



technology innovation

A G E N C Y

Taking technology innovation further



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Annual Report 2015/2016

TECHNOLOGY INNOVATION

YEAR ON YEAR PERFORMANCE

With streamlined processes, procedures and strengthened relations with our stakeholders, TIA entered the 2015/16 financial year geared to start walking the talk and contribute towards improving the life of all South Africans. A solid foundation with set tactical direction from the Agency's functions yielded increased positive results and enabled TIA to encourage its stakeholders and assure them of a brighter future. In the year under review, despite the cut to the TIA budget, more than R379 million was disbursed, compared to R373 million in the previous financial year and R374 million in 2013/14.

2197 SMEs received assistance, an increase of 293 since 2013/14. Double the amount of knowledge innovation products were developed in 2015/16 with the support of TIA funding, compared to the 38 projects developed the previous year. In 2015/16, 27 projects reached demonstration stage and nine products and services were taken up in the market. Complimenting a positive trajectory of sound financial management and good governance, TIA achieved a clean audit report for the second consecutive year.

AUDIT OUTCOME

2013/14

UNQUALIFIED AUDIT

2014/15

CLEAN AUDIT

2015/16

CLEAN AUDIT

Amount of 3rd Party Funding Attracted

2013/14	2014/15	2015/16
R74.4 Million	R200 Million	R97.9 Million

SMEs Assisted

2013/14	2014/15	2015/16
1904	2188	2197

Knowledge Innovation Products

2013/14	2014/15	2015/16
27	38	76

Youth Projects Receiving TIA Support

2013/14	2014/15	2015/16
43	37	52

Seed Fund Projects Disbursed

2013/14	2014/15	2015/16
70	145	275

Funds Disbursed

2013/14	2014/15	2015/16
R374 Million	R373 Million	R379 Million

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technology innovation

A G E N C Y

Taking technology innovation further

The Technology Innovation Agency (TIA) is an initiative of the Department of Science and Technology (DST) formed under the Technology Innovation Agency Act No. 26 of 2008. The TIA's mandate is to enable and support technological innovation across all sectors of the economy in order to deliver socio-economic benefits for South Africa and to enhance its global competitiveness. These goals are achieved by supporting the development and commercialisation of research outputs from Higher Education Institutions (HEIs), Science Councils (SCs), public entities and private research institutions and bringing them to market.

Afrikaans

Inleiding

Die Technology Innovation Agency (TIA) is 'n inisiatief van die Departement van Wetenskap and Tegnologie (DST) en is ingevolge die Technology Innovation Agency-wet, Nr. 26 van 2008, gestig. TIA se mandaat is om tegnologiese vernuwing in alle sektore van die ekonomie moontlik te maak en te ondersteun met die oog op sosio-ekonomiese voordele vir Suid-Afrika en die verbetering van die land se internasionale mededingendheid. Hierdie doelwitte word nagestreef deur ondersteuning aan die ontwikkeling en kommersialisering van navorsingsresultate van Hoër Onderwysinstellings (HOIs), Wetenskapsrade (WRs), Openbare Entiteite, en private navorsingsinstellings sodat dit aan die mark bekendgestel kan word.

Sesotho

Selekela

Technology Innovation Agency (TIA) ke morero wa Lefapha la Saense le Thekenoloji (DST) o theilweng tlasa Molao wa Lekalana la Boitlhamisetso ba Thekenoloji Nmr.26 wa 2008. Maikemisetso a TIA ke ho kgonahatsa le ho tshehetsa boitlhamisetso ba tsa thekenoloji ho potoloha disektara tsohle tsa moruo e le ho fana ka melemo ya moruo setjhabeng bakeng sa Afrika Borwa le ho matlafatsa matla a yona a phehisano lefatsheng lohle. Maikemisetso ana a fihlellwa ka ho tshehetsa ntshetsopele le tshebetso ya kgwebo ya ditlhamiso tse hlahang dipatlisisong tse etswang ke Ditsi tse Phahameng tsa Thuto (di- HEI), Makgotla a tsa Saense (di-SC), Ditheo tsa mmuso, le ditsi tsa dipatlisiso tsa poraefete le ho di tliša mmarakeng.

Sepedi

Tsebišo

Technology Innovation Agency (TIA) e hlamilwe ke Kgoro ya Saentshe le Thekenolotši ka tlase ga Molao wa Nmr. 26 wa 2008 wa Technology Innovation Agency. Taolelo ya TIA ke go kgonagatša le go thekga boitlhamisetšo bja thekenolotši go selaganya disektora tšohle tša ekonomi gore e kgone go phethagatša dikholego go Afrika-Borwa le go kaonafatša phegišano ya yona boditšhabatšhabeng. Maikemišetšo a, a fihlelwa ka go thekga tšwetšopele le kgwebotatšo ya dipolelo tša dinyakišišo go tšwa go Ditheo tša Thuto yeo e Phagamego (di-HEI), Dikhansele tša Saentshe (di-SC), Mekgahlo ya Setšhaba, le ditheo tša poraebete tša dinyakišišo le go di tliša mmarakeng.

Ndebele

Isingeniso

I-Technology Innovation Agency (i-TIA) mtlamo wom-Nyango wezeSayensi neThekhnoloji (i-DST) etlanywe ngaphasi kwe-Technology Innovation Agency Act No.26 of 2008. Umnqophowe-TIA kukghonakalisa nokusekela imitlamo yetheknoloji kiwoweke amabubulo wezom-notho ukuze iSewula Afrika izuzise umphakathi kezom-notho nokuthuthukisa ukuphuma phambili eentjhabeni zoke. Iminqopho le iphumelela ngokusekela ituthuko nemiphumela yezerhubhululo emabubulweni wezom-notho eyenziwa maZiko wezeFundo ePhezulu (i-HEI), imiKhandlu yezeSayensi (ama-SC), amaziko namabubulo womphakathi, namaziko wezerhubhululo begodu nokuwaletha erhwebeni.

Setswana

Matseno

Technology Innovation Agency (TIA) ke letsholo la lefapha la Science & Technology (DST) le le tlhamilweng ka fa tlase ga Molao wa bo 26 2008 wa Technology Innovation Agency. Taolelo ya TIA ke go kgontsha le go tshegetsa letsholo la setegeniki go ralala maphata otlhe a ikonomi go tliša dipolelo tsa ikonomi le loago tsa Aforika Borwa le go oketsa bokgoni jwa yone jwa go gaisana le dinaga tse dingwe mo lefatsheng ka bophara. Maikaelelo a a fihlelwa ka go tshegetsa tokafatso le go bapatsa ditlamorago tsa patlisiso go tswa kwa Ditheong tsa Thuto e Kgolwane (di-HEI), Dikhansele tsa Saense (di-SC), Ditheo tsa Setšhaba, le ditheo tsa patlisiso ya poraefete, le go di bapatsa.

Siswati**Singenisiso**

I-Technology Innovation Agency (i-TIA) ingumtamo weLitiko Letesayensi Nebuchwepheshe (i-DST) lowentiwa ngaphansi kweMtsetfo We-ejensi Yekusungula Lokusha No.26 wa-2008. Umsebenzi we-TIA kwesekela lokusha lokusunguliwe kwethekhnoloji kuyo yonkhe imikhakha yemnotfo kute kwetfulwe tinzuzo tetenhlalo netemnotfo taseNingizimu Afrika nekwenta kancono kucudzelana kumave emhlaba. Lemigomo ingazuzwa ngekwekela kutfutuka nekutsengisa imiphumela yelucwaningo levela kuTikhungo Temfundvo Lephakeme (i-HEI) , Imikhandlu Yetesayensi (ema-SC) , Tikhungo tahlumende, netikhungo telucwaningo tangasense nekutifaka emakethe.

Tsonga**Manghenelo**

Technology Innovative Agency (TIA) i pfhumba leri simekiweke hi Ndzawulo ya Dyondzo na Thekinoloji leri tumbuluxiweke hi ku landza Nawu wa vu26 wa 2008 wa Ejensi ya Vutumbuluxi bya Thekinoloji . Vutihlamuleri bya TIA i ku simeka na ku seketela mapfumba hinkwawo ya xithekinoloji eka swiyenge swa ikhonomi hinkwaswo leswaku ku va na mivuyelo eka vanhu na le ka ikhonomi ya Afrika-Dzonga na leswaku Afrika-Dzonga ri kota ku phikizana na matiko yan'wana ya misava. Swikongomelo leswi swi fikeleriwa hi ku seketela nhluvukiso na ku hangalasiwa ka mivuyelo ya vulavisiyo yo suka eka Xiyenge xa Dyondzo ya le Henhla, Tikhansele ta Sayense, Mavandla ya Mani na Mani, na swiyenge swa vulavisiyo swa phurayivhete na leswaku hinkwaswo swi navetisiwa.

Venda**Marangaphanda – Venda**

Vha Technology Innovation Agency (TIA) ndi thandela ya Muhasho wa Saints na Thekinolodhi (DST) yo thomiwaho nga fhasi ha Mulayo wa Technology Innovation Agency wa Nomboro.26 wa 2008. Mushumo wa TIA ndi u konisa na u tikedza vhubvedzi ha zwa thekinolodhi kha sekhithara dzothe dza ikonomi u itela u disa mbuelo dza ikonomi na matshiliso u itela Afrika Tshipembe na u khwathisa u tatisana na dzhangho. Zwiipikwa izwi zwi swikelelwa nga u tikedza mveledziso na mbambadzo ya zwibviswa zwa thodisiso u bva kha Zwiimiswa zwa Pfunzo ya Ntha (HEIs), Khoro dza Santsi (SCs), Zwiimiswa zwa Nnyi na Nnyi, na zwiimiswa zwa thodisiso dza phuraivethe na u zwi disa kha maraga.

Xhosa**Ukwazisa**

I-Technology Innovation Agency (i-TIA) linyathelo leSebe lezeNzululwazi nobuGcisa (i-DST) elisekwe ngaphantsi (koMthetho we- Arhente yobu obutsha nombolo 26 wama-2008). Igunya le-TIA kukuvumela nokuxhasa ubuchwephetsha obutsha bezenzululwazi kumaziko onke ezoqoqosho ukuze kuhanjise uncendo lezoqoqosho lwezokuhlala kuMzantsi Afrika nokuxhobisa ukuba nokhuphiswano kwawo kwihlabathi. Ezi njongo zizuzwa ngokuxhasa uphuhliso nenkqubo ephelileyo yophando yokwazisa imveliso entsha kumaZiko eMfundo aPhakamileyo (ii-HEI), amaBhunga ezeNzululwazi (ii-SC), amaQumrhu aphantsi kukaRhulumente, namaziko abucala ophando aziwe kwimarike.

Zulu**Isingeniso**

Vha Technology Innovation Agency (TIA) ndi thandela ya Muhasho wa Saints na Thekinolodhi (DST) yo thomiwaho nga fhasi ha Mulayo wa Technology Innovation Agency wa Nomboro.26 wa 2008. Mushumo wa TIA ndi u konisa na u tikedza vhubvedzi ha zwa thekinolodhi kha sekhithara dzothe dza ikonomi u itela u disa mbuelo dza ikonomi na matshiliso u itela Afrika Tshipembe na u khwathisa u tatisana na dzhangho. Zwiipikwa izwi zwi swikelelwa nga u tikedza mveledziso na mbambadzo ya zwibviswa zwa thodisiso u bva kha Zwiimiswa zwa Pfunzo ya Ntha (HEIs), Khoro dza Santsi (SCs), Zwiimiswa zwa Nnyi na Nnyi, na zwiimiswa zwa thodisiso dza phuraivethe na u zwi disa kha maraga.



Ms Khungeka Njobe

It is my great pleasure to present this 2015/16 Annual Report. In light of all the tribulations that emerged in the previous eventful years, 2015/16 may best be described as a year of consolidation, transition and positive long-range planning for TIA.

The period under review saw the appointment of our new CEO, Mr Barlow Manilal, who officially assumed his role on 1 April 2015. Mr Manilal brings to TIA the requisite range of leadership skills to position and advance TIA to its anticipated great heights. Considering Mr Manilal's exceptional track record in leadership, management and governance, the Board feels confident that TIA is finally poised to successfully lead the technology and innovation sector.

The Board has been encouraged by the direction of the discussions and the credibility in feedback and will continue to be a source of vigilant guidance. While the dialogue and ensuing action has indeed shifted to issues that really matter for beneficiaries of TIA's funding, there remains much work to do. It is encouraging to note the milestones reached in the control environment under

the leadership of Mr Manilal and the Board is confident this will contribute to the realisation of TIA's aspirations and the fulfilment of its mandate.

As a critical player in the National System of Innovation (NSI), and with Mr Manilal at the helm, TIA has begun to make the appropriate decisions required to meet the many and varied challenges faced in bridging the innovation chasm. This approach resulted in the fostering of relationships core to scientific and technological advancements, working with industry on matters of national interest and creating a stimulating internal environment conducive to the realisation of all TIA objectives. With the organisation's unfortunate past now a mere memory and taking into consideration the lessons learnt, TIA seems set to provide a firm foundation for the country's current and future prosperity in the technology innovation arena. What could be considered a theme in operational planning, TIA's focus this year was directed primarily to the promotion of good corporate governance in order to improve transparency, accountability and sound management in its day-to-day business operations. Following the stabilisation of TIA environment, improved internal controls, the ardent promotion of high performance and operational efficiencies are certain.

As highlighted in the previous year, TIA's organisational redesign process was aimed at alignment to the strategy and the execution of TIA's mandate. To this end, TIA pursued excellence in staff-related practices. This year saw significant progress in effective salary administration and harmonisation as well as the pursuit of an effective Performance Management System. The Board recognises and is appreciative of management's efforts to harmonise the process involved in benchmarking of TIA's salary structure against the external market and other similar public entities, while communicating transparently and fully with staff through consultations and briefings. This meticulous planning enabled TIA to craft a reward and retention strategy and promote a structure that will attract and retain staff of the highest calibre. The impending risk has thus been well mitigated.

The strategy adopted by the Board for the period 2015-2020 remains relevant and is focused on advancing the identified technology readiness levels (TRLs). Accordingly, our funding support is intended to commercialise the most promising technology innovations. The Seed Fund, Technology Development Fund and Commercialisation Support Fund are the funding mechanisms in place to drive this objective and these have yielded favourable results.

With respect to expenditure, while we were plainly disappointed by the reduction in overall funding, TIA dealt with the reduced funds fairly well in the 2014/15 financial year. In the quest for impactful disbursement and adequate funding allocations on targeted projects and programmes, TIA will continue to design the Annual Performance Plan to advance technology development, support technology programmes and provide non-financial support where applicable, while aiming to be financially sound. Given the challenges and the implementation of swift remedial action, the Board is once again pleased to present this report along with a clean audit opinion. TIA is committed and will focus on delivering on the Corporate Plan objectives and business strategies going forward, while also addressing the triple challenges of inequality, poverty and unemployment.

TIA has, in the year under review, presented its commitment to relevant stakeholders by driving the NSI objectives. The TIA's visibility was warmly received and TIA took advantage of various opportunities and accepted many invitations on platforms where TIA's presence was required. These engagements proved beneficial to TIA's reputation in the NSI and resulted in fostering valuable ties within the networks of technology innovation. To this end, the Executive Authority has entrusted TIA with the management of the Innovation Bridge which will be held as an annual event to showcase the country's innovation capability.

Acknowledgements

With renewed vigour to be positioned as an industry leader, the Board, on behalf of TIA, will always be thankful to the Honourable Minister, Ms Naledi Pandor, whose support and guidance remains invaluable. We remain committed to ensuring we meet our service obligations to the DST and provide the country with value-added returns.

The Board also thanks the Director General (DG), Dr Phil Mjwara, and the officials at the DST for their continued commitment and unwavering support to the Agency. The Honourable Members of the Parliamentary Portfolio Committee on Science and Technology engaged with TIA during the period constructively and we are grateful for our productive relationships with the Honourable Members.

To my fellow Board members, I am deeply grateful for the commitment and diligence with which you execute your fiduciary duties. As a collective, we bring different opinions and different points of view which result in valuable robust engagement. On behalf of the Board, I extend our appreciation to TIA executives who lead TIA to reach and achieve its objectives.

Lastly, the Board is always thankful and grateful to all TIA staff for assisting the Board to reach its goals. Your hard work and dedication is acknowledged. The Board remains committed and optimistic about the future of TIA.

Best regards,



Ms Khungeka Njobe

Chairperson of TIA Board

1 A Word from the Chief Executive Officer

Part 1



Mr Barlow Manilal

I embarked on my 2015/16 journey restless and discontent, thankfully buoyed by the enormous potential of the organisation and the abundance of unexploited talent to drive it forward. My past experience and predisposition for structure, efficiencies and impact immediately went into over-drive as I activated my six “P’s” interventionist approach...People, Process, Product, Purpose, Pride and Passion.

The restructuring process which commenced during 2014/15 had to be concluded within the year under review, this had taken its toll on the organisation which only stability, enhanced levels of trust and ethical leadership could resolve. Greater organisational effectiveness, enhanced value creation, improved staff engagement, significant improvement in staff morale and embedding the new structure were all essential to entrenching a culture of high performance, a mandatory component of ultimately “Making Excellence an Attitude”.

