments is that it recognises investments in their first year on the price of investment basis, i.e. cost. Subsequent to the first year, the investment is recognised at cost less any impairments applying the impairment matrix developed.

2. Accounting policies

2.1 Property and equipment

The cost of an item of Property and Equipment is recognised as an asset when:

- It is probable that future economic value associated with the item will flow to the Agency;
- The cost of the item can be measured reliably

Cost includes expenditure that is directly attributable to the acquisition of the asset.

Where an asset is acquired at no cost, or for a nominal cost, its cost is its fair value at date of acquisition. Property and equipment are carried at cost less accumulated depreciation and any impairment losses.

Depreciation is recognised in surplus or deficit on a straight line basis over the estimated useful lives of each part of an item of property and equipment since this closely reflects the expected pattern of consumption of economic benefits embodied in the assets.

Item	Rate Applied
Leasehold improvements	Period of lease
Computer equipment	33.33%
Office equipment	33.33%
Office furniture	16.67%
Computer Software	50%
Motor Vehicles	20%-25%
Lab Equipment	20%

Subsequent cost
The cost of replacing a part of an item of property and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits associated with the item will flow to the entity and the cost of fair value can be measured reliably. The carrying amount of the replaced part is derecognised.

The costs of the day-to-day servicing of property and equipment are recognised in surplus or deficit as incurred.

The gain or loss arising from the derecognition of an item of property and equipment is calculated as the difference between the net disposal proceeds, if any, and the carrying amount of the item, and is included in the statement of financial performance when the item is derecognised.

2.2 Investments in associates

Investments in associates, subsidiaries and controlled entities are accounted for using the equity method (equity accounted Investees) and are initially recognised at cost. The financial statements include the entity's share of the income and expenses and equity movements of equity accounted investees, after adjustments to align the accounting policies with those of the entity, from the date that significant influence commences until the date that it ceases. When the entity's share in losses exceeds its interest in an equity accounted investee, the carrying amount of that interest (including any long-term investments) is reduced to nil and the recognition of further losses is discontinued.

2.3 Financial instruments

Financial instruments comprise investments in equity, trade and other receivables, cash and cash equivalents and trade and other payables.

Financial instruments are recognised initially at fair value. Subsequent to initial recognition financial instruments are measured as described below:

Loans and receivables, cash and cash equivalents and trade and other payables
Loans and receivables are financial assets with fixed and determinable payment that are not quoted in an active market. Such assets are recognised initially at fair market value plus any directly attributable transaction costs. Subsequent to initial recognition, loans and receivables are measured at amortised cost using the effective interest method, less any impairment losses.

Cash and cash equivalents and trade and other payables are subsequently measured at amortised cost.

Other investments
These investments are classified as financial instruments at cost. These investments are carried at cost less accumulated impairment. These financial assets are impaired if there is objective evidence that an impairment loss has been incurred on an investment in a residual interest that is not measured at fair value, because its fair value cannot be measured reliably.

2.4 Impairment

Financial assets
A financial asset, not carried at fair value through surplus or deficit, is assessed at each reporting date to determine whether there is any objective evidence that it is impaired. A financial asset is considered to be impaired if objective evidence indicates that a loss or event that has occurred after the initial recognition had a negative effect on the estimated future cash flows of that asset that can be measured reliably.

Non-financial assets
The carrying value of the entity's non-financial assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated.

The recoverable amount of an asset is the greater of its value in use and its fair value less cost to sell. In assessing value in use, the estimated future cash flows expected to be derived from the continuing use of an asset and from its disposal at the end of its useful life, are discounted to their present value using a pre-tax discount rate that reflects current market assessment of the time value of money and the risks specific to the assets.

An impairment loss is recognised if the carrying amount of an asset exceeds its estimated recoverable amount. Impairment losses are recognised in the Statement of Financial Performance. An impairment loss is reversed if there has been a change in the estimate used to determine the recoverable amount. An impairment loss is reversed only to the extent that the carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

2.5 Provision

A provision is recognised if, as a result of past event, the entity has a present or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessment of the time value of money and the risks specific to the liability.

Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate.

Provisions are reversed if it is no longer probable that an outflow of resources embodying economic benefits or service potential will be required, to settle the obligation.

Onerous contracts

A provision for onerous contracts is recognised when the expected benefits to be derived by the entity from a contract are lower than the unavoidable cost of meeting its obligations under the contract. The provision is measured at the present value of the lower of the expected cost of terminating the contract and the expected net cost of fulfilling the contract.

2.6 Employee benefits

Short-term employee benefits

The cost of short-term employee benefits, (those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses and non-monetary benefits such as medical care), is recognised in the period in which the service is rendered.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs.

The expected cost of bonus payments is recognised as an expense when there is a legal or constructive obligation to make such payments as a result of past service or performance and the obligation can be estimated reliably.

Liabilities for short-term employee benefits that are unpaid at year-end are measured at the undiscounted amount that the entity expects to pay in exchange for that service and had accumulated at the reporting date.

2.7 Leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

Operating leases - entity as lessee

Operating lease payments are recognised in surplus or deficit on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease asset or liability. Lease incentives received are recognised as an integral part of the total lease expense, over the term of the lease.

2.8 Revenue

Revenue from exchange transactions includes revenue from trading activities and other services provided while revenue from non-exchange transactions includes grants from other spheres of government.

Revenue from exchange transactions

Revenue is generally recognised when it is probable that future economic benefits or service potential will flow to the entity and these benefits or service potential can be measured reliably, except when specifically stated otherwise. Revenue from the rendering of services is recognised in surplus or deficit in proportion to the stage of completion of the transaction at the reporting date.

Revenue is measured at the fair value of the consideration received or receivable, estimated returns, rebates and discounts.