“Restlessness is discontent and discontent is the first necessity of progress. Show me a thoroughly satisfied man and I will show you a failure” – **Thomas A Edison.**

My immediate plan and intention therefore was outlined as follows:

- 6 months : stability amongst staff and signs of a performance culture emerging
- 6 – 12 months : systems and process optimization and integration with continuous improvement initiatives focusing on operational excellence
- 12 – 18 months : brand regeneration and positive corporate positioning
- 18 – 36 months:
 - o Clean Audits as a minimum standard
 - o Employer of Choice in the country
 - o Regarded as benchmark in the funding and SMME support arena
 - o Process and Systems Maturity
 - o Fully exploiting synergies and seeking high yield collaborative relationships
 - o Culture of Excellence
 - o Delighting our stakeholders
- 5 years – considered as a premier custodian of the innovation and technology agenda in the country.

The initial six months was largely focussed on staff morale through various staff engagement processes and these invariably included a healthy dosage of change management interventions and culminated in a series of “Change Activist” workshops. Recognising that it was imperative to create an enabling environment for service excellence; talent management and leadership development was prioritised as a core requirement and plans have been initiated which will continue earnestly.

As I assess my thoughts today, I am pleased that we are broadly on track, albeit with some areas where further effort is required to institutionalise enhanced methodologies and best practice. During the year under review we have sought improved alignment within the National Development Plan 2030, the New Growth Path, Governments Nine Point Plan, the latest iteration of the Industrial Policy Action Plan (IPAP) and the strategic priorities of the Department of Science and Technology.

Coupled with the policy alignment drive we focussed on improved relations and greater collaboration within the National System of Innovation, in particular, with our key strategic stakeholders.

Throughout the various interventions, our strategic objectives remained our compass towards achievement of our overarching strategic goals. During the year under review the organisation achieved 93% of its approved key performance indicators. As articulated later in this report, our performance against disbursement targets require further ongoing improvement, this is an area of focus which is being attended to. Competing in the market for specialised and highly sought after skills also proved to be a challenge as we underperformed in filling positions as planned. Lessons learnt from our difficulty to capacitate the organisation was factored into our Talent Management Strategy, this together with the numerous policy updates have resulted in a much more competitive Employee Value Proposition (EVP).

Despite the challenges, TIA's strong competency in de-risking investments and creating a strong investor value proposition was showcased in the R180m funding that was attracted beyond our MTEF grant allocation. Additionally we demonstrated our unwavering support to the development of SME's, enhanced youth participation and contributed positively to transformation of the National System of Innovation (NSI) through the provision of technology support to over 2000 SME's. We unequivocally accept that this a small step in the right direction of a very long journey.

We have made remarkable gains in our corporate planning, performance management, grant management as well as organisational risk management processes. Achieving a clean audit for the second successive year is no longer an accolade but now a minimum requirement for the organisation. We will continue to work tirelessly to ensure that these advancements are institutionalised and sustainable. In order to ensure that the Agency remained relevant and created the desired impact, an independent "Economic Impact Assessment" was commissioned during the year under review. The study period covered 2010/11 to 2015/16. The total production multiplier was determined as 2.87 with the aggregate employment multiplier equalling 4.66, this is reassuring and validates that the Agency is contributing socio-economically. Furthermore, this study noted that our impact on the economy, as the total production multiplier is much higher than typical

research, mining and agriculture effects. This forms a good baseline from which to elevate our impact and contribution to changing the lives of our people.

Looking ahead, TIA's has re-oriented itself and will continue to evolve in order to remain relevant within the NSI and to the people of this country. The year ahead will continue to be a challenging one, when considering our mandate and the impact we make to people's lives, I have no doubt that it will remain being a rewarding and fulfilling one. The organisational fitness of TIA will invariably be tested, on reflection, we have endured many tribulations and I am confident that it will remain steadfast in this correct trajectory. The 2016/17 year ahead will see a lot more of "TIA" as we focus on

"T": Teamwork

"I": Impact

"A": Accountability.

I take this opportunity to thank our Minister, Minister Naledi Pandor, the Director General, Dr Phil Mjwara, all our Programme Two Colleagues and the various other DST officials who have championed our cause and graciously provided support. My deep gratitude goes to the TIA Board and the Board Sub-Committees for their guidance, commitment and dedication to TIA as well their trust in me to implement the strategy in a creative manner. To the TIA EXCO team, I know the year under review has been relentless which at times must have felt like a roller-coaster ride, thank you for hard work, loyalty, friendship and support through it all.

Finally, my sincere gratitude to all our staff who are the real value creators. This has been a challenging year with change being the only constant. Thank you for embracing the change, thank you for your contribution amidst the change, thank you for your brand ambassadorship and perseverance during the change, please remain steadfast as we "make excellence an attitude".

Yours sincerely,



Mr Barlow Manilal

TIA CEO

1 Overview by the Chief Financial Officer

Part 1



Mr Werner van der Merwe

TIA responded to and performed well despite the reduced grant allocated in the 2014/15 financial year. For the year under review, the administrative and salary costs were reduced to their lowest level since the inception of TIA. Furthermore, investment expenditure was maintained at the same levels when compared to previous years and was the second-highest ever. The efficiency ratio reached a record level of 26%.

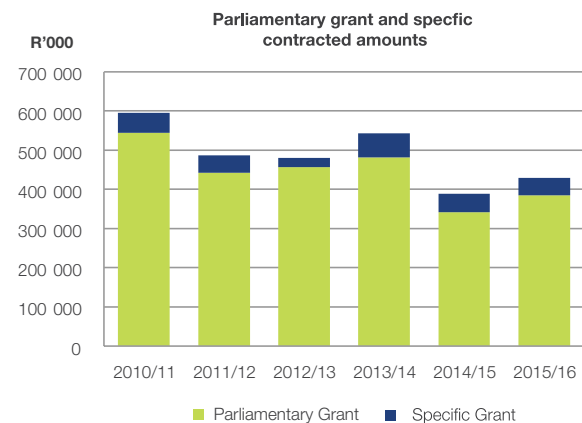
We are proud to announce that TIA has received an unqualified and clean audit opinion for the second consecutive year. A six-year overview is included at the end of this report.

Revenue

Parliamentary grant and specific contracted amounts from the DST

The Parliamentary grant increased by 13% to R385 million from R342 million in 2014/15, an increase of R43 million. The specific contracted agreements recognised as income in 2015/16 amounted to R44 million, a reduction of 7% from the previous year's amount of R48 million. The graph opposite shows the Parliamentary grant and specific contracted amounts from the financial years 2010/11 to 2015/16.

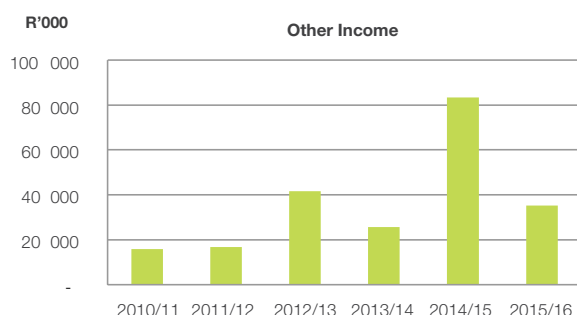
Figure 1.1: Parliamentary grant and specific contracted amounts from FY 2010/11 to FY2015/16



Other income

Other income decreased by 58% to R35 million for the 2015/16 financial year. This is mainly due to an amount of R58 million recognised in FY2014/15 for the sale of an equity investment in an associate company. Royalty income of R5 million was received from seven investments from various industries such as Information Communication Technology (ICT), Health, Mining and Agriculture. In Figure 1.2 other income received by TIA is shown for the 2010/11 to 2015/16 financial years.

Figure 1.2: Other income received by TIA for FY2010/11 to FY2015/16



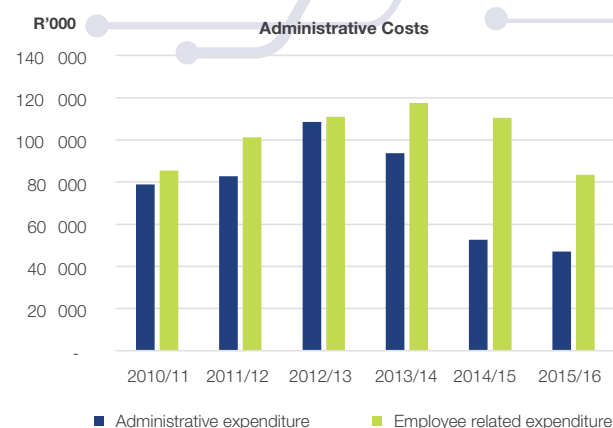
Administrative and employee costs

The reduction in grant allocation required of the Agency to reduce both administrative and employee costs and these expenses reached their lowest levels since inception. Administrative expenditure was reduced by 11% in the 2015/16 financial year to R47 million (2014/15: R53 million) by decreasing expenditure on consulting fees, IT, rental expenses and utilities.

The Organisational Design process, structured to support TIA's long-term strategy, resulted in a reduced staff complement of 150 compared to the 162 employees reported on in the previous financial year. This resulted in a 24% reduction in employee costs which amounted to R83 million for 2015/16 compared to the R110 million that was recorded for the 2014/15 financial year.

The administrative and employee-related costs for the 2010/11 to 2015/16 financial years is illustrated in Figure 1.3.

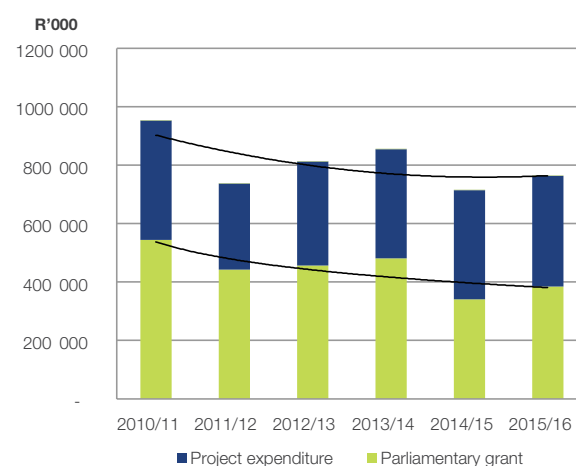
Figure 1.3: Administrative and employee-related expenditure for FY2010/11 to FY2015/16



Investment and project funding

Although TIA operated under severe budgetary constraints, the contribution level of funded projects towards the improvement in the quality of life for all South Africans was maintained for the 2015/16 financial year. The contribution towards project funding amounted to some R378 million for the year under review in comparison to the amount of R371 million disbursed during the previous financial year. Figure 1.4 shows this information as well as the Parliamentary grant and project expenditure amounts for previous financial years.

Figure 1.4: Parliamentary grant and project expenditure amounts for FY2010/11 to FY2015/16



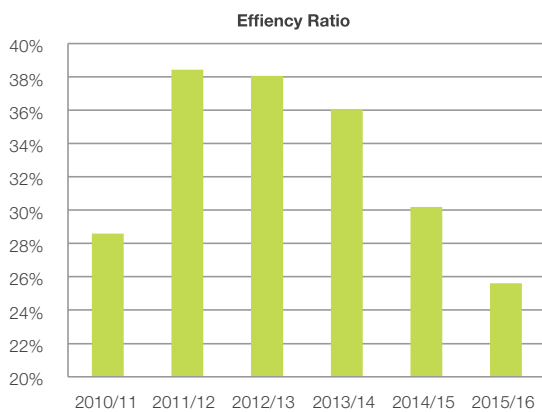
1 Overview by the Chief Financial Officer

Part 1

Efficiency ratio

The Board set certain targets for administration costs as a percentage of the total cost. This is demonstrated by the efficiency ratio. The efficiency ratio improved and reached 26% for FY2015/16, which is below the target set of 30% (2014/15: 30%). Figure 1.5 below shows the efficiency ratio trends from the 2010/11 financial year to the 2015/16 financial year.

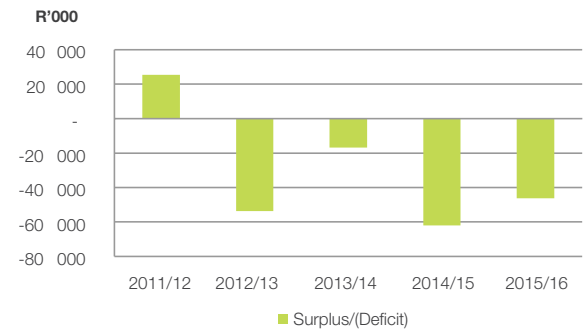
Figure 1.5: Efficiency ratio trends from FY2010/11 to FY2015/16



Surplus/(Deficit)

For the third year in a row TIA incurred a deficit, indicating that the allocated funds are being utilised. The deficit for the 2015/16 financial year amounted to some R46 million while the deficit for the 2014/15 financial year was R62 million. Figure 1.6 illustrates the surplus and deficit trend from FY2010/11 to FY2015/16.

Figure 1.6: Surplus and deficit trend from FY2010/11 to FY2015/16



TIA: 6-year review

Table 1: Financial position summary for FY2010/11 to FY2015/16

Statement of financial performance						
	2010/11 R' 000	2011/12 R' 000	2012/13 R' 000	2013/14 R' 000	2014/15 R' 000	2015/16 R' 000
Total revenue	610 604	503 799	522 106	568 725	472 698	462 929
Parliamentary grant	544 189	442 688	456 350	481 081	338 386	385 188
Specific contracted income	50 677	44 246	24 062	61 992	50 984	44 122
Other Income	15 738	16 865	41 694	25 652	83 328	33 619
Total expenditure	572 882	478 340	575 844	585 595	534 945	509 227
Employee costs	85 202	101 107	110 865	117 571	110 512	83 557
Project funding disbursements	409 003	294 465	356 604	374 406	373 482	378 757
Administration costs	78 677	82 768	108 375	93 618	50 951	46 913
Surplus/(Deficit)	37 722	25 459	-53 738	-16 870	-62 247	-46 298
Statement of financial position						
Total assets	332 617	387 901	330 007	281 540	244 307	210 336
Property and equipment	28 878	24 156	23 746	22 560	13 640	13 346
Investment and funding assets	96 922	72 260	73 179	88 090	100 347	48 539
Cash and cash equivalents	201 822	287 789	228 712	162 194	66 281	132 333
Receivables	4 995	3 696	4 370	8 696	64 039	16 118
Total Liabilities	84 833	64 150	59 994	28 398	53 148	65 471
Committed conditional grants	29 170	44 310	27 274	9 387	16 222	44 086
Current liabilities	55 663	19 840	32 720	19 011	36 926	21 385
Net assets	247 784	323 751	270 013	253 142	191 159	144 865
Employee costs as % of total expenditure	15%	21%	19%	20%	21%	16%
Admin costs as % of total expenditure	14%	17%	19%	16%	10%	9%
Project funding as % of total expenditure	71%	62%	62%	64%	70%	74%
Other income as % of total income	3%	3%	8%	5%	18%	7%
Efficiency ratio	29%	38%	38%	36%	30%	26%



Mr Werner Van der Merwe
Chief Financial Officer

Vision

To be a world-class leading technology innovation agency that stimulates and supports technological innovation to improve the quality of life for all South Africans.

Mission

To facilitate the translation of South Africa's knowledge resources into sustainable socio-economic opportunities.

Overarching Goals

- To position TIA as a thought leader in technological innovation in South Africa.
- To provide South Africa with appropriate and effective support for innovation with high social and economic impact.
- To support and enhance technological innovation in Africa and globally through partnership initiatives.

Strategic Objectives

- To provide customer-centric technology development funding and support.
- To provide an enabling environment for technology innovation in collaboration with other role players.
- To develop an effective and efficient internal environment to successfully execute the strategy.

Shared Values

Teamwork

Together we can do more. Fostering teamwork creates a TIA work culture that values collaboration and co-operation.

Professionalism

At TIA we apply the most appropriate skills, competencies, experience and knowledge of best practices cohesively in conducting our work.

Excellence

TIA will be accountable to all stakeholders to deliver exceptionally high standards of work and performance.

Integrity

At TIA we keep our word. All TIA staff strive to do what they say they will do, when they say they will do it.

Transparency

Engage in inclusive open communication and hold one another accountable for our performance and conduct.

Innovation

At TIA we foster a culture where we continually nurture and implement new ideas from our staff and stakeholders that enhance how we do things and deliver services.

TIA Mandate

The mandate of TIA is derived from the provisions of the Technology Innovation Act (Act No. 26 of 2008), which establishes TIA as an agency to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. The objective of TIA is to support the State, through the DST, in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.

In addition, the Public Finance Management Act (Act No. 1 of 1999) (PFMA) classifies TIA as a Schedule 3A public entity. Chapters 5 and 30 of the National Treasury Regulations provide a framework which TIA must use to prepare a Strategic Plan consistent with the period covered by the MTEF for approval by the relevant executive authority.



Policy Mandate

The NDP is the principle guiding document, along with the Medium Term Strategic Framework (MTSF), the New Growth Path (NGP), the IPAP and other strategies and policies giving articulation to the achievement of the NDP vision. To this end, TIA's Strategic Plan is informed by and aligned to the broader government policies and priorities, and is part of the Policy Framework for the government-wide Monitoring and Evaluation System. A summary of these policies and their relevance to TIA is provided in the table below.

The Policy Landscape

POLICY AND YEAR	POLICY LINK TO TIA STRATEGY
NDP 2012	The NDP acknowledges the key role that the NS can play in developing new tools and methods to improve the delivery of solutions to the economy as well as coordinating the migration of research outputs.
MTSF 2014-2019	The MTSF identifies technology innovation as one of the critical policy areas required to speed up growth and transform the economy to create decent work and sustainable livelihoods.
NGP 2011	This plan identifies technological innovation as means of opening opportunities for substantial employment creation.
IPAP 2014/15 to 2016/17	The IPAP aims to strengthen technology platforms that will encourage innovation and technology development and the acquisition and commercialisation of new technologies. The IPAP 6 sets out to develop the policy instruments required for technology acquisition, innovation support and the commercialisation of home-grown new technologies. The TIA is well positioned to contribute towards the achievement of this intent.
Bioeconomy Strategy 2014	South Africa's Bio-economy Strategy provides an economic engine for a new bio-based economy that will provide a basis for future growth.
Ten-Year Innovation Plan 2008	The Ten-Year Innovation Plan drives South Africa's performance towards a knowledge-based economy.
National R&D Strategy 2002	The R&D Strategy emphasises an integrated approach, which includes human resource development, knowledge generation, investment in science and technology infrastructure and improving the strategic management of the public science and technology system.

The following sections elaborate on TIA's role and contribution to the realisation of the objectives of the above-mentioned national strategies, plans and policies.

Links to Government Outcomes

The South African Government has implemented an outcomes-based approach to planning for the effective management of its various programmes. This outcomes-oriented approach measures the impact of the government's programmes and is designed to ensure that the government is focussed on achieving the expected improvements in the lives of South Africans. In line with this, the government has identified a number of priority outcomes as key focus areas. During the 2015/16 to 2019/20 financial years, TIA will focus its planning efforts on linking and aligning its strategy with the following six government outcomes:

- Outcome 2: A long and healthy life for all South Africans.
- Outcome 4: Decent employment through inclusive economic growth.
- Outcome 5: A skilled and capable workforce to support an inclusive growth path.
- Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all.
- Outcome 10: Protect and enhance our environmental assets and natural resources.
- Outcome 11: Create a better South Africa and contribute to a better Africa and a better world.



2



**Corporate
Governance**

Framework

Corporate governance is essentially concerned with the organisational arrangements in place including a system of rules, practices and processes based on legislation, regulations and best practice through which companies are managed and controlled. It is within these parameters that an organisation is required to operate.

The Technology Innovation Agency (TIA or the Agency) was established by the Technology Innovation Agency Act of 2008 (Act No. 26 of 2008) (TIA Act). The object of the Agency is to support the State in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.

The TIA Board, appointed by the Executive Authority in terms of the TIA Act, is responsible for leading with integrity, accountability and transparency. The Board also has responsibility for the overall governance of the organisation and for ensuring that an appropriate governance structure is in place. The responsibilities of the Board include drafting the company's strategic plans, providing the required leadership to implement such plans, supervising the management of the business and reporting to the Honourable Minister on their stewardship. In turn, TIA is committed to principles and practices that provide stakeholders with the assurance that the organisation is managed soundly and ethically.

For the financial year 2015/16, the Board and its Executive Committee are confident that the organisation has complied with the relevant principles incorporated in the Code of Corporate Practices and Conduct, as set out in the King Reports.

Shareholder's Compact

TIA is required to agree, annually, in consultation with the Executive Authority, on its key performance objectives, measures and indicators. To this end TIA is required to conclude such an agreement which is enforced by way of the Shareholder's Compact between the TIA Board and the Minister of Science and Technology (Executive Authority).

The Compact promotes good governance practices in TIA by assisting in clarifying the roles and responsibilities of the Board and the Executive Authority and ensuring agreement on the TIA mandate and key objectives.

Financial Statements

The TIA Board and the Executive Committee are responsible for the preparation of the financial statements that present the state of affairs of TIA as of the end of the financial year. The financial statements are prepared in accordance with the Generally Recognised Accounting Practice (GRAP). The TIA Board is satisfied that the adequate accounting records have been maintained. The external auditor is Ngubane & Co. and they are responsible for independently auditing and reporting on whether the financial statements are fairly presented in conformity with the GRAP.

Internal Audit

TIA has an Internal Audit function that reviews its operations. The Audit and Risk Committee approves the Internal Audit Charter and the Annual Audit Plan to ensure that the Unit maintains its independence.

The Annual Audit plan is designed to position Internal Audit to address the requirements of the PFMA (1999) and Treasury Regulations (2005) and support the expectations of the International Professional Practice Framework (IPPF) of the Institute of Internal Auditors (IIA). In addition, Internal Audit provides TIA with an independent capability to perform audits that are consistent with the relevant legislation and responds to TIA priorities while ensuring the following:

- (a) Risks are appropriately identified and managed;
- (b) Assets are adequately and appropriately safeguarded;
- (c) Applicable laws, regulations and directives complied with;
- (d) Resources are acquired economically, used efficiently and adequately protected; and
- (e) Significant financial, managerial and operating information is accurate, reliable and timely.

Areas highlighted by the internal control reviews submitted by the external auditors are incorporated into the Internal Audit Plan. A comprehensive report on internal audit findings is presented to management regularly and recommended to the Audit and Risk Committee quarterly for review.

External Audit

External auditors are responsible for independent auditing and reporting on the annual financial statements. The statements comply with the GRAP. The Internal Audit function provides assurance to the Audit and Risk Committee and management of the adequacy and effectiveness of the internal controls in line with the requirements of the PFMA and good governance.

Members of TIA Board

Members serving on the Board during the year under review were:

- Ms Khungeka Njobe – Chairperson
- Ms Helen Brown
- Prof David Ellis Kaplan
- Dr Steve Lennon
- Adv Motlatjo Josephine Ralefatane
- Dr Petro Terblanche
- Ms Rosetta Xaba
- Mr Mahomed Moolla (resigned 1 January 2016)
- Prof Diane Hildebrandt (appointed 9 September 2015)

Setswana

Go ngwaga wa ditšhelete WA 2015/16, Boto le Komitiphethiši ya yona di kgotsofetše gore mokgatlo o latetše melawana ya maleba ye e akareditšwego ka gare ga Khouto ya Mekgwa le Maitshwaro a Kgwebo, bjalo ka Ge e laeditšwe ka gare ga Dipego tša King.

Schedule of attendance for TIA Board and Sub-Committee Meetings (1 April 2015 to 31 March 2016)

Legend	
a	In attendance
x	Apology received
A	Absent without an apology
r	Resigned
-	Not a member

Table 2.1: TIA Board Members' Attendance Record

Board Member	Board Meetings Attended (Total of 5)	28 May 2015	29 July 2015	2 October 2015	26 Nov 2015	25 Feb 2015
Ms Khungeka Njobe	4	a	a	a	a	x
Ms Helen Brown	5	a	a	a	a	a
Prof David Ellis Kaplan	4	a	x	a	a	a
Dr Steve Lennon	5	a	a	a	a	a
Adv Motlatjo Ralefatane	4	a	a	a	a	a
Dr Petro Terblanche	5	a	a	a	a	a
Ms Rosetta Xaba	2		x	a	a	a
Mr Mahomed Moolla	3	a	a	x	a	a
Prof Diane Hildebrandt	2	-	-	-	a	a

Board Members' Remuneration

Board members receive fees for the services they render to the Board in accordance with the relevant tariffs as determined by National Treasury and approved by the Minister of Science and Technology. There are some Board members who are in the employ of National, Provincial or Local Government or Agencies and Entities of Government and serving on TIA Board who were appointed in their personal capacity and signed approval was granted by their employers for TIA to remunerate them for the services rendered to the Board.

Public Finance Management Act No. 1 of 1999 (PFMA)

The PFMA came into effect on 1 April 2000 and has had an impact on our governance matters in terms of the regulation of financial management in the Public Sector. The TIA is fully committed to complying with the provisions of the PFMA. The internal and external auditors continue to provide the Board with assurance on compliance with the PFMA.

Materiality Framework

In accordance with the PFMA and the Treasury regulations 28.1.5, TIA has developed a framework of acceptable levels of materiality and significance.

TIA Board Committees

Audit and Risk Committee

Chairperson: Dr Steve Lennon
Members: Prof David Ellis Kaplan
Ms Rosetta Xaba
Adv Motlatjo Josephine Ralefatane
Mr Mahomed Moolla (Resigned January 2016)

Table 2.2: TIA ARC Members' Attendance Record

ARC Member	Board Meetings Attended (Total of 4)	21 May 2015	22 July 2015	12 Nov 2015	11 Feb 2016
Dr Steve Lennon (Chairperson)	4	a	a	a	a
Adv Motlatjo Josephine Ralefatane	2	x	a	a	a
Mr Mahomed Moolla	3	a	a	a	x
Ms Rosetta Xaba	3	a	a	x	a
Prof David Kaplan	3	a	x	a	a

HR and Remunerations Committee

Chairperson: Ms Helen Brown
 Members: Ms Khungeka Njobe
 Adv Motlatjo Josephine Ralefatane
 Dr Petro Terblanche

Table 2.3: TIA HR and Remunerations Committee Members' Attendance Record

HR Member	Board Meetings Attended (Total of 4)	13 May 2015	15 July 2015	11 Nov 2015	4 Feb 2015
Ms Helen Brown (Chairperson)	4	a	a	a	a
Dr Petro Terblanche	3	a	x	a	a
Adv Motlatjo Josephine Ralefatane	2	x	a	x	a
Ms Khungeka Njobe	4	a	a	a	a

Investment and Finance Committee

Chairperson: Dr Petro Terblanche
 Members: Ms Rosetta Xaba
 Prof David Kaplan
 Prof Diane Hildebrandt
 Mr Mahomed Moolla (resigned 1 January 2016)
 Ms Fuzlin Levy-Hassen

Table 2.4: TIA Investment and Finance Committee Members' Attendance Record

IFC Member	Board Meetings Attended (Total of 9)	14 July 2015	25 Aug 2015	22 Sept 2015	5 Nov 2015	10 Dec 2015	27 Jan 2016	22 Feb 2016	14 Mar 2016	18 Mar 2016
Dr Petro Terblanche	9									
Mr Mahomed Moolla	3		x		x	x	r	r	r	r
Prof David Kaplan	7	x		x						
Ms Rosetta Xaba	7			x				x		
Prof Diane Hildebrandt	5	-	-	-	-					
Ms Fuzlin Levy - Hassen	2	-	-	-	-	-		x	x	

Ms Fuzlin Levy-Hassen was co-opted as an Investment and Finance Committee member since 25 February 2015.

TIA Board



Ms Khungeka Njobe

Position/Affiliation: Executive Chairman: Kay Ann Group

Qualifications: BSc Hons in Biology, MSc in Zoology

Field of Expertise: IP Management and technology transfer, establishment of an R&D and innovation function, leadership of marketing and business development functions, strategic management

Board Memberships & Committees: Chair of the Boards of Sasol Inzalo Public Limited and Sasol Inzalo Public Funding Limited, Director of Safcol and chair on the Human Resources and Remuneration Committee



Ms Helen Brown

Position/Affiliation: Senior Manager: Strategy & Research at the Manufacturing Engineering and Related Education Authority (merSETA)

Qualifications: BA (Social Sciences); PG Dip Personnel Management.

Field of Expertise: Quality development in vocational education; TVET research; Technology-based entrepreneurship; artisan development.

Board Memberships & Committees: Member of the Qualifications Subcommittee of the Umalusi Board



Prof David Ellis Kaplan

Position/Affiliation: Professor of Business and Government Relations, University of Cape Town

Qualifications: BA, BComm, MA and DPhil

Field of Expertise: Public Research
Performing Institutions (Innovation Policies)

Board Memberships and Committees: None



Dr Steve Lennon

Position/Affiliation: Managing Director Shanduvan Pty Ltd

Qualifications: BSc, MSc (Engineering), PhD

Field of Expertise: Energy Sector, sustainability and the National System of Innovation

Board Memberships and Committees: Director SolaJoule Pty Ltd

TIA Board



Adv Motlatjo Josephine Ralefatane

Position/Affiliation: Acting Manager Legal and Property section

Qualifications: LLB, Advocate of the Supreme Court of South Africa

Field of Expertise: Legal

Board Memberships and Committees: Member of the South African Medical Research Council (MRC) Board, Member of the TIA Board, Deputy Chairperson at the Luthuli Museum, Chairperson at ZA Domain Name Authority (ZADNA), Chairperson of the Risk Management Committee at the Gauteng Department of Health, Chairperson of Audit, ICT and Risk Committee at the South African Pharmacy Council (SAPC), Council Member of Ditsong Museum of South Africa, Chairperson of the HR and Remuneration Committee of Ditsong Museum South Africa, Chairperson Appeals adjudication ITSAA.



Dr Petro Terblanche

Position/Affiliation: Professor at North West University in the Business Development Faculty of Health Sciences

Qualifications: BSc, BSc (Hons), MSc (Cum Laude), DSc

Field of Expertise: Biotechnology, Medical Oncology and Environmental Health

Board Memberships and Committees: Member of the National Intellectual Property Management Organization (NIPMO) Advisory Board, Chair of Kellaphela Pharmaceuticals SOC Ltd Board, Industrial Advisory Group Molecular Sciences Institute, WITS School of Chemistry, Advisory Committee for the University of Pretoria Center for Sustainable Malaria Control, Member of the Bio-economy Strategy Advisory Committee of DST and Member of the Advisory Committee of the University of Pretoria Fluorochemicals Engineering Chair.



Ms Rosetta Xaba

Position/Affiliation: Director of Rossal NO 98 (Pty) Ltd

Qualifications: BSc (Life Sciences), Post Graduate Diploma in Education, BCompt and BCompt Honours, Post Graduate Diploma in Accounting, CA (SA)

Field of Expertise: Finance

Board Memberships and Committees: Treasurer and Board Member of the Little Eden Society for the Care of Persons with Intellectual Disabilities, Non-Executive Director and Chairperson of the Audit Committee for FINBOND Ltd, Non-Executive Director and Chairperson of the Social and Ethics Committee for Conduit Capital Ltd, Non-Executive Director and Chairperson of the Audit Committee for Constantia Insurance (Pty) Ltd, Audit Committee Member for SALGA



Mr Mohamed Ahmed Moolla

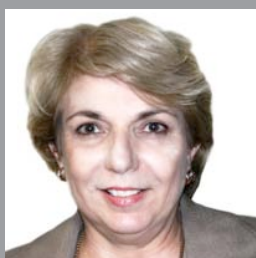
Position/Affiliation: Head for ICT Strategic Business Unit at Industrial Development Corporation (IDC)

Qualifications: MBA, BCom, BSc Engineering

Field of Expertise: Innovation Chasm/Solutions – Venture Capital

Board Memberships and Committees: None

Resigned 1 January 2016



Prof Diane Hildebrandt

Position/Affiliation: Co-Director for the research Unit MaPS (Material and Process Synthesis) at UNISA, South Africa

Qualifications: BSc, MSc, PhD

Field of Expertise: Chemical Engineering and Chemical Technology

Board Memberships and Committees: Member of Council of the University of Johannesburg

Executive Committee



Mr Barlow Manilal

Chief Executive Officer



Mr Werner van der Merwe

Chief Financial Officer



Dr Sibongile Gumbi

Executive: Innovation Enabling and Support



Ms Femke Pienaar

Executive: People, Systems and Facilities



Ms Pontsho Maruping

Executive: Innovation Funding and Pre-Commercialisation



3



**Human
Resources**

Introduction

High performance organisations derive their value from intangible assets such as skilled leaders, talented employees and the ideas, networks and enthusiasm they provide to drive the results of the organisation. The efficiency, productivity and effectiveness of these intangible assets are influenced by intrinsic traits of the individual as well as the work environment. It is imperative that the Human Resources (HR) Department create and nurture a culture of quality and high performance through job planning and design, recruitment and selection, compensation and reward, training and development and performance management.

Annual Priorities

Apart from the traditional transactional and administrative function expected from the HR Business Unit, the focus for 2015/16 was on redesigning the Unit itself and implementing an improved service delivery approach aligned to becoming a partner within the business.

HR must be responsive to both the immediate and long-term business needs, providing operational excellence and strategic insight. The HR policies, procedures and frameworks have been reviewed in order to attract, retain and develop talent required by the organisation. The HR function focussed on employee engagement, remuneration benchmarking and developing an Integrated Talent Management Strategy including a comprehensive competency framework.

Organisational Harmonisation

Following the restructuring of the organisation, the HR Business Unit initiated a harmonisation of the organisation, creating the building blocks for developing TIA as an employer of choice.

The harmonisation approach was three dimensional and involved the harmonisation of organisational structure, culture and operations. The harmonisation of the organisational structure entailed capacitating the structural units within the available budget as well as aligning job profiles to the Business Operational Plans and the Performance Management System. The harmonisation of culture focussed on the development of a high-performance culture, changing the behaviour of employees through training and development and a review of policies and procedures. The harmonisation of operations involved enhancing the service delivery of HR to the business.

Organisational Structure

The organisational structure was reviewed and a major gap in the governance and compliance functions was identified. A PRIME unit was defined including the following functions: Strategic Planning (P), Risk Management (R), Business and Market intelligence (I) and Monitoring and Evaluation (ME).

The Head of the Unit, the Strategic Planning and Risk Management Specialist as well as the Monitoring and Evaluation Manager were appointed. The contribution of the individuals in these positions resulted in an improvement in overall governance and compliance within the organisation.

As part of the restructuring process, TIA offered employees Voluntary Severance Packages which left the organisation with 16 vacant positions at the beginning of the financial year. Apart from the high vacancy rate, TIA experienced a high resignation rate (24 resignations) and only managed to fill 11 positions. The low recruitment rate was due to limited capacity within the HR Business Unit. This problem was addressed by appointing a panel of recruitment service providers who assisted the HR Unit with the recruitment of the key and critical skills. Management is convinced that the vacancy rate will show a dramatic decrease in the new financial year.