Interest earned

Interest income is recognised in surplus or deficit as it accrues, using the effective interest method. Interest earned on unutilised conditional grants is recognised as an unspent conditional grant liability if the grant conditions indicate that interest is payable to the grantor.

Dividends

Dividends are recognised on the date that the entitiy's right to receive the dividend has been established.

Royalties

Royalties are recognised on an accrual basis in accordance with the substance of the relevant agreements.

Sale of goods

Revenue from the sale of goods is recognised when the significant risks and rewards of ownership are transferred to the buyer, recovery of the consideration is probable, the associated costs can be estimated reliably, there is no continuing managerial involvement with the goods and the amount of revenue can be measured reliably.

Revenue from non-exchange transactions

Revenue from non-exchange transactions is recognised when it is probable that the economic benefits can be measured reliably and, if applicable, there has been compliance with the relevant legal requirements or restrictions.

Unconditional grants and receipts

Revenue from unconditional grants is recognised when it is probable that the economic benefits or service potential will flow to the entity the amount of the revenue can be measured reliably. Since these grants are unconditional and there are no attached stipulations, the grants are recognised as revenue or, if the recognition criteria had been met, as assets in the reporting period in which they are received or receivable.

The annual allocation from the Department of Science and Technology has no conditions attached to it. Instead it is deemed an allocation to fulfil the entity's mandate.

Conditional grants and receipts

Revenue from conditional grants is recognised when it is probable that the economic benefits or service potential will flow to the entity and the amount of the revenue can be measured reliably and to the extent that there has been compliance with any restrictions associated with the grant.

Interest earned on investments is treated in accordance with grant conditions. If interest is payable to the grantor, it is recognised as a liability and if not, it is recognised as interest earned in the statement of financial performance.

Recognition

An inflow of resources from a non-exchange transaction recognised as an asset is recognised as revenue, except to the extent that a liability is also recognised in respect of the same inflow.

As the entity satisfies a present obligation recognised as a liability in respect of an inflow of resources from a non-exchange transaction recognised as an asset, it reduces the carrying amount of the liability recognised and recognises an amount of revenue equal to that reduction.

Measurement

Revenue from a non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity.

Where a liability is required to be recognised it will be measured as the best estimate of the amount required to settle the obligation at the reporting date, and the amount of the increase in net assets, if any, recognised as revenue. When a liability is subsequently reduced, because the taxable event occurs or a condition is satisfied, the amount of the reduction in the liability is recognised as revenue.

2.9 Finance cost

Finance costs comprise interest expense on borrowings, unwinding of the discount on provisions and dividends on preference shares classified as liabilities that are recognised in surplus or deficit.

2.10 Accounting for take-on balances

Business combinations arising from transfers of interests in entities that are under the control of the shareholder that controls the entity are accounted for as if the acquisition had occured at the date that common control was established.

The assets and liabilities acquired are recognised at the carrying amounts recognised previously in the other entity's financial statements. The components of accumulated funds of the acquired entity are added to the same components within the entity's accumulated funds.

3 Property and equipment

2011

COST	Leasehold Improvements R'000	Computer Equipment R'000	Lab Equipment R'000	Office Equipment R'000	Office Furniture R'000	Computer Software R'000	Motor Vehicles R'000	Total R'000
Opening balance at 1 April 2010	323	1 367	-	498	1 294	133	-	3 615
Additions:								
Transfer of business	775	776	9 571	325	1 212	167	113	12 939
Cash acquisitions	14 455	938	-	1 098	1 293	139	186	18 109
Disposals	-	(5)	-	-	(2)	-	(113)	(120)
Fair value adjustments	-	87	-	299	77	-	-	463
Closing cost	**15 553**	**3 163**	**9 571**	**2 220**	**3 874**	**439**	**186**	**35 006**
ACCUMULATED DEPRECIATION								
Opening balance at 1 April 2010	(12)	(321)	-	(79)	(115)	(1)	-	(528)
Depreciation	(1 746)	(830)	(1 914)	(443)	(384)	(222)	(60)	(5 599)
At 31 March 2011	**(1 758)**	**(1 151)**	**(1 914)**	**(522)**	**(499)**	**(223)**	**(60)**	**(6 127)**
Closing carrying value	**13 795**	**2 012**	**7 657**	**1 698**	**3 375**	**216**	**126**	**28 879**

3 Property and equipment (continued)

2010

COST	Leasehold Improvements R'000	Computer Equipment R'000	Lab Equipment R'000	Office Equipment R'000	Office Furniture R'000	Computer Software R'000	Motor Vehicles R'000	Total R'000
Opening balance at 1 January 2010	-	-	-	-	-	-	-	-
Additions:								
Transfer of business	323	1 401	-	498	1 294	133	-	3 649
Cash acquisition	-	-	-	-		-	-	-
Write off	-	(34)	-	-	-	-	-	(34)
Closing cost	**323**	**1 367**	**-**	**498**	**1 294**	**133**	**-**	**3 615**
ACCUMULATED DEPRECIATION								
Opening balance at 1 January 2010	-	-	-	-	-	-	-	-
Depreciation	(12)	(321)	-	(79)	(115)	(1)	-	(528)
At 31 March 2010	**(12)**	**(321)**	**-**	**(79)**	**(115)**	**(1)**	**-**	**(528)**
Closing carrying value	**311**	**1 046**	**-**	**419**	**1 179**	**132**	**-**	**3 087**

	2011 R'000	2010 R'000
4 Investments in subsidiaries		
Carrying value at beginning of period	**-**	-
New investments	**5 509**	-
Transfer of business – migrating entities	**20 488**	-
Impairment on investments	**(7 728)**	-
Carrying value at the end of the period	**18 269**	-

4.1 Investments in subsidiaries

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	Balance at 31 March 2011 R'000	Balance at 31 March 2010 R'000
African Clinical Research Organisation	Services for conduct and management of clinical trials	80%	80%	**18 269**	-
Investment through transfer of business				**12 760**	-
Additions				**5 509**	-
Cape Gourmet (Pty) Ltd	Propagation of high value mushroom sin microclimates that are artificially created	75%	75%	**-**	-
Investment through transfer of business				**3 728**	-
Accumulated impairments				**(3 728)**	-
Cape Carotene (Pty) Ltd	Development for production/sale of astaxanthin, initial marketing as feed for fish and eventually as a nutritional supplement for humans	100%	100%	**-**	-

4.2 Investments in subsidiaries (continued)

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	Balance at 31 March 2011 R'000	Balance at 31 March 2010 R'000
Genecare Molecular Technology (Pty) Ltd	Development and production of rapid predictive molecular diagnostic test	100%	100%	**-**	-
Capelands Nurseries (Pty) Ltd	Development of robotic products	100%	100%	**-**	-
Investment through transfer of business				**4 000**	-
Accumulated impairment				**(4 000)**	-
Carrying value at the end of the period				**18 269**	-

	2011 R'000	2010 R'000
5 Investments in associates		
Carrying value at beginning of period	**3 013**	-
New investments	**21 000**	-
Share of profit in associate	**-**	*77*
Transfer of business – migrating entities	**53 793**	2 936
Impairment on investments	**(26 128)**	-
Carrying value at the end of the period	**51 678**	3 013

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	Balance at 31 March 2011 R'000	Balance at 31 March 2010 R'000
Adept (Pty) Ltd	Development and commercialisation of general aviation engine	25%	25%	**-**	-
Investment through transfer of business				**-**	*7 000*
Accumulated impairment				**-**	*(7 000)*
Aloe Verox/Pedal trading	Development of pharmaceutical components	48%	48%	**-**	-
Investment through transfer of business				**627**	-
Accumulated impairment				**(627)**	-
Blue Cube Systems (Pty) Ltd	Development and commercialisation of high technology non-contact sensor	25%	25%	**3 013**	3 013
Opening balance				**3 013**	-
Investment through transfer of business				**-**	2 936
Share in profit of associate				**-**	*77*
Citrogold *(Investment acquired through transfer of business)*	Commercialisation of intellectual property for Plant Breeders	33%	33%	**1 488**	-

5 Investments in associates (continued)

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	**Balance at 31 March 2011 R'000**	Balance at 31 March 2010 R'000
Commercial Aquaculture (Pty) Ltd (Camp out Trading)		34%	34%	**-**	-
Investment through transfer of business				**220**	-
Accumulated impairment				**(220)**	-
Edgi Tech	Design and develop modular fittings/connectors	26%	26%	**-**	-
Investment through transfer of business				**-**	3 275
Accumulated impairment				**-**	(3 275)
Elevation Biotech	Development and commercialisation of cargo and container seal	46%	46%	**-**	-
Investment through transfer of business				**13 127**	-
Impairment recognised in the current period				**(13 127)**	-
Everpix (Pty) Ltd	Development of electronic vehicle	26%	26%	**-**	-
Investment through transfer of business				**2 000**	-
Impairment recognised in the current period				**(2 000)**	-
Geratech Zirconium Benefication (Pty) Ltd	Production of zirconium chemical and oxides	22%	22%	**-**	-
Investment through transfer of business				**-**	43 802
Accumulated impairment				**-**	(43 802)
Inqaba Biotech (Pty) Ltd *(Investment acquired through transfer of business)*		37%	37%	**2 339**	-
Jirehsa Medical (Pty) Ltd	Commercialisation of a retainers	31%	31%	**-**	-
Investment through transfer of business				**-**	530
Accumulated impairment				**-**	(530)

5 Investments in associates (continued)

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	**Balance at 31 March 2011 R'000**	Balance at 31 March 2010 R'000
KapaBiosystems	Manufacture of next generation novel enzymes	49%	49%	**-**	-
Investment through transfer of business				**24 000**	-
Accumulated impairment				**(24 000)**	-
Natural Carotenoids South Africa (Pty) Ltd	Production and sale of astaxanthin as feed for fish	32%	32%	**250**	-
Investment through transfer of business				**250**	-
Accumulated impairment				**-**	-
Niocad (Pty) Ltd	Development of NIOCAD (Integrated circuit Design Software focused specifically on ultra-high frequency superconductive circuit	22%	22%	**-**	-
Investment through transfer of business				**-**	1 004
Accumulated impairment				**-**	(1 004)
Nkomazi Chemicals (Pty) Ltd	Established of a large scale commercial Hydrotalcite Manufacturing Plant	36%	36%	**-**	-
Investment through transfer of business				**-**	1 000
Accumulated impairment				**-**	(1 000)
Nulane Investments 219 (Pty) Ltd	Distillation of water	25%	25%	**-**	-
Investment through transfer of business				**-**	750
Accumulated impairment				**-**	(750)
Origin Source	Manufacturing of drugs through mushrooms	21%	21%	**-**	-
Investment through transfer of business				**3 161**	-
Accumulated impairment				**(3 161)**	-

5 Investments in associates (continued)

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	**Balance at 31 March 2011 R'000**	Balance at 31 March 2010 R'000
Ribotech (Pty) Ltd		35%	35%	**-**	-
Investment through transfer of business				**36 789**	-
Accumulated impairment				**(36 789)**	-
Robonica (Pty) Ltd (14 130 ordinary shares)	Development of robotic products	41%	41%	**-**	-
Investment through transfer of business				**-**	14 563
Accumulated impairment				**-**	(14 563)
Safe Eggs (Pty) Ltd	Pasteurising of eggs	20%	20%	**-**	-
Investment through transfer of business				**-**	1 425
Accumulated impairment				**-**	(1 425)
Tenacent SA (Pty) Ltd	Development and commercialisation of cargo and container seal	20%	20%	**-**	-
Investment through transfer of business				**-**	750
Accumulated impairment				**-**	(750)
Vibol Systems (Pty) Ltd	Production of knuckle joints for exhaust systems	26%	26%	**-**	-
Investment through transfer of business				**-**	650
Accumulated impairment				**-**	(650)
Bio gold		33%	33%	**1 658**	-
Investment through transfer of business				**1 658**	-
Azitu Biotech *(Investment acquired through transfer of business)*	Propagation of plants using tissue culture	60%	60%	**1 750**	-