Table 3.1: TIA Recruitments and Appointments

	Number of Employees at the beginning of FY2015/16	Appointments	Terminations	Number of Employees at the end of FY2015/16
Top Management	3	3	2	4
Senior Management	18	2	4	16
Professionally Qualified	49	6	9	46
Skilled	57	0	6	51
Semi-Skilled	26	2	3	25
Unskilled	8	0	0	8
Total	161	13	24	150

Table 3.2: Reasons for Resignation

Reasons for resignation	Number of staff
Discharged	1
End of Contract	2
Resignation	19
Voluntary Retrenchment	2
Total	24

Setswana

Ditlamo tse di dirang ka tlhagafalo di iponela mosola wa tsone go tswa go matlotlo a a sa kgoneng go tshwarwa a a jaaka baeteledipele ba ba nang le bokgoni, bathapi ba ba nang le ditalente le dikgopolo, dineteweke le thotloetso tse ba tlamelang ka tsone go tlhagisa dipholo tsa setlamo. Matswela, tlhagiso-dikumo le go atlega ga matlotlo ano a a sa kgoneng go tshwarwa a bakwa ke dikgono tse motho a nang le tsone mmogo le ke maemo a mo tirong. Go botlhokwa thata gore Lefapha la tsa Badiri (Human Resources [HR]) le tlhame mowa wa go dira tiro ya boleng jo bo kwa godimo ka natla le go o tswelatsa pele ka go rulaganyetsa tiro, go tsoma badiri le go ba tlhophisa, go ba duela le go ba atswa, go ba katisa le go tlhabolola dikgono tsa bone tsa tiro le go dirwa ga tiro.

Developing a New Culture for TIA

In order to enhance the delivery capability of TIA towards strategic results, HR initiated a process for the development and creation of a new organisational culture based on full participation of all employees. The desired organisational culture was defined and assessed against the existing organisational culture at the time and a twofold action plan was developed and implemented. On the one hand, HR focused on the review of all policies and aligning them towards the development of a high-performance culture and, on the other hand, behavioural change initiatives were implemented to transform the mindset and resulting behaviour of employees towards high performance. The central theme of the behavioural change initiatives is how to develop trust and respect among colleagues as building blocks for openness, transparency and candour in the working environment. Change activists were identified and trained to facilitate a programme of 11 sessions for all individuals in the organisation.

Performance Management

Performance Management is one of the key elements of building a high-performance organisation. During 2015/16, TIA focused on improving the quality of the Performance System Management system by ensuring alignment between TIA strategy, the Business Operational Plan, job profiles and the performance agreements of each employee.

A proactive employee relations approach, complimentary to the Performance Management System, has also been implemented, to ensure that performance challenges are detected as soon as possible in the performance cycle and corrective action implemented.

Employee Development

In order to retain an innovative and professional workforce that plays an active role in the NSI, TIA is committed to the training and development of all employees. The TIA spent R703 918.86 on training provided externally, of which R451 380.00 was spent on formal qualifications and R252 538.00 on short courses. The TIA also devoted considerable time to in-house training associated with the development of the new culture.

The TIA has initiated the development of a comprehensive competency framework to be completed in 2016/17. During 2015/16, the competency level of TIA leadership was assessed, which resulted in the implementation of a focused leadership development programme in 2016/17. Linking the competency framework to the Performance Management System, a 360° assessment across the organisation will be implemented in 2016/17.

Table 3.3: Demographic information of TIA staff receiving training

	Males				Females				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Short Courses	8	3	0	3	23	3	1	6	47
Formal Qualifications	3	1	0	0	8	0	2	2	16
Total	11	4	0	3	31	3	3	8	63

Employee Wellness Programmes

There are several initiatives focussing on employee wellness. These include bi-annual wellness days which give employees an opportunity to undergo health assessments and to use the results to develop a health improvement plan.

An underlying philosophy of developing a high-performance culture is developing the necessary behavioural attributes such as support, caring and awareness. A community wellness programme was thus implemented during this period and all employees must be involved in at least one of the organised events each year.

Independent Counselling and Advisory Services (ICAS) is contracted to provide additional, confidential assistance by qualified professionals ranging from legal and financial to psychological support and guidance. The service is extended to the immediate family members of the Agency's employees at no cost to the employee.

Table 3.4: Employment Equity as at 31 March 2016

Occupational Levels	Male				Female				Foreign Nationals		Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	Male	Female	
Top Management	0	0	1	1	1	0	0	1	0	0	4
Senior Management	8	1	1	1	3	0	2	1	1	0	18
Professionally Qualified and Experienced Specialists and Mid-Management	19	4	1	4	17	0	8	7	2	0	62
Skilled Technical and Academically Qualified Workers, Junior Management, Supervisors, Foremen and Superintendents	8	0	1	2	28	6	2	3	0	0	50
Semi-Skilled and Discretionary Decision-Making Staff	1	0	0	0	8	0	0	0	0	0	9
Unskilled and Defined Decision-Making Staff	2	0	0	0	5	0	0	0	0	0	7
Total Number of Permanent Staff	38	5	4	8	62	6	12	12	3	0	150
Temporary Employees	0	0	0	0	0	0	0	0	0	0	0
Grand Total	38	5	4	8	62	6	12	12	12	0	150

Table 3.5: Personnel Cost by Salary Band

	Personnel expenditure at cost to company (CTC)	Personnel expenditure as a percentage of total expenditure	Number of Employment Equity (EE) staff members for the year to date	Average personnel cost per year
Top Management	R12 257 216.00	12.21%	6	R2 042 869.33
Senior Management	R24 433 052.32	24.35%	21	R1 163 478.68
Professional Qualified	R43 196 830.71	43.05%	66	R654 497.44
Skilled	R18 087 782.52	18.02%	55	R328 868.77
Semi-Skilled	R1 797 063.84	1.79%	11	R163 369.44
Unskilled	R578 988.48	0.58%	7	R82 712.64
Total	R100 350 933.90	100%	166	R604 523.70

Facilities

Health, Safety and Environmental Excellence

TIA recognises the need to create and maintain a healthy, safe and supportive working environment for its employees and TIA communities. Safety statistics analyses, process reviews, gauging the actual effectiveness of our safety management system and identifying areas for continuous improvement are our mandatory practice. Our comprehensive range of services, as required by occupational hygiene and environmental legislation, are to provide adequate lighting, eliminate excessive noise, ensure ventilation and indoor air quality, deal responsibly with hazardous substances and to attend to ergonomic requirements. The Agency is committed to achieving environmental, health and safety excellence and has a duty to ensure that procedures and policies are in place to ensure compliance with health and safety legislation.

The Agency has appointed two Occupational Health and Safety (OHS) members, namely:

The Health and Safety Representatives Committee

comprising of various cross-functional members in accordance with section 19(1) of the Occupational Health and Safety Act (Act No. 85 of 1993). The overall appointment of members is subject to approval by the CEO. The membership of the committee is reviewed each financial year and new members will be co-opted as necessary.

The Health and Safety Support Committee is committed to enhancing the health and safety of all staff and visitors. The Committee has implemented systems and practices that improve health and safety including:

- Developing, disseminating and promoting health education programmes to encourage safe practices and the elimination of accidents.
- Cooperating with the public, government and other concerned parties in implementing regulatory acts to protect the public and the environment.

Emergency Evacuation Training

Safety, Health and Environment (SHE) training is considered high priority and is conducted in line with operational goals and relevant legislation. The National Building Regulations and Building Standards Act (Act No. 103 of 1997) and the Occupational Health and Safety Act (Act No. 85 of 1993) require the occupants of any building to be acquainted with emergency evacuation procedures to ensure an efficient, safe and orderly escape in the event of an emergency. To comply with the provisions of these Acts and to ensure TIA employees are familiar with the emergency evacuation procedures, an emergency evacuation exercise is conducted annually.

Firefighting and First Aid Training

Section 18(3) of the Occupational Health and Safety Act stipulates that an employer shall provide the facilities, assistance and training health and safety representatives require. It is the responsibility of the Agency to respond to an emergency situation in a safe and timely manner. Trained personnel and maintained equipment provide priority protection. First aiders and fire fighters are emergency trained personnel able to handle unexpected situations by providing first aid during emergency situations, conducting emergency evacuation exercises, firefighting and preventing damage.

Challenges

Particular emphasis is placed on the development and introduction of mechanism for testing and monitoring our procedures and processes. Occupational Health and Safety risk assessments are conducted at all TIA premises annually and a comprehensive risk register is compiled. Waste management at TIA laboratories, platforms, test stations and project offices is conducted with the waste being separated and safely disposed of by reputable companies. TIA laboratories, platforms and industrial stations must be accredited or certified in accordance with the relevant International Organization for Standardization (ISO) level.

Incidents and Disabling Injury Frequency Rate (DIFR)

We are pleased to report that the DIFR at TIA is zero and no compensation for occupational disease and injuries has been claimed thus far. No disabling or non-disabling injuries have been experienced.



4



**Business
Performance**

Performance Information

Table 4.1: Strategic Objective 1 – To provide customer-centric technology development funding and support

Performance Indicator		Annual Target	Actual Achievement 2015/16	Deviation between planned and actual achievement for 2015/16	Comments	Rating
1.1	Number of technologies, products, processes and services reaching the demonstration stages	6	27	11	The fourth quarter performance enabled TIA to overachieve with regard to the annual target. An annual target of six demonstration achievements was set. The long lead times towards demonstration stages and uncertainties involved make it difficult to set targets that are realistic.	A
1.2	Number of technologies, products, processes and services taken up in the market (commercialised)	4	9	5	The fourth quarter performance enabled TIA to overachieve with regard to the annual target. Similar to the demonstration stages, market uptake targets are fraught with uncertainty.	A
1.3	Amount of third-party funding attracted to the TIA's portfolio	R75 million	R97.9 million	R22.9 million	The fourth quarter performance enabled TIA to overachieve with regard to the annual target. The support of the Industrial Development Corporation (IDC) for the Biological Chemical Technologies (Pty) Ltd (BiODX) project (R40 million) accounts for most of the achievement of this target and was not anticipated when the target was set. Overachievement on this target may also be explained by uncertainty in pre-determining commercialisation funding requirements which are the primary driver of this performance indicator.	A
1.4	Amount of external income raised	R98 million	R153.8 million	R55.8 million	Other income was raised from interest loans, royalties, co-funded initiatives and contracted projects.	A

Table 4.2: Strategic Objective 2 – To provide an enabling environment for technology innovation in collaboration with other role players

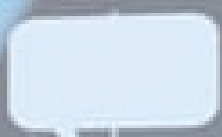
Performance Indicator		Annual Target	Actual Achievement 2015/16	Deviation between planned and actual achievement for 2015/16	Comments	Rating
2.1	Number of knowledge innovation products supported (prototypes developed and patents registered)	30	76	46	Due to the effective coordination of HEIs by the Innovation Enabling and Support (IE&S) Programme, more knowledge innovation products were produced than was planned for.	A
2.2	Number of knowledge innovation products supported (prototypes developed and patents registered) and receiving follow-on funding	7	8	1	The fourth quarter was under-achieved because of the cyclical nature of third-party funding. Follow-on funders are typically consolidating their portfolios after the January vacation.	A
2.3	Number of SMEs receiving technology support from the Technology Stations (TSs) and Institutes of Advanced Tooling	2000	2197	197	Two TSs made late submissions which internal audit is verifying.	A
2.4	Number of SMEs owned by Previously Disadvantaged Individuals (PDIs) as a percentage of total SMEs supported	Develop measure and target	Measure defined and targets set		An assessment was undertaken by the Strategic Stakeholder Relations and Communication (SSRC) unit to collect and review the information needed for this indicator. The findings of the assessment indicate a baseline of 58% (which is an average of 450 SMEs per annum) and the targets are increased by 5% in the first year and 3% each year thereafter.	A
2.5	Number of technology innovation initiatives (e.g. lectures, awards, debates, panel discussions, newsletters and events) undertaken by TIA	3	27	24	This indicator will be further improved to include Specific, Measurable, Attainable, Relevant and Time-bound (SMART) activities that articulate TIA's Strategy and DST National Priorities.	

4 Business Performance

Part 4

Table 4.3: Strategic Objective 3 – To develop an effective and efficient internal environment to successfully execute the strategy

Performance Indicator		Annual Target	Actual Achievement 2015/16	Deviation between planned and actual achievement for 2015/16	Comments	Rating
3.1	Investment approval turnaround time	18 weeks	12 weeks and three days	6 weeks	A Seed Fund call for applications went out on 18 December 2015 and the call closed on 12 February 2016. Award letters were sent out on 8 March 2016 resulting in a pre-investment approval turnaround time of 11 weeks and 3 days.	A
3.2	Improved adequacy of and effectiveness in the control environment	Unqualified audit opinion	1	1	Unqualified audit opinion achieved.	A
3.3	Amount of funds spent on investments as a percentage of the MTEF	68%	72%	4%		A
3.4	To maintain staff turnover with market norms	Below 5%	13.4% (19 vacant positions/142 funded positions)	8.4%	The attrition rate in the fourth quarter exceeded the rate of appointment. Seven positions were filled during the period under review and nine resigned. Recruitment agencies were appointed in January 2016 to assist TIA to fill vacant positions.	N
3.5	Maintain a high employee engagement index level	3.5%	3.7%	0.2%	The target achieved was measured against the engagement score of the previous survey conducted in the 2014/15 financial year.	



Success

Solution

Business Strategy

- Innovation
- Branding
- Solution
- Marketing
- Analysis
- Ideas
- Success
- Management





5



Innovation Funding and Pre-Commercialisation



Innovation Funding and Pre-Commercialisation

Introduction

TIA's main focus is technology development which starts from the proof of concept stage and continues into the technology development stage. To allow for a seamless progression of technologies along the innovation value chain, TIA makes use of three main funding instruments. These are the Seed Fund, the Technology Development Fund and the Commercialisation Support Fund. In addition to establishing funding mechanisms that are responsive to clients' needs, TIA has positioned itself to support technology innovation by providing services to the innovation value chain. TIA does this through the following four roles it plays: the CONNECTOR, where TIA uses networks to link and connect opportunities; the ACTIVE FUNDER, where we directly invest in technology ideas; the FACILITATOR involves working through other stakeholders to ensure the adoption and commercialisation of technology innovations; and the SERVICE PROVIDER where we provide access to high-end skills and equipment through programmes that enable a culture of innovation. The outcome of TIA's funding mechanisms, together the strategic roles TIA plays, showcases an organisation that has greater capability to deliver on its strategic objectives and annual performance targets. The strategic objectives and annual performance targets are:

- To provide technology development funding and support in high-impact areas; and
- To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players.

The following section reports on projects which assisted the organisation to deliver on the two strategic objectives and its mandate to stimulate and intensify technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.



Motivation

Synergy
expertise
ainstorm
Jobs

Thinking
Outside
The Box

Global
Logistics
Workshop
Support

Network

Webinar

Solution

Technology
Innovation

Investment

Comm

WWW.

https://

Vision

Construction
Management
Project
Planning

Cloud Computing

Best
Team

B
S

1

2

3

4

https://

Social
Network

WWW.

WWW.

WEBSITE

Solution

Global
Logistics
Workshop
Support

Global
Logistics
Workshop
Support

growth

Webinar
Online
Conference

Communication

Jobs

SOCIAL MEDIA

Technology
Innovation

Webinar
Online
Confere

Advanced Manufacturing (AM) Technologies

The recently released McKinsey Global Institute Report, titled “South Africa’s Big Five: Bold Priorities for Inclusive Growth”, identifies advanced manufacturing (AM) as one of the priority areas “that can reignite South Africa’s progress”. It further says that South Africa needs to “step up innovation” in the area of advanced manufacturing to realise this opportunity and counter the slowdown in the traditional manufacturing sector.

The Advanced Manufacturing unit therefore continues to promote investment in innovations that will enhance the knowledge intensity of manufacturing in South Africa. Advanced manufacturing industries are those industries that are knowledge and/or technology intensive. These industries continually integrate new innovative technologies in products, processes and services to remain competitive and add value.

Purpose	Operational Objectives
The Advanced Manufacturing STA exists to support the TIA Vision by building a quality portfolio of projects in advanced manufacturing that contributes to transforming South Africa’s manufacturing industry into a competitive, high-tech and value creating industry.	a) To build TIA’s pipeline of advanced manufacturing investment opportunities; b) To assist applicants with building a fundable opportunity and to assess investment opportunities; c) To perform client-centric and value-adding project management for TIA projects and investments; d) To facilitate commercialisation of TIA projects and investments; e) To facilitate co-funding and next-round funding of TIA projects and investments; and f) To participate, coordinate and contribute to building the advanced manufacturing NSI and seek alignment with key stakeholders such as the DST AM Directorate.
Portfolio Summary	
Total number of projects	37
Portfolio exposure	R300 million

Unit Performance

FY2015/16 was a challenging year for the AM investment portfolio. The investment portfolio was met with fundamental scientific and engineering challenges that slowed down its expected Technology Readiness Level (TRL) growth. The Unit had to undertake several project “re-scopes” to allow innovators the necessary space, flexibility and “benefit of the doubt” to realise the breakthrough moments inherent in the technology development process. The renewed efforts should realise the “Eureka” moments which those passionate about technology development live for.