5 Investments in associates (continued)

Name of Investee	Principal activity	Portion of owner-ship interest	Portion of voting power held	**Balance at 31 March 2011 R'000**	Balance at 31 March 2010 R'000
Control Maze Trading (Pty) Ltd	Development of edible mushroom spawn	51%	51%	**-**	-
Femtech *Invest acquired in the current period*	Development of robotic products	69%	69%	**11 000**	-
iKhambi le Nala *Invest acquired in the current period*	Development of an invention comprising a self-sampling device for private cervical cancer screening	60%	60%	**10 000**	-
Ithemba Pharmaceutical *Investment acquired through transfer of business*	Development and commercialisation of cargo and container seal	51%	51%	**14 999**	-
Optimal Energy (Pty) Ltd	Development and production of electrical motor vehicle	52%	52%	**-**	-
Investment through transfer of business				**-**	94 368
Accumulated impairment				**-**	(94 368)
Quantum MDX Technologies SA (Pty) Ltd *Investment acquired through transfer of business*	Development and production of nanotechnology-based device for fast, accurate point of care disease and bio-molecule detection	50%	50%	**-**	-
Xsit (Pty) Ltd *Investment acquired through transfer of business*	Biocontrol using sterile techniques in citrus industry	20%	20%	**5 180**	-

5 Investments in associates (continued)

Name of Investee	**Principal activity**	**Portion of owner-ship interest**	**Portion of voting power held**	**Balance at 31 March 2011 R'000**	Balance at 31 March 2010 R'000
Bio Career Technology (Pty) Ltd *Investment acquired through transfer of business*	Online career recruitment portal for the SA science industry; stimulate interest in biotech careers	51%	51%	**1**	-
Biotech Laboratories (Pty) Ltd *Investment acquired through transfer of business*	Development and commercialisation of cargo and container seal	51%	51%	**-**	-
East Coast Rapid Diagnosis	Manufacturing of rapid diagnostic test	51%	51%	**-**	-
Investment through transfer of business				**11 000**	-
Impairment recognised in the current period				**(11 000)**	-
Carrying value at the end of the period				**51 678**	3 013

6 Other investments

Investments with shareholding less than 20%	Portion of ownership interest	Portion of voting power held	Balance at 31 March 2011 R'000	Balance at 31 March 2010 R'000
	-	-	**482**	-
Investment through transfer of business			**16**	2 170
Additions			**466**	-
Accumulated impairment			**-**	(2 170)

	2011 R'000	2010 R'000
7 Loans and receivables		
Carrying value at beginning of period	**-**	-
New investments	**47 313**	2 337
Transfer of business – migrating entities	**64 432**	-
Repayment of Loans	**(799)**	-
Interest accrued on loans	**7 978**	443
Impairment on investments	**(26 803)**	(2 780)
Carrying value at the end of the period	**92 121**	-

The detail of the loans and receivables held are as follows:

African Clinical Research Organisation (Pty) Ltd

R6 633 000 accrues interest monthly at prime interest rate, the rest is at prime less 2%.	**15 880**	-
Opening balance	**-**	-
Loan acquired through transfer of business to TIA	**3 000**	1 000
Loan granted during the period	**12 563**	-
Interest charged on loan granted	**417**	2
Accumulated impairment of loan receivable	**-**	(1 002)
Impairment recognised in the current period	**(100)**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
Angio Design		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**1 253**	-
Accumulated impairment of investment at transfer of business	**(1 253)**	-
Azitu Biotech		
The loan accrues interest monthly at prime less 4% for the first 5 years and at prime interest rate thereafter.	**12 755**	-
Loan acquired through transfer of business to TIA	**12 098**	-
Loan granted during the period	**820**	-
Repayment	**(163)**	-
Biocareers		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**599**	-
Accumulated impairment of investment at transfer of business	**(599)**	-
Bio2Bizz		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**920**	-
Accumulated impairment of investment at transfer of business	**(920)**	-
Biological Control Products		
The loan accrues no interest.	**7 314**	-
Loan acquired through transfer of business to TIA	**7 064**	-
Loan granted during the period	**250**	-
Biosurfactants		
The loan was granted during the period and accrues no interest.	**290**	-
Biovac Institute		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**37 543**	-
Accumulated impairment of investment at transfer of business	**(37 543)**	-
Bromelain		
The loan was acquired through the transfer of business to TIA during the period and accrues no interest.	**695**	-
Cape Carotene		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**3 547**	-
Accumulated impairment of investment at transfer of business	**(3 547)**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
Cape Gourmet Mushrooms		
The loan accrues interest monthly at prime interest rate less 2%.	**1 577**	-
Loan acquired through transfer of business to TIA	**1 450**	-
Loan granted during the period	**1 500**	-
Interest charged on loan granted	**77**	-
Impairment recognised in the current period	**(1 450)**	-
Capelands Nursery		
The loan accrues interest monthly at prime interest rate less 4%.	**1 853**	
Loan acquired through transfer of business to TIA	**17 263**	-
Loan granted during the period	**1 644**	-
Interest charged on loan granted	**209**	-
Impairment recognised in the current period	**(17 263)**	-
Cape Kingdom		
The loan accrues no interest	**-**	-
Loan acquired through transfer of business to TIA	**10 000**	-
Accumulated impairment of investment at transfer of business	**(10 000)**	-
Citrogold		
The loan accrues no interest.	**1 063**	-
Loan acquired through transfer of business to TIA	**1 539**	-
Loan repayment	**(476)**	-
DISA Vascular		
The loan was granted during the year and accrues interest monthly at prime interest rate.	**3 069**	-
Loan acquired through transfer of business to TIA	**10 563**	-
Loan granted during the period	**3 069**	-
Accumulated impairment of investment at transfer of business	**(10 563)**	-
East Coast Rapid Diagnostics		
The loan accrues no interest.	**-**	-
Loan acquired through transfer of business to TIA	**2 129**	-
Impairment recognised in the current period	**(2 129)**	-
Lifeassay Diagnostics		
The loan accrues interest at prime interest rate plus 1%.	**3 217**	-
Loan acquired through transfer of business to TIA	**1 866**	-
Loan granted during the period	**1 122**	-
Interest charged on loan granted	**228**	-
Low Glycemic Index Sugar		
The loan was acquired through the transfer of business to TIA during the period and accrues no interest.	**2 250**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
NCSA loan		
The loan does not accrue interest.	**-**	-
Loan acquired through transfer of business to TIA	**8 840**	-
Accumulated impairment of investment at transfer of business	**(8 840)**	-
Adept		
The loan accrues interest monthly at prime interest rate.	**4 652**	-
Loan granted during the period	**4 450**	-
Interest charged on loan granted	**202**	-
Femtech		
The loan does not accrue interest.	**3 270**	-
Loan acquired through transfer of business to TIA	**3 270**	-
Ferox		
The loan does not accrue interest.	**945**	-
Loan acquired through transfer of business to TIA	**945**	-
		-
Genecare		
The loan does not accrue interest.	**-**	-
Loan acquired through transfer of business to TIA	**6 429**	-
Accumulated impairment of investment at transfer of business	**(6 429)**	-
Institute for diagnostic research		
The loan does not accrue interest.		
Loan acquired through transfer of business to TIA	**933**	-
Ithemba Pharmaceuticals		
The loan does not accrue interest.	**62**	-
Loan acquired through transfer of business to TIA	**8 466**	-
Accumulated impairment of investment at transfer of business	**(8 404)**	-
Lactase		
The loan does not accrue interest.	**120**	-
Loan acquired through transfer of business to TIA	**50**	-
Loan granted during the period	**70**	-
Golden Oaks Mushrooms		
The loan does not accrue interest.	**-**	-
Loan acquired through transfer of business to TIA	**140**	-
Impairment recognised in current period	**(140)**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
Quantum DX		
The loan does not accrue interest.	**-**	-
Loan acquired through transfer of business to TIA	**18 863**	-
Accumulated impairment of investment at transfer of business	**(18 863)**	-
Synexa Loans		
The loan accrues interest monthly at prime interest rate less 2.163%.	**-**	-
Loan acquired through transfer of business to TIA	**14 019**	-
Interest charged on loan granted	**4 009**	-
Accumulated impairment of investment at transfer of business	**(14 019)**	-
Impairment recognised in current period	**(4 009)**	-
TB Sequencing		
The loan was acquired through the transfer of business to TIA during the period and accrues no interest.	**1 556**	-
WC Biotech Labs		
The loan does not accrue interest.	**-**	-
Loan acquired through transfer of business to TIA	**5 119**	-
Accumulated impairment of investment at transfer of business	**(5 119)**	-
Xsit		
The loan accrues interest monthly at prime interest rate less 1%.	**8 288**	-
Loan acquired through transfer of business to TIA	**8 120**	-
Loan granted during the period	**328**	-
Loan repayment	**(160)**	-
Atlis Biologics (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**995**	-
Opening Balance	**-**	162
Loan granted during the period	**995**	-
Interest charged on loan granted	**16**	3
Impairment recognised in current period	**(16)**	(165)
Optimal Energy (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**20 625**	-
Loan granted during the period	**19 500**	-
Interest charged on loan granted	**1 125**	-
Edgi tech		
The loan was granted during the year and does not accrue interest.	**711**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
Bermuda – DJOZ (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	14
Interest charged on loan granted	**1**	1
Accumulated impairment of loan receivable	**-**	(15)
Impairment recognised in the current period	**(1)**	-
Cerdak (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	225
Interest charged on loan granted	**48**	223
Accumulated impairment of loan receivable	**-**	(448)
Impairment recognised in the current period	**(48)**	-
Geratech Zirconium Benefication Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	1 000
Interest charged on loan granted	**143**	80
Accumulated impairment of loan receivable	**-**	(1 080)
Impairment recognised in the current period	**(143)**	-
Greencult CC		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening Balance	**-**	335
Interest charged on loan granted	**34**	5
Accumulated impairment of loan receivable	**-**	(340)
Impairment recognised in the current period	**(34)**	-
Intergrated pricing Technologies (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	750
Interest charged on loan granted	**75**	6
Accumulated impairment of loan receivable	**-**	(756)
Impairment recognised in the current period	**(75)**	-
International Maritime Information Systems (Pty) Ltd		
The loan accrues interest at prime interest rate.	**-**	-
Opening balance	**-**	35
Interest charged on loan granted	**4**	8
Accumulated impairment of loan receivable	**-**	(43)
Impairment recognised in the current period	**(4)**	-
Korwe Software (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	90
Interest charged on loan granted	**9**	-
Accumulated impairment of loan receivable	**-**	(90)
Impairment recognised in the current period	**(9)**	-