Despite the challenges experienced on those projects in the technology development phase, the Advanced Manufacturing Unit managed to progress three projects to the demonstration (Weldcore Project), pre-commercialisation (Varibox Project) and commercialisation (FibreLux) phases.

SO1: To provide technology development funding and support in strategic high-impact areas

FibreLux Technology



The FibreLux Technology was commissioned to assist local wool farmers to assess wool quality more efficiently and quickly. After six years of research, development and testing, an accurate tool for on-farm measurement of wool fibre diameter is now available. The FibreLux device is a portable, user-friendly, affordable and accurate fibre diameter meter for on-farm measurement of wool, mohair and other animal fibre fineness. TIA invested a total of R6.77 million, of which R4.84 million was used for technology development and R1.93 million for the commercialisation of the product. The product is successfully being manufactured and sold by a local trading company.

The low volume production of the product has created two jobs but is expected to increase to around five should sales volumes increase. There is also the potential to export the product. The product will help to increase the income of wool farmers by helping to accurately establish the correct wool grading. The product will also assist in the improvement of breeding programmes for sheep farmers which will translate into improved wool quality.

In FY2015/16 the project was identified as a technology that could be part of a special programme targeted at technology diffusion to SMEs (small-scale farmers) in the agriculture sector. The objective of the FibreLux project is to service emerging farmers in the Eastern Cape and works in a three-fold manner as described below.



- Place the technology in the hands of a number of capable unemployed young people who would be able to use the FibreLux as a tool to create income by operating the FibreLux units in the shearing communities in the Eastern Cape.
- The work of the device operators who use the FibreLux Micron Meters will improve the income of the emerging wool farmers through better classing of their wool clip.
- Improving the income of emerging wool farmers and demonstrating to the mainstream commercial wool farmers the benefits of the FibreLux Micron Meter to increase their income.
- The DST has endorsed the project and will be committing funds for the purchase of some 30 units, which will be deployed to the youths, as part of the project execution.

Agriculture

The agricultural sector has reinvented itself as a new global business. The sector has been reshaped by standardisation, high-value production, a massive demand growth in food and biofuels and the global nature of distribution channels which are heavily influenced by the retail industry. Structural and technology advancements experienced in the last 50 years in the sector will continue in future. These advancements are due to the need to respond to the globalised nature of demand and consolidations into larger operations along the supply chain.

Higher productivity, higher yields and increased cropping intensity have the main drivers behind growth in agricultural production in the past decades. Continued productivity improvement is also expected to account for 90% of output while the expansion of farm land will only account for some 10%.

Overall, the outlook to 2050 indicates that the global food situation will continue to improve, although at a slower pace. Agriculture will have a crucial role in reducing hunger and poverty, not only in terms of food production, but mainly in generating income and supporting rural livelihoods. While the local sector currently contributes ~3% (R150 billion) of South Africa's GDP, it still has a huge developmental role to play in maintaining national food security, socio-political stability and to serve as a catalyst for inclusive rural economic development.

The National Development Plan (NDP) includes estimates that the sector has the potential to grow its contribution to GDP by R163 billion by 2030 and can create up to 490 000 jobs with ~314 000 of these jobs coming from agro-processing activities.

Purpose	Operational Objectives
To build a portfolio of agriculture technologies with the potential for commercialisation and contributions towards competitive, sustainable and inclusive agriculture and agri-business value chains.	In our endeavour to support a competitive, sustainable and inclusive agriculture and agri-business value chain, the Unit funds opportunities according to the following objectives: a) Supporting the creation of an enabling environment for agricultural technology innovation; b) Supporting the development and demonstration of attractive agricultural technology innovations; c) Facilitating commercialisation of de-risked technologies; and d) Improving the diffusion of appropriate agricultural technologies to small-scale and emerging farmers in strategic partnerships.
Portfolio Summary	
Total number of projects	27
Portfolio exposure	R204.7 million

Contracted Funds

Animal Health and Nutrition	R 22 793 520
Breeding and Reproduction	R 60 121 496
Plant Health and Nutrition	R 98 564 633
Post-Harvest	R 23 226 481

Regional Split

Eastern Cape	R 14 016 135
Free State	R 10 000 000
Gauteng	R 62 446 984
KwaZulu-Natal	R 27 910 103
Western Cape	R 90 312 908

On-going Commitments

2016/17	R 11 700 045
2017/18	R 23 842 300
2018/19	R 7 486 962
2019/20	R 4 606 629
2020/21	R 2 436 907

Disbursement per Technology Readiness Level (TRL)

TRL 4	R 3 041 927
TRL 5	R 2 739 874
TRL 6	R 5 305 446
TRL 8	R 612 798

Unit Performance

SO1: To provide technology development funding and support in strategic high-impact areas.

AgriViro (Pty) Ltd

AgriViro (Pty) Ltd is an Small Medium Enterprise (SME) established with the sole objective of developing and commercialising a portfolio of biopesticide technologies licensed by the University of the Witwatersrand. The identified biopesticides target some of the most economically destructive pests of major horticultural crops in the world. The technology is in response to South Africa's local fruit industry continuously seeking greener pest control solutions that will enable continued growth and access to markets in export fruit produce sales, contributing to increased export earnings for the country. Grant funding of some R14.2 million was approved for the development of these novel biopesticides and formulations over a period of two years.

SO2: To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players

During FY2015/16, TIA supported the establishment of the Dairy Breeding Technology Innovation Programme with grant funding of R9.7 million. The funding will support the South African dairy industry, specifically the milk producers and breeders, in their endeavour to increase the adoption of genomic technologies. The Technology Innovation Programme (TIP) is made up of the following members:

- The Agricultural Research Council (ARC) through the in-kind contribution of genotyping infrastructure at their Biotechnology Platform located within the Onderstepoort Veterinary Institute campus.

- Higher Education Institutions: University of Pretoria, University of Fort Hare, University of Stellenbosch and University of the Free State.
- Farmer and/or commodity groups:
 - Breed Societies – Holstein, Jersey and Ayrshire.
 - Commodity group – Milk Producers Organisation and Milk SA.
- Private companies: SA Studbook.

The programme will run for a period of three years during which genetic traits and tools to accurately measure identified traits considered to be of economic importance to the local dairy industry and having the potential to contribute to the sub-sectors' global competitiveness will be developed and packaged for commercialisation.

In demonstrating their commitment to this collaborative programme, dairy farmers have committed a total of R44,3 million as co-funding which has increased the total TIP funding to R54 million.

Good nutrition and access to adequate healthcare are essential for child growth and development, body maintenance and protection from infectious and non-communicable diseases in adult life. Billions of people around the world consume milk and dairy products every day. Not only are milk and dairy products a vital source of nutrition for these people, they also present livelihood opportunities for farmers, processors, shopkeepers and other stakeholders in the dairy value chain.

Siswati

Kukhula kumkhicito wetekulima kuleminyakalishumi leyengcile kuphume kakhulu emkhicitweni nasetivunweni letisetulu kanye nasekukhuleni kwetitjalo lokusetulu kantsi kukhula kwesikhatsi lesitako kusatawuholwa kwentiwancono kwemkhicito, lokulindzeleke kwekutsi kwente 90% wemphumela bese kutsi kukhula kwemhlaba wekulima kwente 10% kuphela.



Energy

South Africa is faced with global environmental pressures to reduce carbon dioxide emissions, local energy constraints and the need to grow the economy. The security of our energy supply in relation to desired economic growth is an immediate concern. The country is progressing well with regard to new generation capacity being made available, although the majority of this is from coal power stations. The energy sector must look for innovative and environmentally friendly ways to generate and consume energy. The renewable energy industry is promising to create much-needed jobs and partly address the carbon dioxide emissions challenge. These emerging technologies thus have the potential to assist in addressing poverty and inequality in the country while simultaneously addressing the challenge of inclusive economic development.

Purpose	Operational Objectives
To support the development of an innovative, competitive and sustainable energy industry that facilitates South Africa's transition to a low-carbon economy and contributing to energy supply security and the creation of emerging industries while addressing the issues of unemployment, poverty and inequality.	To fund innovative technologies that contribute towards: - Strengthening the security of energy supply; - Supporting the government's efforts to transition to a low-carbon economy through proliferation of clean energy, climate change adaptation and mitigation technologies; and - Decreased levels of unemployment, poverty and inequality.
Portfolio Summary	
Number of projects	17
Portfolio exposure	R182 million

Figure 5.1: Provincial split for TIA energy-related projects for FY2015/16

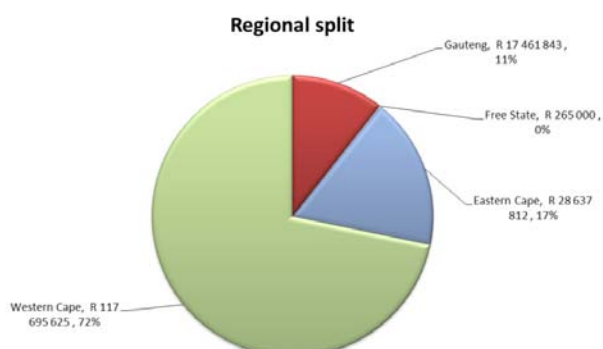
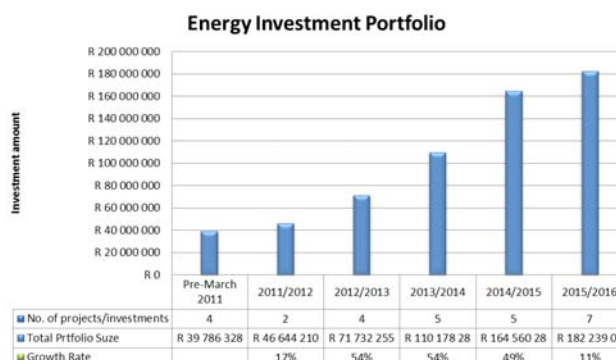


Figure 5.2: TIA investment in energy-related projects for the period pre-March 2011 to FY2015/16



Unit Performance

SO1: To provide technology development funding and support in strategic high-impact areas

The energy landscape is shifting in a dramatic way. The trajectories of fossil fuels, renewables, the power sector and energy efficiency are topical issues in the sector. Central to these issues is the role that technology plays in ensuring that changing energy needs can be met. TIA funded the development of a number of critical technologies designed to contribute to strengthening South Africa's energy supply security.



HySA Catalysis

The project, hosted by the University of Cape Town (UCT), aims to develop and demonstrate a Membrane Electrode Assembly (MEA) for a specific determined catalyst. The ability to use the latest catalysts in hydrogen fuel cells will enable the conversion of diesel to hydrogen in order to power fuel cells. This is done by adopting a consortium development approach and bringing together international leaders in the fuel cell industry to work with South African companies engaged in manufacture, distribution, product integration and maintenance. The project was funded for R9.9 million and aims to ensure maximum involvement of South African companies in all stages of the value chain.

Project progress and alignment to the NDP and IPAP

Through TIA's support, the HySA Catalysis technology has progressed from a semi-integrated system in Technology Readiness Level (TRL) 4 to a verified prototype in TRL5. Collaboration with companies such as Vodacom and Powertech at the planning stages and execution of the project has been crucial to this progression. This assisted in obtaining relevant technical feedback, test certification and pilot demonstration.

While the fuel cells will contribute to strengthening the security of energy supply, demand for platinum group metals will be stimulated in support of the minerals beneficiation strategy. This is in line with the NDP's vision for the energy sector which promotes economic growth and development through adequate investment in energy infrastructure and the provision of quality energy services. HySA will also continue to contribute towards the development of the fuel cell industry in South Africa. This is in line with IPAP's STI Key Action Programme which promotes government-led technological programmes supporting new industrial development.



Health

The Health Strategic Technology Area (STA) unit aims to enhance South Africa's global competitiveness in the health arena and to deliver socio-economic value through technological innovation in healthcare products and services addressing the diagnosis, prevention or treatment of priority disease areas in the country. Priority diseases identified as having the greatest impact on public health and quality of life in South Africa and Sub-Saharan Africa include:

- HIV/AIDS
- Tuberculosis (TB)
- Malaria
- Respiratory diseases
- Cancer
- Non-communicable diseases (such as diabetes and cardiovascular disease).

The strategic goal of the Health STA unit is to stimulate and support the development, registration, manufacture and commercialisation of products and services which address the healthcare needs of the country. The priority investment areas for TIA's Health sector include pharmaceuticals and bio-pharmaceuticals (including vaccines and biologics), medical devices and diagnostics, indigenous knowledge systems and complementary medicine.

Purpose	Operational Objectives
The Health STA unit aims to enhance South Africa's global competitiveness in the health arena and deliver socio-economic value through technological innovation in healthcare products and services addressing the diagnosis, prevention or treatment of priority disease areas within South Africa.	a) Invest in projects that focus on development of affordable and adaptable novel health products that address the high burden of disease in Southern Africa. b) Increase capacity within drug development, including building critical mass for HIV, malaria and TB, as well as non-communicable (lifestyle) diseases. c) Strengthen the current portfolio of medical devices and diagnostic products, develop point of care diagnostics with a focus on TB and exploit South Africa's expertise in cardiac and orthopaedic devices. d) Enhance the contribution of indigenous knowledge and the natural products sector to South Africa's economy and strengthen the current portfolio of products that are based on indigenous knowledge systems and natural products, as well as complementary medicine. e) Develop local vaccine manufacturing capability for pandemic response and to address Africa's disease burden. f) Support local Active Pharmaceutical Ingredient (API) manufacturing efforts.
Portfolio Summary	
Number of projects	8
Portfolio exposure	R26 million

Figure 5.3: FY2015/16 disbursements for TRL5 to TRL8

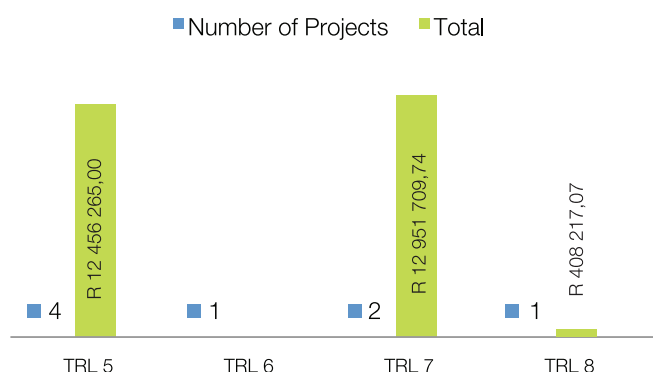


Figure 5.4: On-going future commitments for FY2015/16 to FY2018/19

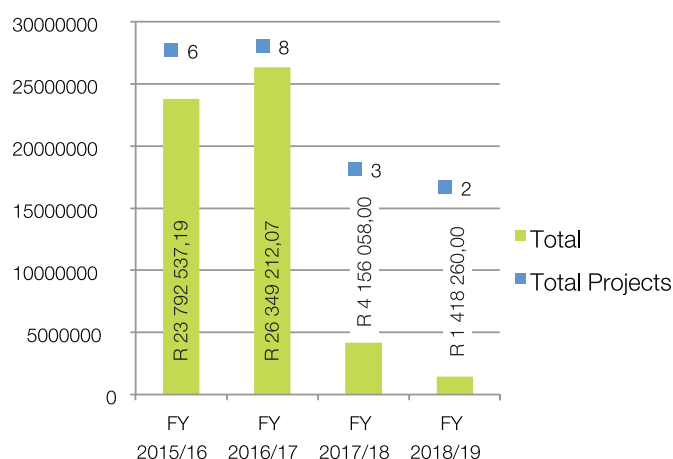


Figure 5.5: Financial commitment for each focus area

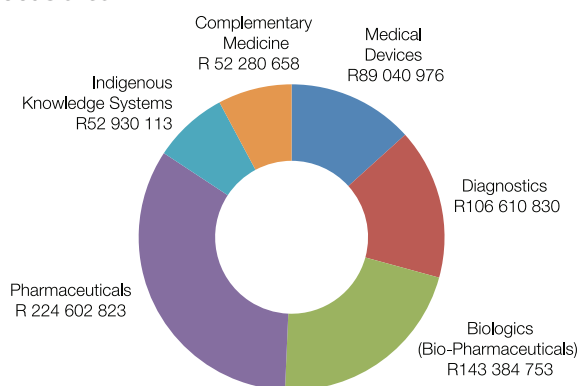
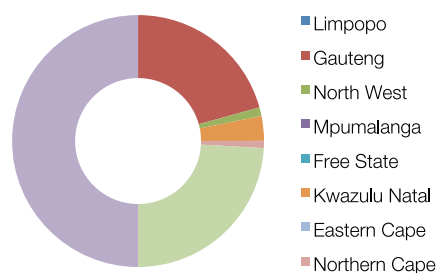


Figure 5.6: Financial commitment for each province



Performance Indicators and Targets

South Africa has the world's greatest burden in terms of the HIV disease with an increasing incidence of TB co-infection. There has also been an increase in obesity with the associated metabolic syndrome and diabetes. The Health STA unit needs to focus on providing funding and non-financial support to projects that address this challenge across the value chain.

SO1: To provide technology development funding and support in strategic high-impact areas

Number of technologies, products, processes and services reaching demonstration



BioDx (Pty) Ltd is a company that focusses on producing green microbicides from natural (biological) resources. BioDx obtained SABS certification for its DecontA products, i.e, SANS 636 (disinfectant based on quaternary ammonium compounds) and SANS 1853 (disinfectants and detergent disinfectants for use in the food industry) certificates. BioDx also submitted a dossier for EU registration which was first presented to the Board for the Authorisation of Plant Protection Products and Biocides (Ctgb) in the Netherlands. The Ctgb is the custodian of the EU regulator in the Netherlands. The product registration was approved to proceed to the next phase which commenced at the meeting of the Work Group in Helsinki and where the identity, physical-chemical and analytical method-related issues were discussed. Following the review and approval of the dossier, BioDx will apply for product registration in Europe.

BioDx also completed field trials at Lethabo Power Station at Eskom. The results were impressive and the product performance surpassed all expectations. Through these achievements, BioDx was able to progress from TRL6 to the end of TRL7.

Number of technologies, products, processes and services taken up in the market

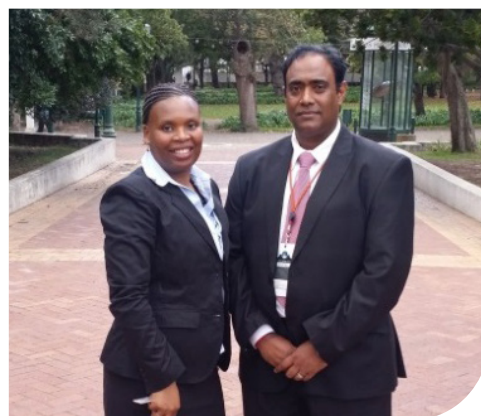
- **BioDx** signed a Joint Development Agreement with SAPPI and a supply and distribution agreement with Canadian based A&L Biologicals Inc. BioDx was provided with further funding of R3.6 million by TIA to support pre-

commercialisation activities. This will enable BioDx to complete TRL8. Preparation for progressing the project to TRL9 is also underway as the Industrial Development Corporation (IDC) approved R40 million in funding for BioDx to scale up the process of manufacturing DecontA and to build a manufacturing plant.

- The University of Cape Town (UCT) signed two agreements with an international biotechnology company to license out their influenza vaccine and human papilloma virus technologies which were developed by the Rybicki group. The company desires confidentiality and will therefore remain unnamed in this report. During the year under review the project has progressed the technologies to TRL5.

Health STA investments received co-funding totaling R 44.7 million

- **SLIEK** received R1.5 million in funding from the CSIR Bio-Manufacturing Industry Development Centre (BIDC) programme to further develop and optimise the production process of lactase enzymes to enable lactose-intolerant individuals to benefit from consuming dairy products. This funding is expected to progress the SLIEK project from TRL4 to TRL6. The second branch of the SLIEK project involves production of lactose-free dairy products, positioning the project at TRL6.



Khanya Vilakhazi, owner of SLIEK, with TIA CEO, Mr Barlow Manilal

- **The NCSA** received R171 000.00 from SEDA to conduct the environmental impact assessment and enable the conversion of the NCSA into a Microalgal Technology Development and Demonstration Centre. SEDA further approved the establishment of an incubator and offered the Microalgal Centre funding of R3 million for the first year. SEDA expects to disburse a total of R9.5 million towards the Centre over the first three years. TIA also approved some R25 million for the establishment of the Microalgal Centre for the first three years. The Microalgal Centre is expected to house projects that are post-TRL4 and progress them to TRL8.



- **Altis Biologics** is a regenerative medicine development company focused on developing and bringing to market new biomaterials and regenerative biological products, with a particular emphasis on orthopaedic and dental tissue regeneration. The project is at TRL7. Altis presented its ideas at the 2015 Africa Finance and Investment Forum in Cape Town and received an award of US\$4 000.00

Amount of funding recovered by TIA through health project repayment obligations or investment exits totalling R 60.4 million

- R2.5 million was received by TIA from the Medicines for Malaria Venture (MMV) to disburse to the University of Cape Town (UCT). The funds will be used for a medical chemistry programme on Anti-Malaria Compounds. TIA is managing this programme on behalf of MMV.
- R57.9 million was received from Kapa Biosystems Inc. for the sale of TIA shares in Kapa Biosystems, a joint venture between TIA and Kapa Biosystems.

Kapa Biosystems is based in Cape Town and focussed on the development and manufacture of molecular enzymes that are used in diagnostics markets and R&D.

- **UCT** paid royalties of R76 000.00 to TIA from the licensing of the influenza and human papilloma vaccine technologies

SO2: To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players

The Health STA unit participated in the following technology innovation initiatives in collaboration with other role players in the National System of Innovation (NSI):

- The Head of the Health STA unit participated in the CANSA Research in Action Conference in Stellenbosch on 16 July 2015. She was a panel member on funding for innovation.
- The Health STA unit Portfolio Manager was a panel member at the SEDA Women and the Environment Dialogue Event in August 2015. The aim of the event was to articulate efforts by the government to improve the lives of women in business.
- The Portfolio Manager of the STA was a member of the Steering Committee for the Biopark at the Innovation Hub. The Biopark aims to provide space and support for Biotech start-up companies.
- The Portfolio Manager also presented at the ZF Mugcau Economic Development Forum and was part of the South African Delegation that attended the BioAsia 2016 Conference.

The Gauteng Accelerator Programme (GAP) Biosciences Business Plan competition was held with the aim of equipping South African scientists with the knowledge, skills and relationships necessary to take their technologies to the market.

Natural Resources

South Africa's economic growth is closely linked to the mining industry. South Africa is one of the world's most important mining countries in terms of the variety and quantity of minerals produced. However, there is acknowledgement that the nation has underinvested in the development of commercially viable mining technologies in the past. In retrospect, this was short-sighted as the country relies on the mining industry's commodities for a significant portion of its GDP and export earnings.

The reason for this underinvestment is also that the real price of mineral commodities declined steadily over the 20th century. The mining industry has generally been a price-taker. Mining companies cut costs as commodity prices continued to fall. This was generally achieved by developing ever-larger open pit mines and using increasingly larger pieces of equipment to mine these deposits but not by developing new technology. Consequently, mining technology did not change in any significant way during that century. Mining was carried out using drills and explosives to break the rock. Shovels and other diggers were used for loading onto trucks which transported the ore to processing plants and the waste to rock dumps. This was the era of high-volume batch mining.

In South Africa, where important deposits including gold and platinum are mined underground, the mining technology also did not change in any fundamental way during the century. These ores are mostly still mined by hand drilling in narrow stopes, blasting and then scraping the often heavily diluted ore into gullies. The ore is then transported through ore passes to haulage levels and from there in rail cars to skips where it is hoisted to the surface. The valuable mineral is extracted from the diluted ore in a processing plant and these methods described here are expensive.

Purpose	Operational Objectives
The strategic focus is on improving the competitiveness of the existing economic sectors by supporting innovation and commercialisation of technologies and processes.	a) Efficient, safe and competitive production. Using advanced technologies to improve process efficiencies from exploration to final product, reduce worker exposure to hazards and maintain a competitive mining sector. b) Environmental and health management. Support the development of technologies which minimise mining activities' impact on the workforce, environment and community.
In the long term, the interventions support the development of new knowledge-intensive economic sectors and firms which specialise in cutting-edge technology.	c) Minerals upgrading and value addition. Support the upgrading and value addition of South Africa's minerals by encouraging local manufacturing and production. d) Lateral migration. Exploit knowledge and capacity in the mining sector to create new high-value economic sectors. e) Innovation culture through skills development. Facilitate the development of innovation skills to support technology innovation and commercialisation.
Portfolio Summary	
Total number of projects	29
Portfolio exposure	R200.2 million



Information & Communications Technology

A useful definition of Information and Communications Technology (ICT) in the context of the sector's objectives is that ICT goods are those that are either intended to fulfill the function of information processing and communication by electronic means, including transmission and display, or which use electronic processing to detect, measure or record physical phenomena or to control physical processes.

The aim of the ICT Strategic Technology Area (STA) Unit is to support South African innovators in applying their skills to create new ICT services and products that present high potential of establishing sustainable social or commercial enterprises.

During the year under reporting, the ICT STA unit has continued to execute on the previous year's approach of focusing on development of technologies that are directly aimed at establishing Internet start-ups. In this regard, new investments were approved in technologies such as mobile applications, artificial intelligence and blockchain.

Purpose	Operational Objectives
To source and support information and communication technology (ICT) projects that offer high potential of contributing to the TIA objective of stimulating and intensifying innovation and to enable improved economic growth as well as the quality of life for all South Africans.	a) Increasing the portfolio of new investments in the area of ICT; b) Contributing to management of technology development and commercialisation of the ICT portfolio investments; and c) Establishing partnerships with other key stakeholders in the National System of Innovation
Portfolio Summary	
Number of active projects	5
Portfolio exposure	R74.7 million

Performance indicators and targets

SO-1 To provide technology development, funding and support in high impact areas

As with the previous year, the ICT STA unit continued with establishing partnerships to facilitate the increase in number of new ICT projects that are funded by TIA.

mLab SA

A partnership was established with the mLab Southern Africa (which has hubs in Pretoria and Cape Town) to support technology innovations that are based on mobile applications. The partnership leverages the ability of the mLab to prepare innovators and their proposals to be ready for TIA to assess and make decisions to fund in accordance with the agency's processes.

Technology Development and Start-ups

Two new technology development projects were approved for funding during the year under review.

Cognitive Systems (Pty) Ltd

The company is developing technology to derive insights from very large amounts of streaming data, where the insight has a limited period within which it is useful. The technology is to be applied in the Internet of Things (IoT) and Business Intelligence (BI) areas. Funding has been approved to the amount of R11.8 million over a period of two years.

Custos Media Technologies (Pty) Ltd

The aim of the company is to develop technology to protect digital media from piracy by using the blockchain technology. Blockchain technology is typically used for cryptocurrency such as the Bitcoin. Custos is determined to diversify the application of the technology. Approved funding for the projects amounted to R5.9 million after receiving support from the Seed Fund Programme and training through the Innovation Skills Development Programme (ISD) as part of the Swiss Collaboration.

SO-2 To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players

- In addition to the technology development projects, the ICT STA unit managed two projects that have concluded the technology development phase and are in the commercialisation phase. These projects are the Adaptive Real-Time Internet Streaming Technology Project (ARTIST) by the CSIR and the Electromechanical Price Labeling (EPL) project by a startup company called Integrated Pricing Technologies (Pty) Ltd.
- The ICT STA unit entered into discussions with the CSIR in order to provide pre-commercialisation funding to facilitate the launch of the startup company called Tuluntulu. The startup company was established to commercialise the ARTIST technology by providing mobile Internet Television services.
- It is envisaged that the EPL project will find new commercialisation partners in the next financial year. The ICT sector unit has been assisting the Integrated Pricing Technologies team to secure commercialisation funding by developing an appropriate business model for the technology as well as exposing the technology to potential commercialisation partners.

Tsonga

Xikongomelo xa Custom Media Technologies (Pty) Ltd i ku hlukukisa thekinoloji ku sirhelela mahungu ya dijitali eka phayiresi hi ku tirhisa thekinoloji ya bulokucheyini. Khamphani yi kota ku endla tiphurojeke ta yona to hambana hi timali leti yi ti kumeke ku suka eka Nkwana wa Masungulo na vuleteri hi ku tirhisa Nongonoko wa Nhluvukiso wa Swikili swa Vutumbuluxi tanihi xiphemu xa Ntirhisana na va Swiss.



Taking Technology Further

Introduction

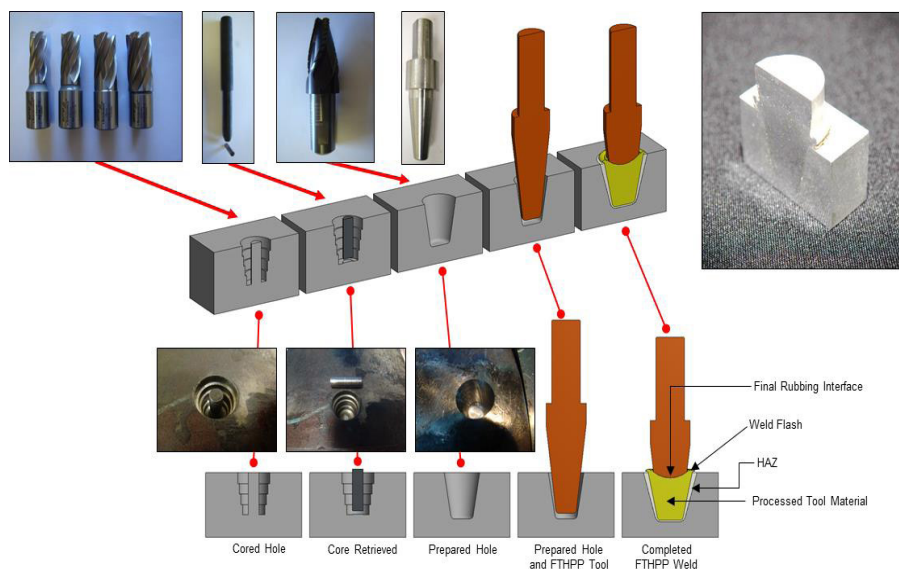
In the year under review, the TIA innovator support portfolio saw a number of successes in the quest to take technology further. A selection of these projects are described below to showcase these exciting innovations.

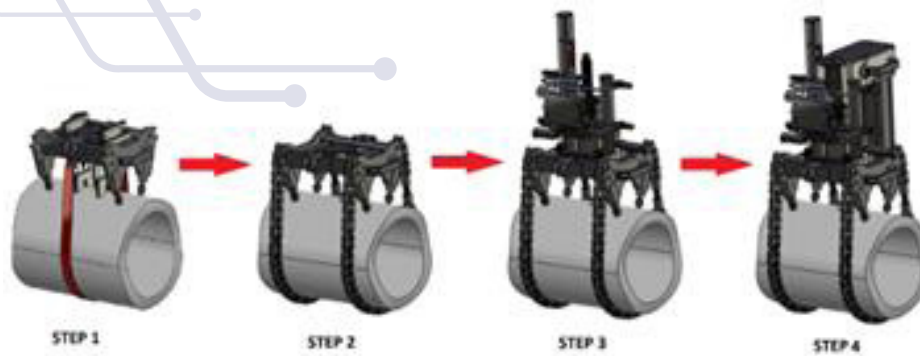


Weldcore

The Weldcore Project involves the development of a novel sampling technique that allows for the removal of a representative core sample in situ from safety-critical structures as well as repairing of the weld site using an innovative welding technique. The technology was launched in November 2015 at a Weldcore demonstration event. An essential requirement for the adoption and use of the technology is the approval from the American Society of Mechanical Engineers (ASME) for the unconditional application of the WeldCore® technology on high-integrity plants and equipment designed in accordance with the ASME Boiler and Pressure Vessel Code.

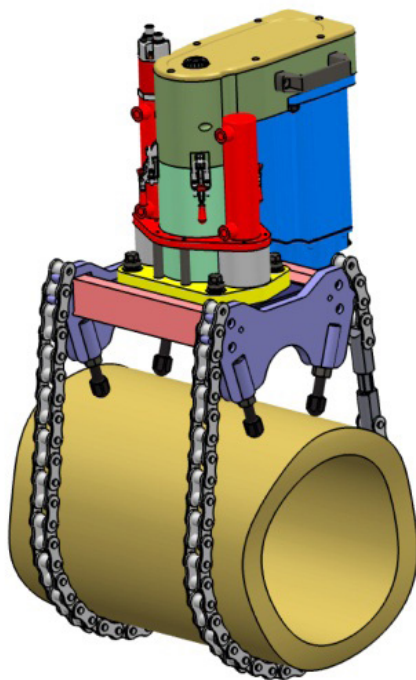
The initial testing and use of the technology by Eskom, a major partner in the early development of the project, has realised enormous savings as part of preventative maintenance programmes. The project received an investment of approximately R30 million including TIA funds and this has facilitated over R1 billion in deferred expenditure.





In addition, a spin-off company, Mantacor (Pty) Ltd, was created in partnership with the Nelson Mandela Metropolitan University (NMMU) to take the Weldcore® products and processes to the market. NMMU has provided start-up funding to the amount of R1 million to get the company operational.

Sector	Advanced Manufacturing
Project location	Port Elizabeth, Eastern Cape
Investment opportunity	R11.3 million



A word from the investee

eNtsa has developed and patented a new sampling and repair process known as WeldCore®. The WeldCore® process, developed in conjunction with TIA and Eskom: Innovation and Sustainability division, is seen by the power generation industry worldwide as the future solution to in situ material sampling and reparation of high-pressure steam lines. The process involves the removal of a representative cylindrical metallurgical sample from the side wall and the repair of the removal site in the steam line using Friction Taper Stud Welding (FTSW), a new solid-state welding technique. The main benefit of the WeldCore® process is the reduction in the risk of unexpected catastrophic failure and plant down time which could lead to substantial cost savings.

All of this was made possible through the efficient partnership between the Innovation Unit within the University, our industry partner Eskom and the government-supported entity TIA as well as the committed individuals involved –

Prof Dannie Hattingh, eNtsa Director, NMMU.

Project progression and alignment with NDP and IPAP

The Weldcore project has progressed from proof of concept to full demonstration through collaboration and the investment of R32 million from Eskom, the Technology and Human Resources for Industry Programme (THRIP) (dti) and TIA over a 12-year period. The collaboration and funding has supported the contract research and commercialisation strategy lead by eNtsa, NMMU's Engineering Technology Station.