7 Loans and receivables (continued)

	2011 R'000	2010 R'000
Nkomazi (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	1 475
Interest charged on loan granted	**-**	-
Accumulated impairment of loan receivable	**-**	(1 475)
Ostecs (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	188
Interest charged on loan granted	**29**	-
Loan repayment	**-**	112
Accumulated impairment of loan receivable	**-**	(300)
Impairment recognised in the current period	**(29)**	-
Robonica (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	1 720
Interest charged on loan granted	**210**	391
Accumulated impairment of loan receivable	**-**	(2 111)
Impairment recognised in the current period	**(210)**	-
Sunspace (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	3 500
Interest charged on loan granted	**498**	1 501
Accumulated impairment of loan receivable	**-**	(5 001)
Impairment recognised in the current period	**(498)**	-
Vibol (Pty) Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	3 620
Interest charged on loan granted	**640**	2 535
Accumulated impairment of loan receivable	**-**	(6 155)
Impairment recognised in the current period	**(640)**	-
Justick International (Pty)Ltd		
The loan accrues interest monthly at prime interest rate.	**-**	-
Opening balance	**-**	200
Accumulated impairment of loan receivable	**-**	(200)
Carrying value at the end of the period	**92 121**	-

	2011 R'000	2010 R'000
8 Trade and other receivables		
Debtors	**3 073**	531
Staff loans	**37**	-
Deposits	**1 886**	-
Other debtors	**-**	13 204
	4 996	13 735
9 Cash and cash equivalents		
Cash and cash equivalents consist of:		
Bank balances	**201 813**	-
Short term deposits	**-**	111 125
Cash on hand	**8**	4
	201 821	111 129
10 Deferred income		
Deferred income on Fixed assets	**-**	385
Deferred income for National Intellectual Property Management Office (NIPMO)	**-**	12 401
Deferred Income : DST Ring –Fenced Project – Medical Devices	**3 958**	-
Deferred Income: DST Ring –Fenced Project – South African Malawi Institute	**2 162**	-
Deferred Income: DST Ring –Fenced Project – Bio Safety Platform	**5 000**	-
Deferred Income: DST Ring –Fenced Project – SHARP	**2 475**	-
Deferred Income: DST Ring –Fenced Project – Biofuels	**10 000**	-
Deferred Income: DST Ring –Fenced Project – ICT	**3 000**	-
Deferred Income: DST Ring –Fenced Project –Sugarcane	**6 533**	-
	33 128	12 786
11 Trade and other payables		
Trade payables	**3 902**	5 017
Other payables	**12 467**	1 502
	16 369	6 519

	2011 R'000	2010 R'000
12 Provision for onerous contracts		
This is with respect to a lease entered between the TIA and JHI Investments for the lease of U15-17 Office Block at the Innovation Hub Pretoria. A three year lease was entered into on 1 March 2010. The operating lease was terminated after the first year of contract.		
The future contractual payments were discounted over the period of the remainder of the lease term at a risk free rate.		
The Present Value ("PV") of the Minimum lease payments due as per lease agreement are:		
Building	**1 856**	-
Parking	**301**	-
Total present value of minimum lease payments	**2 157**	-
13 Other liabilities		
On the date of transfer of business of PlantBio and Cape Biotech Trusts, TIA inherited tax liabilities previously recognised in these entities. TIA engaged with the South African Revenue Services ("SARS") to finalise the amount payable, however this matter has not been resolved.	**35 411**	-
14 Revenue from non-exchange transactions		
DST allocation received during the year	**525 768**	-
DST ring-fenced projects funding	**65 141**	9 117
Medical Devices Centre of Competence funds utilised for the year	**1 043**	-
Tuberculosis Centre of Competence funds utilised for the year	**5 850**	-
South African Malaria Institute funds utilised for the year	**4 256**	-
SHARP HIV Aids projects funds utilised for the year	**33 071**	-
National Intellectual Property Management Office funds utilised for the year	**13 421**	9 117
National Biosafety Platform funds utilised for the year	**7 500**	-
	590 909	9 117

	2011 R'000	2010 R'000
15 Revenue from exchange transactions		
Other income	**3 422**	131
Royalties received	**2 620**	131
Profit on disposal of assets	**57**	-
Other income	**529**	-
Rent received during the year	**216**	-
Finance income	**12 316**	3 035
Interest received/accrued from banks	**3 470**	2 503
Interest received/accrued from loans	**8 767**	455
Dividends received/share of associate profits	**79**	*77*
	15 738	3 166
16 Project funding expenditure		
Project funding represent expenditure paid relating to the current financial year for Research and Development projects, Human Capacity and direct costs thereof.	**311 348**	9 617
17 Donations and sponsorships		
Capacity building		
Assisting with salaries and initial set-up of Technology Transfer Office	**-**	1 494
Patent support fund		
Reimbursing publically funded research institutions for patent costs incurred, a year in arrears, to encourage the rate of patenting activity in South Africa	**-**	5 050
Patent incentive fund		
Providing incentives to inventors at publicly funded institutions to file and protect their inventions by getting patents granted at the South African Patents Office	**-**	569
TIA Sponsorships		
Contributions towards Symposium held by University of Witwatersrand	**-**	250
	-	*7* 363

	2011 R'000	2010 R'000
18 Impairment of investments		
Impairment of loans and receivables granted during the period	**54 838**	2 337
Impairment of interest receivable on loans recognised in the current year	**5 820**	443
	60 658	2 780
19 Operating expenditure		
Included in operating expenses are the following:		
Depreciation	**5 599**	528
Administration expenses paid to NRF	**-**	473
Technical services received	**-**	2 642
Consulting fees	**16 917**	-
Marketing and branding	**4 220**	-
Employee cost	**85 202**	5 622

20.1 Remuneration of executive management

2011	**Managerial Services**				
	Salaries R'000	**Bonuses R'000**	**Other benefits R'000**	**Allowances R'000**	**Total R'000**
N Msomi*	505	750	53	17	1 325
F Hendricks**	645	-	12	11	668
D Phaho***	629	-	15	71	715
B Kortjass	1 162	-	-	18	1 180
S Duma****	803	-	-	116	919
P Mapuring*****	218	-	-	11	229
B Okole*****	573	-	-	-	573
SC Ntutela*****	156	-	-	2	158
BS Gumude*****	156	-	-	2	158
JT Chantson*****	156	-	-	2	158
M Mkhwanazi*****	163	-	-	49	212
D Raftesath	694	68	14	177	953
M Sibanda******	693	75	86	155	1 009
	6 553	**893**	**180**	**631**	**8 257**