The National Development Plan (NDP) notes that development in Science, Technology and Innovation (STI) is key to equitable growth, economic advances and improvement in health systems, education and infrastructure. Weldcore technology will be used to improve the maintenance of the electrical infrastructure of Eskom and other State Owned Entities (SOEs) such as Sasol and Transnet. The technology is also well aligned with the outcomes articulated in the Advanced Manufacturing chapter of the IPAP.



Photo from left: Ettienne Philips (NMMU), Jaci Barnett (NMMU), Prof Andrew Leitch (NMMU), Andrew Etzinger (ESKOM), Barlow Manilal (TIA), Dr Phil Mjwara (DST)

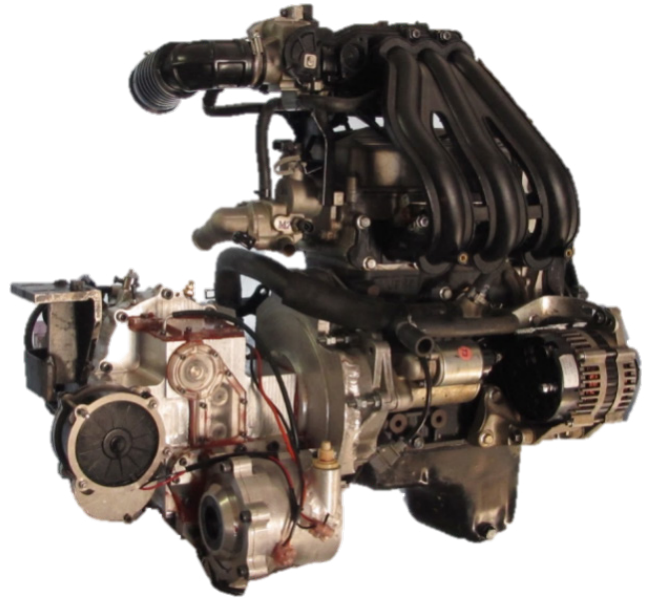
Varibox CVT Technologies

The environmental aspects of road transport legislation calls for automotive manufacturers (OEMs) to introduce new products with increased energy efficiency and fewer emissions. The Varibox CVT responds to this need. The TIA funding has been used to advance the development of Varibox's continuously variable transmission (CVT) gearbox technology known as RotorCVT. Varibox CVT has developed a production ready prototype in order to prove the RotorCVT benefits and use the prototype as a marketing tool in concluding international license agreements with automotive manufacturers.

The RotorCVT benefits include reduced fuel consumption by between 10% and 30%, reduced emissions by 10% to 30%, improved transmission, reduced transmission weight and reduced transmission costs.

With the financial assistance from TIA, the development team has successfully completed the development of the RotorCVT (mechanical and electronic) on the demonstration vehicle (Chevy spark retrofitted with Varibox RotorCVT) and has performed tests with positive results. TIA funding enabled Varibox to secure second-round funding of R3.75 million (15% equity) for the commercialisation phase of the project. Varibox was also able to conclude an exclusive licencing agreement with a US-based patent commercialisation company for the marketing of the RotorCVT (and iCVT) technologies internationally.

The IDC has provided further funding to the project during its commercialisation phase amounting to some R6.25 million, increasing its share hold in Varibox to 25%.

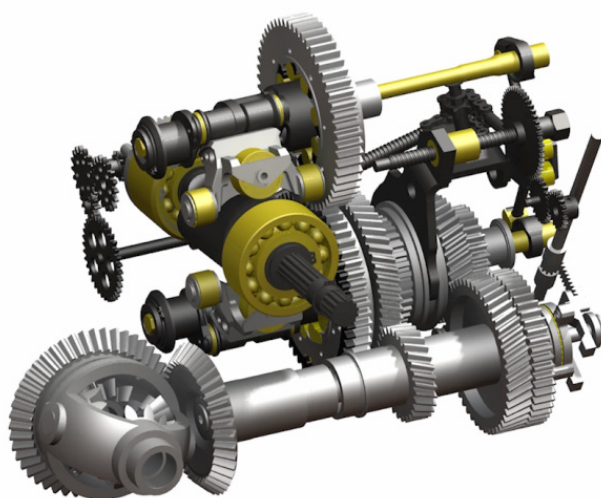


Sector	Advanced Manufacturing
Project location	Johannesburg, Gauteng
Investment opportunity	R7.6 million

Project progression and alignment to the NDP and IPAP

The Varibox Technology is well aligned with the outcomes articulated in the Advanced Manufacturing chapter of the IPAP and particularly in terms of the special considerations given to the South African automotive sector.

The project has also progressed from initial prototype to full demonstration with the TIA funding. TIA initiated discussions with the IDC for the funding of the commercialisation phase and Varibox received R10 million as a result.



A word from the investee

Although TIA was experiencing internal difficulties at the time, the TIA funding provided Varibox with the means to procure and test a demonstrator vehicle for the RotorCVT transmission technology towards the end of investigating and proving the suitability of the technology in the small passenger vehicle market. The TIA funding also enabled the filing of patents in 13 international countries

– Dr Jan Naude, Inventor, Varibox MD.

Helio100

The Helio100 project is hosted by the University of Stellenbosch and has almost reached its commercialisation phase. The aim of the Concentrated Solar Power (CSP) project is to develop a low-cost heliostat with high optical accuracy. A heliostat is a slightly curved mirror which tracks the sun during the day and focusses the sun's radiation on the receiver on top of a tower, thereby converting optical energy to thermal energy. The project seeks to develop heliostats with high local content, on component development and manufacturing. To ascertain the feasibility and readiness of the local industry, relevant local industry players were involved from inception and supplied the components and data. To date, the project has maintained a local component supply of more than 90% and manufacturing and installation is done by local semi-skilled labour.

TIA has invested some R15.4 million into the project with the DST contributing R2 million to assist with the testing and validation activities. This was demonstrated to a potential customer (based in Israel) who has shown interest in the heliostat technology. The result was the signing of a Memorandum of Agreement between Helio100 and AORA and discussions are underway between the two parties with the aim of establishing a business relationship in which Helio100 will supply heliostats to AORA.



Project progression and alignment to NDP and IPAP

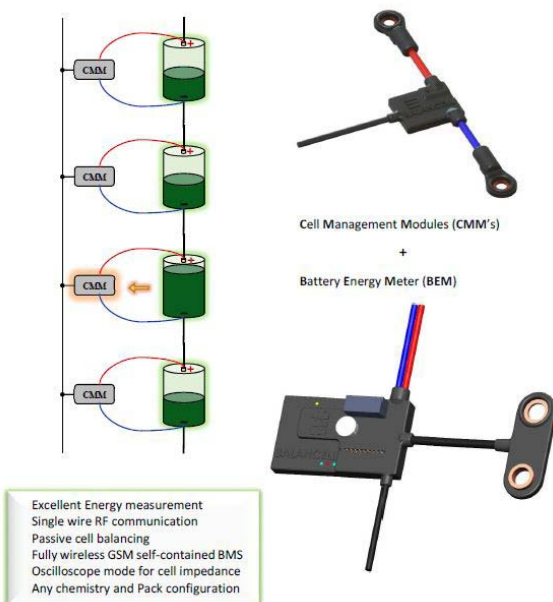
Though TIA's and DST's support, the Helio100 project has progressed from TRL5 (FY2014/15) to TRL7 (FY2015/16), almost reaching the commercialisation phase. Apart from the TIA support, the success of the project is due to the approach of involving the local suppliers for component supply, data and demonstration.

The Helio100 technology will contribute towards the Renewable Energy Independent Power Producer Programme (REIPPP) which is in line with the NDP objectives of diversifying power sources and ownership in the electricity sector. The development of the Helio100 project is also in line with IPAP's STI Key Action Programme which promotes government-led technological programmes supporting new industrial development.



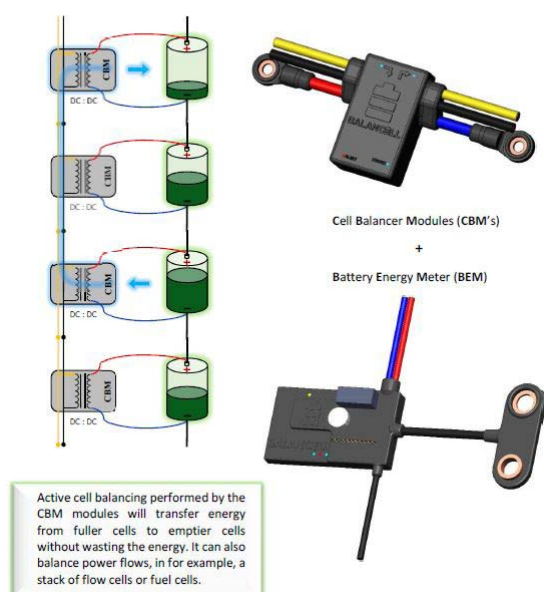
Energy Pro

Battery Energy Measurement and Management system with Passive Cell Balancing



Energy Pro-Active

Battery Energy Measurement and Management system with Active Cell Balancing



Balancell

Balancell's battery management systems (BMS) provide insight into the stored energy of a battery pack and improve the reliability and efficiency of the stored energy, empowering its clients to get the most out of their battery pack over the full life of the asset. Balancell's Energy Pro and Energy Pro-Active are modular systems designed for any battery pack chemistry and configuration with cell types from 0.6V to 6.0V. With Balancell's precise energy metering, active cell balancer and monitoring system, the Energy Pro-Active achieves greater flexibility, improved storage efficiency, longer life span and better utilisation from any battery pack. TIA funded the project for an amount of R11 million.

Progression and alignment to NDP and IPAP

During the year under review the Balancell Energy Pro was able to progress to TRL7 from TRL6 in the previous financial year. Due to the efforts and commitment of the management team, Balancell's Energy Pro technology is now being sold in the market.

In light of the current challenges around energy efficiency in the country, energy management solutions form an important part of the NDP as they address the question of energy efficiency. Balancell technologies store energy and improve the life of battery packs, thereby reducing reliance on the national electricity grid. Balancell's technology development is also in line with one of the IPAP's Key Action Programmes for Innovation and Technology which is concerned with enhancing the participation of innovative enterprises and high-technology SMEs, thus, fulfilling its role as essential component of the national industrial ecosystem.



BioDx at the Innovation Bridge Conference

BioDx (Pty) Ltd

BioDx develops and brings to the market new environmentally sustainable biocide products for cosmetic and industrial application. Through TIA funding, BioDx was able to develop the DecontX product from biological resources, as well as its derivative DecontA. These innovative green biocides have shown efficacy in reducing the microbial load in industrial processes and products and performed significantly better than commercially available chemical biocides.



This achievement has been significant since local and global trends are driving an increasing demand for natural products which are deemed to be safer and environmentally sustainable. BioDx products generated a lot of interest from potential customers when BioDx exhibited at the Chemical Imbizo in Durban on 22 July 2015.



BioDx has also undergone a rigorous application process for the registration of its product in the European Community. BioDx has progressed through several rounds of presentation and review and its application is now at the final stage of the approval process. It is anticipated that BioDx will be allocated its own Chemical Substance (CAS) number as a new compound.

BioDx received approval for funding from the IDC to scale up its DecontA manufacturing process, as well as to construct a manufacturing plant for commercial production of DecontA. This will allow BioDx to meet the growing global demand for its products and contribute to the expansion of the manufacturing base in South Africa. This will also diversify the South African economy by contributing to the establishment of the Bio-economy.



Zircon Mineral Beneficiation

South Africa is the second largest global producer of Zircon and Zirconium Oxide minerals (called heavy minerals) mined from Sand Dunes. However, very little beneficiation is done for this mineral and this project embraces a multi-stream beneficiation process aimed nearly entirely at the export market.

Zargun launched a programme to establish an aerodynamic based method to separate the isotopes of desirable materials at commercially lucrative production costs. The Zircon component is also cleaned to a mono-isotopic material for nuclear energy application. Zircon does not have volatile chemical compounds that are industry unfriendly at room temperature and the ASP process, accordingly, functions at an elevated temperature of 360°C.

In the photographs below the special high-temperature facility test benches used to demonstrate the isotope separation are shown. The capability of ASP to function at this temperature is a distinct and an outstanding feature in isotope separation technology.



A word from the investee

"The company Zargun is the business vehicle for the Zirconium engineering demonstration unit and is funded by TIA" – **Hendrik Strydom, Zargun CEO.**

"The success of this demonstration and project adds a factor 50 times in the aggregate compared to the export of the Zircon sand as is currently the case" – **Einar Ronander, Zargun Director.**

Sector	Mining and Minerals
Project Location	Gauteng (Johannesburg)
Investment Opportunity	R19.6 million
	
Zirconium Test Bench 1	Zirconium Test Bench 2





6

**Innovation
Enabling and
Support**



Innovation Enabling and Support

Introduction

The primary objective of the Innovation Enabling and Support (IE&S) Division is to provide thought leadership and an enabling environment for technology innovation in collaboration with other role players. This objective is achieved through:

- Enabling and stimulating a culture of innovation through implementing initiatives with our partner organisations and networks;
- Facilitating access to key, infrastructure and expertise for technology innovation;
- Lowering the barriers for others to participate in technology innovation; and
- Strengthening and enhancing business and innovation skills.

Key outcomes of the unit include:

- An increase in the number knowledge innovation products developed and that progress along the technology readiness levels towards commercialisation.
 - An increase in investments in TIA funded/ supported projects which as a result of TIA funding led to de-risking of investments thus making them attractive to more risk averse investors.
 - Increased sustainability of technology focused SMEs as a result of technology and business support.
 - Increased participation of PDI owned SMEs and like the above, their sustainability thereof.
 - An integrated technology innovation system.
- 



Seed Fund Programme (SFP)

Overview

A common challenge experienced by innovators and entrepreneurs is access to early stage funding and support services that enable them to establish proof-of-concept for their research outputs. Early stage funding and support also allows innovators and entrepreneurs to demonstrate their intended product and services innovation and its underlying technological and commercial value proposition. They may need funding to test their technological assumptions, develop prototype iterations, trial and validate market need assumptions, trial aspects of the technology's scalability and use this knowledge and experience to build an investment case for funders, commercial partners and other innovators who could contribute to the next phase of development and commercialisation.

TIA established the Seed Fund Programme (SFP) to address this need in the National System of Innovation (NSI). The SFP model and frameworks were established through engagement with partners to find the most effective means of achieving the programme's goals. The SFP falls under the TIA Innovation Enabling and Support Division since its role is to stimulate and catalyse solutions to the challenges faced by entrepreneurs, researchers and innovators in the NSI in order to foster an agile and accessible funding model.

The SFP is not positioned to fund basic research activity. Rather, it is a targeted means of addressing some key questions innovators may have in exploring and exploiting their opportunities. These key questions include:

- Is the idea or concept technically feasible and will it be financially feasible to execute or exploit it?

- Does the proposed technology address a real market opportunity or need and what is the solution's potential value for this market?
- What is the real value proposition for the concept?
- How can the technical and business-related assumptions for the innovation be validated?

Applications are selected by implementation partners as key projects in their own portfolios that meet the Seed Fund mandate and criteria. Implementation partners also play a secretariat role to Seed Fund Investment Committees at their Institutions; which TIA personnel participate on. The devolved decision model allows for the Investment Committee to have the delegated authority to select, manage and guide the Institution's portfolio of funded projects. Investment Committees can have partner representation and external experts in the commercialisation and technology development fields are encouraged to bring their insight and know-how.

The SFP has two sub-programme models, both implemented in partnership with institutions that augment the management and impact of the programme.

Higher Education SFP

The first is the Higher Education Institution (HEI) SFP which is implemented in partnership with Technology Transfer Offices and Research Offices based at various universities and science councils. This model allows them to forward their applications to TIA for review before funds are transferred to the Universities who provide project management oversight.

SME

The second Seed Fund that is implemented in partnership with incubators and the regional development agencies; where non-university innovators, entrepreneurs and SMMEs submit qualifying projects to those locally-based partners for funding and non-financial support as needed by the applicant.

The fundable activities include a combination of technical and commercial validation activities:

- Initial product, process (comprehensive technology package) and prototype development
- Refining and implementing designs
- Production of market samples and/or associated testing to gauge the targeted market acceptance
- Conducting field studies to test the assumptions made about the technology, market and/ or customer need
- Support of certification activities and specification sheet development
- Piloting, and technology scale-up
- Techno-economic evaluation studies
- Detailed primary market research
- Business plan development
- Sourcing of intellectual property opinions

Unit Purpose	Operational Objectives
To address the need of innovators and SMEs to access risk-adjusted grant funding in quick turnaround times that will enable them to achieve their objectives; one of which could include applying for follow-on-funding. The SFP addresses a second challenge in the South African environment: the pipeline of commercially viable, well-informed and enabled projects and applicants. This challenge is shared among public and private funders, incubators and similar TIA and other programmes focussing on supporting entrepreneurs and innovators.	• To assist HEI, Science Councils and SMEs to advance their research outputs and ideas to develop prototypes, proof of concept and business cases that could be used for further development. • To de-risks research outputs by enabling the entrepreneur, researcher and SME to inform their own opportunities that will bring them closer to securing follow on funding from TIA and/ or other funders.
Portfolio Summary	
Total number of applications funded in FY2015/16	HEI Seed Fund Programme: 101 SMME Seed Fund Programme: 7
Investment exposure applications funded in FY2015/16	HEI Seed Fund Programme: R44.9 million SME Seed Fund Programme: R2.5 million

Note: an additional disbursement to SMME Seed Fund partners was made to the value of R 23 million, which is expected to be invested into new applications during the FY 2016/2017.