*Effective up to 31 December 2010
**Effective up to 30 November 2010
***Effective up to 31 October 2010
****Effective from 1September 2010
*****Effective from 1 February 2011
******Effective up to 28 February 2011

20.1 Remuneration of executive management (continued)

2010	Managerial Services				
	Salaries R'000	Bonuses R'000	Other benefits R'000	Allowances R'000	Total R'000
N Msomi	765	-	-	-	765
D Raftesath	146	-	17	41	204
M Sibanda	180	-	14	50	244
	1 091	**-**	**31**	**91**	**1 213**

20.2 Remuneration of members of the Board

2011	Fees for Board meetings R'000	Fees for consulting R'000	Allowances R'000	Total R'000
Dr M Ramphele	173	613	-	786
Dr P Ngwenya	97	135	-	232
Prof. S Harrison	94	53	-	147
Dr S Cornelius	154	53	-	207
Ms H Brown	102	53	-	155
Mr R Norton	162	234	-	396
Mr I Lax	218	234	-	452
Mr C Venter	16	53	-	69
Dr N Msomi	-	701	-	701
Ms C Carolus	54	53	-	107
Ms L Milne	61	53	-	114
	1 131	**2 235****	**-**	**3 366**

**The money referred to was paid to Board members for their specialist consulting role during the transitional/merger period. This does not amount to payment in lieu of attendance of meetings of the Board (and, therefore, does not fall within the ambit of Section 9 of TIA Act) but is in recognition of their specialist services rendered during the period leading to the merger, which constitute consulting services of a short term nature. In determining the amount payable to members, the Agency utilised the Guide on Hourly Fee Rates for Consultants (published by the DPSA in January 2003).

	2011 R'000	2010 R'000
21 Note to the statement of cash flows		
Net surplus/(deficit) for the year	**70 620**	(18 190)
Finance income accrued for on loan accounts	**(7 978)**	(443)
(Profit)/loss on retirement of assets	**(57)**	34
Share in profit of associates	**-**	(77)
Value adjustments on inherited assets	**(463)**	-
Increase in provision for doubtful debts	**994**	-
Other non-cash flow items	**(232)**	-
Depreciation	**5 599**	528
Increase in provisions	**2 157**	-
Impairment on investments	**60 658**	2 780
Business transfer	**(108 789)**	(6 585)
Changes in working capital:	**55 869**	(7 216)
Decrease/(increase) in trade and other receivables	**8 739**	(13 735)
Income received in advance	**1 869**	-
Increase in trade and other payables	**45 261**	6 519
Cash received/(utilised) in operations	**78 378**	(29 169)

22 Related party transactions

TIA is a Schedule 3A National Public Entity in terms of the PFMA and therefore falls within the national sphere of government. TIA has a number of transactions with related parties, being entities that fall within the national sphere of government. Amounts due from/(to) these entities are subject to the same terms and conditions as normal trade receivables and trade payables.

TIA also has a related party relationship with its subsidiaries and associates (refer to notes 4 and 5). Unless specifically disclosed, the transactions are concluded at arm's length.

22.1 Transaction with related parties

National Departments		
• Allocations received	**(590 909)**	(152 729)
• Allocations received not yet utilised	**(33 128)**	(12 786)
Major Public Entities		
• Grants disbursed	**21 997**	2 127
National Public Entities		
• Grants disbursed	**4 746**	5 427
• Services received	**-**	(473)
• Amounts due from/(to)	**(64)**	(626)

22.1 Transaction with related parties (continued)

	2011	2010
	R' 000	R' 000
National Government Business Enterprises		
• Services received	**30 095**	16 978
• Amounts due from/(to)	**-**	7 769
*Other related parties**		
• Services received	**243**	(1 063)
• Grants disbursed	**-**	2 000
• Amounts due from/(to)	**-**	937

*During the year furniture of the value of R243 000 was acquired from Cecil Nurse Furniture Business (a subsidiary of Bidvest). A TIA executive is a board member at this company. The executive was not involved in the procurement process and therefore did not have any influence over the transaction.

In 2010 the related party entered into a transaction with Tshumisano Trust, a trust funded by DST, which was contracted to perform the human resources function for TIA for March 2010. Tshumisano Trust migrated to TIA on 1 April 2010.

22.2 Transaction with key management

Total remuneration of key management is included in the employees' remuneration note (refer to note 20 for remuneration of executive management).

23. Contingent liabilities

Project funding

23.1	Project funding under the Research and Development and Capacity Building programmes in terms of the funding agreements.		
	Funding agreements	**227 898**	56 045

These agreements will be funded using surplus and funds to be allocated in the financial periods in which these agreements become payable.

23 Contingent liabilities (continued)

Winding up of Trusts

23.2 TIA is still in the process of winding up the following Trusts:

- East Cost Biotechnology Centre T/A Lifelab
- Plant Bio Trust
- BioPAD Trust
- Cape Biotech Trust
- Tshumishano Trust

A resolution was taken to wind up the trusts that have migrated to TIA. The costs associated with this are yet to be determined.

Taxation

23.3 TIA has applied for exemption from Income Tax under section 10cA but is awaiting approval from the South African Revenue Service. At period end the possible liability could not be determined as there is uncertainty over the existence as well as the amount of liability.

Roll over of funds

23.4 In terms of section 53(3) of the PFMA an entity may not accumulate surpluses unless prior written approval is obtained from National Treasury. For the 2010/2011 year, TIA has applied to retain accumulated funds. The application was provisionally granted, subject to completion of an audit. The financial impact on the financial statements as well as the timing of the potential outflow of economic benefit could not be determined at period end.

Legal proceedings

23.5 A legal matter in relation to alleged repudiation of a funding agreement has been brought against the entity. The claim instituted amounts to R63.9 million. At the date of signature of the financial statements, the outcome of these proceedings was yet to be decided upon.

	2011 R'000	2010 R'000
24 Operating leases		
The total of future minimum lease payments under non-cancellable operating leases for the period are:		
Minimum lease payments:		
Up to 1 year	**9 651**	-
Between 2 and 5 years	**25 423**	-
More than 5 years	**-**	-
Total minimum lease payment payable	**35 074**	-
25 Fruitless and wasteful expenditure		
Fruitless and Wasteful Expenditure incurred in the financial year were condoned by the Board. Rental for an office in Cape Town was incurred in anticipation that there will be an increase in staff complement. The Head of Legal and Head of Cape Town office are busy negotiating an exit.		
Interest and penalties on PAYE	**273**	-
Rental paid for 3rd floor in Central Building, Black River Park	**425**	-
Condoned by the Board	**(698)**	-
	-	-
26 Irregular expenditure		
Irregular expenditure	**40 088**	-
Condoned by the Board	**(40 088)**	-
	-	-

The irregular expenses above have been condoned by the Board. The majority of the amount relates to the establishment of the TIA office, where some emergency acquisitions had to be made. The contract for Office rental close to the Department of Science and Technology amounts to R4.2 million per annum. TIA had to act quickly to have secured the offices because there were competitors for the same building.

LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPLANATION
ACCI	African centre for Crop Improvement
ACRO	African Clinical Research Organisation
AM	Advanced Manufacturing
AMD	Acid Mine Drainage
ARC	Agricultural Research Council
BCA	Biological Control Agents
BCP	Biological Control Products
BCP	Biological Control Products
BSAS	Business Support Advisory Services
BRICS	Brazil, Russia, India, China and South Africa
CAD	Computer-aided design
CAPRISA	Centre for the AIDS Programme of Research In South Africa
CDTI	Centroparael Desarrollo Tecnológico Industrial
CHUMA	Commercialisation Managers for Industry
CIGB	Centre for Genetic Engineering and Biotechnology
CMV	Cassava Mosaic Virus
CoCs	Centres of Competences
CONRAD	Contraceptive Research and Development program
CPP	Cell Penetrating Peptides
CPP	Cell Penetrating Peptides
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DST	Department of Science and Technology
DTI	Department of Trade and Industry
DUT	Durban University of Technology
EDA	Electronic Design Automation
EGF	Epidermal Growth Factor
EPA	Eicosapentaenoic acid
EPI	Expanded Program on Immunisation
EPL	Electro-Mechanical Price Label System
eQTL	Expression Quantitative Trait Loc
ERWAT	East Rand Water Care Company
ExCo	Executive Committee
FACTS001	Follow-on African Consortium for Tenofovir Studies 001
FHI	Family Health International
FINEP	Financiadora de Estudos e Projetos, also known as the Brazilian Innovation Agency
GDP	Gross Domestic Product
GIFSA	Global Initiative for Food-Related Scientific Advice
GLS	Grey Leaf Spot Fungus
GM	Genetically Modified
GMO	Genetically Modified Organism
GTZ/GTI	German Technical Cooperation
HCD	Human Capital Development
HEIs	Higher Education Institutions
HIV	Human Immuno-deficiency Virus
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
HR	Human Resources
ICT	Information and Communication Technologies
IDC	Industrial Development Corporation
IF	Innovation Fund

LIST OF ABBREVIATIONS - CONTINUED

ABBREVIATIONS	EXPLANATION
IKS	Indigenous Knowledge Systems
IM	Industry Matching Fund
IP	Intellectual Property
IT	Information Technology
KM	Knowledge Management
KPIs	Key Performance Indicators
LEAF	Lignocellulostic Enzymes for Agriculture Feedstocks
LL	LIFElab
MCC	Medicines Control Council
miRNA	Micro Ribose Nucleic Acid
MRC	Medical Research Council
MSMI	Multi-Special Microsatellite Imager
MTEF	Medium Term Expenditure Framework
MUT	Mangosuthu University of Technology
NEF	National Empowerment Fund
NIPMO	National Intellectual Property Management Office
NMMU	Nelson Mandela Metropolitan University
NPC	Not for Profit Company
NRF	National Research Foundation
NSI	National System of Innovation
NTBC	National Technology Business Centre (Zambia)
NWU	North-West University
OECD	Organisation for Economic Co-operation
OPV	Open Pollinated Varieties
PB	Plant Bio
PFMA	Public Finance Management Act
PGMs	Platinum Group Minerals
PoC	Proof of Concept
PPP	Public Private Partnerships
R&D	Research and Development
RSA	Republic of South Africa
SADC	Southern African Development Countries
SANSA	South African National Space Agency
SBMT	Stellenbosch Biomass Technologies
scFos	Synthesis of short chain fructooligosaccharides
SCs	Science Councils
SIP	Strategic Investment Portfolio Fund
SME	Small and Medium Enterprise
SMMEs	Small, Medium and Micro-sized Enterprises
SNPs	Single Nucleotide Polymorphisms
SSR	Simple Sequence Repeat/ Microsatellites
SU Pesticide	Sulfonylurea Pesticide
TB	Tuberculosis
TBI	The Biovac Institute
TIA	Technology Innovation Agency
UKZN	University of KwaZulu-Natal
UNIDO	United Nations Industrial Development Organisation
UP	University of Pretoria
USA	United States of America
USAID	United States Agency for International Development
VC Fund	Venture Capital Fund
VIP	Softline VIP payroll and HR solutions
Xsit	X sterile Insect Technology (company)
Y-FM	YFM Radio Station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