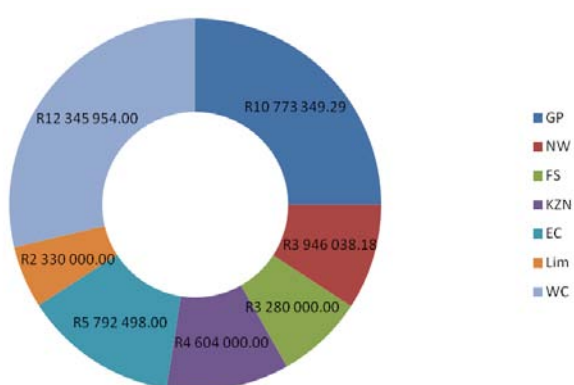


Figure 6.1: Provincial spread of funding for the HEI Seed Fund in 2015/16

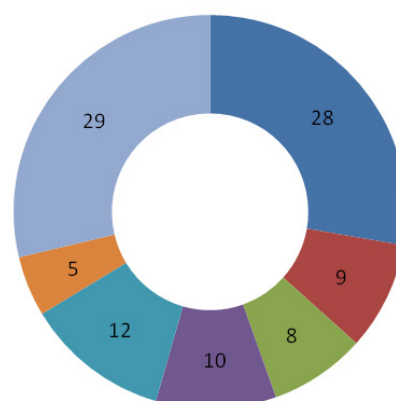


Figure 6.2: Number of applications funded by HEI Seed Fund in 2015/16 for each province

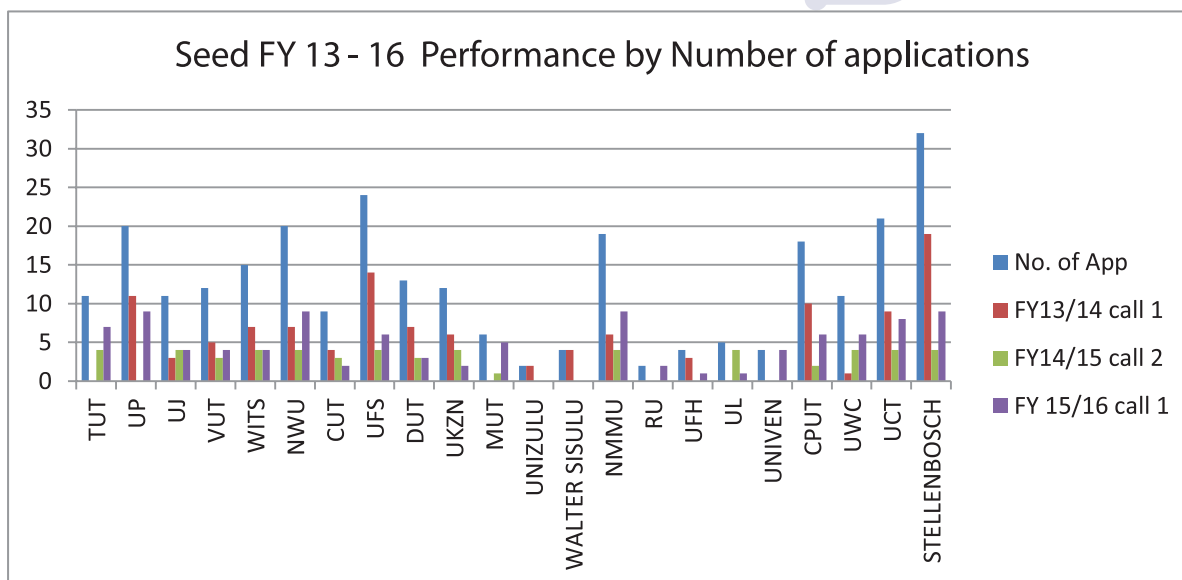
Portfolio performance

In FY2015/2016 the newly formed Seed Fund unit managed to issue 2 calls for proposals that saw an additional 101 projects funded in their HEI Seed Fund Programme. Furthermore, the Unit conducted an expression of interest call among the SME Seed Fund partners to indicate their intention to conduct additional calls for applications in FY2016/17; which resulted in five of the seven partners being funded according to their proposed submissions.

Total number of applications, funding amounts and status of university applications

University	Total number of applications	FY (total) funding	On track	Delayed	Terminated	Completed
TUT	11	R4 859 990.00	10	1	0	0
UP	20	R9 028 000.00	20	0	0	0
UJ	11	R4 552 000.00	7	1	0	3
VUT	12	R5 673 000.00	6	2	0	4
WITS	15	R5 774 454.92	8	2	2	3
NWU	20	R8 371 903.18	10	4	0	6
CUT	9	R3 216 000.00	4	0	0	5
UFS	24	R10 007 459.00	13	11	0	0
DUT	13	R4 828 000.00	4	7	2	0
UKZN	12	R5 233 237.00	8	4	0	0
MUT	6	R2 906 000.00	6	0	0	0
UNIZULU	2	R845 000.00	0	2	0	0
WSU	4	R1 380 000.00	2	2	1	0
NMMU	19	R8 543 098.00	16	0	1	2
RU	2	R1 000 000.00	2	0	0	0
UFH	4	R1 881 000.00	2	1	1	0
UL	5	R2 240 000.00	2	1	1	1
UNIVEN	4	R1 880 000.00	4	0	0	0
CPUT	18	R7 062 695.00	10	5	1	2
UWC	11	R5 006 400.00	5	2	1	3
UCT	21	R10 176 523.00	12	4	0	5
US	32	R10 988 068.75	14	1	5	12
TOTAL	275	R115 452 828.85	165	50	15	46
		Percentage spread	60%	18%	5%	17%

Seed Fund Performance - A Three Year View



A three-year view of shows a number of trends in the evolution of the SFP.

- Firstly that the Fund has been growing in uptake since it was first launched in the FY2013/14.
- FY 2015/16 saw the highest number of applications received.
- The decrease in the FY 2014/15 is explained by the impact that the organisational restructuring process had on the Fund.
- In FY2013/14 only 17 Universities participated in the Seed Fund. However, this number has increased to 20 Universities by the FY2015/16, showing increasing uptake by four additional Universities.
- Lastly, six of the Universities that have utilized the Fund have not passed the threshold of five (5) applications. These are Universities of Zululand, Walter Sisulu, Rhodes, Fort Hare, University of Limpopo and the University of Venda.

Afrikaans

'n Algemene uitdaging wat innoveerders en entrepreneurs in die gesig staar is die toeganklikheid van befondsing en ondersteuning om n konsep van hul navorsingsuitsette te ontwikkel en sodoende, onder andere, die kommersiële potensiaal van hul beplande produk en/of diens ten toon te stel. Die befondsing is ook in baie gevalle nodig vir die ontwikkeling of wysiging van n prototipe en verskeie ander apekte om dit aan potensiële beleggers en/of ander rolspelers te kan voorlê wat weer kan help met die verbetering of selfs kommersialisering van die produk/ diens. TIA het die Seed Fund gestig om die probleem aan te spreek.

Taking Technology Innovation Further

Seed Fund Programme

Naked-eye Detectable Nanoparticle-based Rapid Diagnostic Assay for Tuberculosis (*M. tuberculosis*) North-West University

This project has made good progress for initial proof of concept for a study aimed to develop diagnostic assay for early detection of tuberculosis in sputum samples at ultra-low concentrations of the bacteria. This is done by using naked-eye detectable rapid tuberculosis and routine laboratory equipment such as UV-Vis spectrometer (illustrated in the figure below). The success of this project will negate the need for labour intensive techniques such as PCR and mass spectrometer or the need for highly skilled instrumental operators. The mechanism used for detection will be based on simple colour change

(red, blue or red) in a gold-nanoparticle solution upon direct interaction with a biological sample, based on a novel TB metabolite biomarker

The progress made, includes successful production of the protein (by the German counter-part) to be used in the assay and tests to determine activity of the protein towards the *M. tuberculosis* metabolite mycothiol (MSM). Activity tests showed that the enzymatic assay can detect about 30ng/mL (~1mg of cells) of pure MSH within 30 minutes without incorporating any nanoparticle technology.



Tuberculosis under the microscope

Moringa

Principle applicant	Professor Luke Chimuka
Applicant's seed funding partner institution	University of the Witwatersrand, Johannesburg
Seed funding applied for	R200 000.00
Seed funding used	R200 000.00

Project Background

Moringa grows in South Africa and is well known for its nutritional and health benefits. The Wits team developed a novel method of producing an extract from Moringa leaf powder via pressurised hot water extraction (PHWE); where solvent extraction methods were used before. The extract, which is more cost effective and environmentally friendly, can be used as an additive in food, beverages, cosmetic products and as dietary supplements. The project therefore aimed to develop the extraction method and test moringa-based products; which included a Moringa vitamin water product and a Moringa yoghurt product.



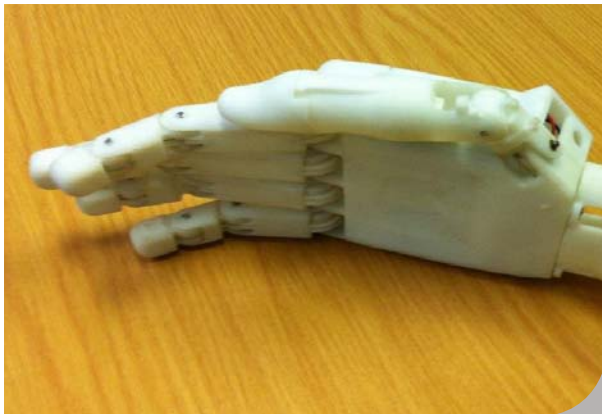
Moringa vitamin water and Moringa yoghurt packaging prototypes

Addressing a need	The technology addressed the issues associated with conventional extraction techniques which used unwanted solvents and are potentially hazardous to human health. The Wits technology produces an extract using a much safer and environmentally friendly method.
Project outcomes	Primary market studies showed positive results for both products and the market size and growth appeared to be attractive. The positive results of the Seed Fund project inspired the Wits team to enter the GAP BioScience competition, under the banner "Extra Green". The team won the competition and secured some R480 000 in follow-on funding to support commercialisation efforts. The project also assisted in articulating the likely market perceptions of the benefits of Moringa and that of the extraction technology. The extraction method is efficient and delivers Moringa plant extracts that are high in target compound concentration, whilst being low in residual solvents and other harmful chemicals.
Social impact	The project, originally funded by the Department of Science and Technology (DST) was aimed at collaboration between Wits (on the research front) and the Phedisanang Community (as the farmers of Moringa). Through the increase in the supply of raw Moringa by the community jobs were created and new products were developed.

Advanced Prosthetics

Principle applicant	Drew van der Riet
Applicant's seed funding partner institution	University of KwaZulu-Natal
Seed funding applied for	R500 000.00

Project Background



Prosthetic arm prototype, the Touch Hand 2



The Touch Hand 2 during testing

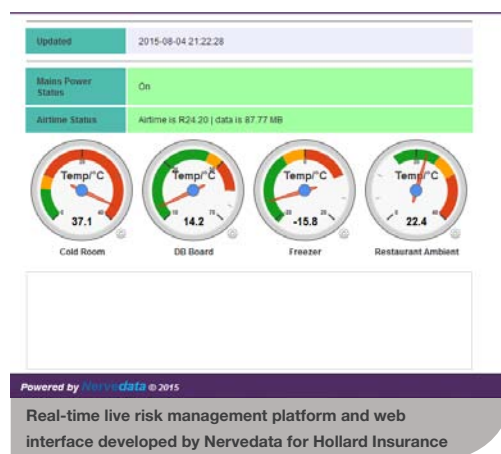
Addressing a need	The project addressed the need for the development of low-cost, yet advanced prosthetic hands for amputees in South Africa, as well as the world. Prosthetic hands are currently extremely expensive – around R1 million per hand. Medical Aids typically don't cover this expense and amputees therefore have to raise their own funds, making these hands inaccessible to the vast majority of amputees.
Project output	The project is still underway; the team aims to have a well-developed prototype upon completion of the project.
Project outcomes	The project has attracted interest and partnerships are being developed with prosthetics practitioners and amputees in South Africa. Market testing and certification of the final product is the next step for the project

Nervedata

Principle applicant	Hein Koen
Applicant's seed funding partner institution	Cape Craft and Design Institute, part of the SME Regional Seed Fund programme
Seed funding applied for	R300 000.00
Seed funding used	100% of the funding has been used. CCDI has extended additional soft loan funding.
Project progression	TRL 3 to 7

Nervedata is a technology-focussed startup company founded by Hein Koen (General Manager), Allan Carson (Technology Developer) and Ian Hurrell (Software Developer). The company was established to take advantage of the founders' experience and know-how; and capitalise on their understanding of the IoT trend that is taking off. Nervedata is a business-to-business services company because the sales conversion cycle is generally shorter than a customer-to-businesses model and the opportunity exists for a varied revenue model off the provision of services and sales; thereby enabling non-technology enabled businesses.

Nervedata was at a pre-revenue stage before being awarded a TIA grant through the Design Innovation Seed Fund; a sub-programme of TIA partners, the Cape Craft Design Institute as part of the SMME Seed Fund Programme.



Addressing a need

The project assisted a prominent insurance company with the management of their risk portfolio through the deployment of sensors, real time monitoring devices and a real-time database management of their clients' assets.

The insurer's first need was with the fire risks that well known franchised restaurants claimed for when grills, fryers and burners were left on overnight or would malfunction. The fires would be exacerbated by the combustion of fat in overhead chimney flues, which would melt and cause a fire to spread. The problem is seemingly simple but the damage claims to property and equipment are significant; where claims ranged from R 2 to 3 million in general.

The second problem in the kitchen area which the insurer experienced a need for monitoring was in the refrigeration of perishable goods; where either due to power outages, mechanical failure or client negligence claims would be logged for the spoilt contents. The impact of this problem is also significant since the entire content of refrigerators often needs to be replaced if a sustained temperature failure occurs and the replacement cost of the stock can often be really high.

Project output	The developed platform has different modules that measure, track and record different things relevant to the business. Sensor, telemetry devices, firmware development, server was configuration; database storage and a web front end dashboard were all outputs of the project.
Project outcomes	Nervedata has since been contracted by the insurer to be its exclusive Internet of Things developer. The partnership will enable Nervedata to trial additional innovative technology solutions in their partner's commercial insurance business. The insurer, who had not had similar devices or services in their portfolio, is budgeting for these costs as part of their research and development budget; for which they are eligible for a tax concession. It is important to note that the Nervedata would still need to pay for their own development and acquisition costs. This was strategically decided, since Nervedata would have full freedom to operate in the further development and commercialisation of their IP. Once the trials have been proven to be successful, the chances are increased that the commercialisation model would include the sales and maintenance of deployed equipment; and payment for the on-going monitoring and evaluation of the devices and risks being recorded. The timeline to secure these contracts is estimated to be a few months still, but the founder is hopeful that these contracts will be converted. As an outcome of the funded project, Nervedata have positioned themselves as an IoT platform development company and can demonstrate their abilities to multiple sectors that they can provide an IoT development and installation service across the value chain. Thus far they are engaging with a National gas supply and distribution business with the tracking of their assets, a telecommunications company in Nigeria and an energy metering and efficiency audit consultancy. The next commercialisation activities that Nervedata are following up on are: • The Insurer contract is regarded as a sales multiplier by the entrepreneurs and will be treated as a long term commercialisation partner. They have expressed that they would need access to working capital to assist in converting some of the projects and the Seed fund Unit has introduced them to contacts in the IDC who may be able to assist. • Being an IoT service provider to Econet Wireless in Zimbabwe, Kenya and Ghana. The solutions that they are planning to develop for Econet are: RFID tracking product, a basic home alarm product, and a generator monitoring solution. • A possible partnership with Deloitte Digital to be the hardware services product development provider for their clients. • Price Waterhouse Coopers (PWC) and Accenture are possible clients for the same reasons as Deloitte. • Johnson Cranes have 250 cranes in their fleet nationwide, each with a value of is EU3m. Nervedata may develop a positioning and work rate tracking tool/ assets while they are doing work on wind farms etc. • Engaging with Lafarge Cement in Nigeria to demonstrate that they can track their assets as well.



GSM Alarm Integration



Mutton Media Router



GPS Unit



Duel-temp Device



Remote CCTV Prototype



Remote CCTV Prototype



5-Temp Devices

Device prototypes and firmware development examples

Technology Innovation Programmes (TIPs)

The Technology Innovation Programme (TIPs) Business Unit is established to consolidate the gains from previous efforts.

South Africa is a country rich with research capabilities that can purposefully be deployed to solve some of our major societal, economic and competitiveness challenges. Key to this is maintaining a clear focus on delivering on our national priorities, as articulated in the NDP, the Industrial Policy Action Plan (IPAP) and a host of other government initiatives that seek to improve the quality of lives. The challenge is to foster greater coordination of R&D efforts and linking these to our industrial capabilities for developing viable technology solutions that effectively meet our needs.

TIA has thus established the TIPs Business Unit as a mechanism to drive coordinated multi-party R&D initiatives. The TIPs is a collaborative project that aims to leverage the strengths of partners to drive a technology solution. TIA specifically plays a funding, connector and facilitation role and is therefore the catalyst for establishing and managing the various TIPs. The TIPs' purpose is to facilitate greater collaboration within the existing ecosystem by leveraging the strengths of respective partnering groups. The main objective of TIPs is to address national priorities or areas of strategic social and economic importance through the utilisation of technology innovation.

Additional key objectives of the TIPs include:

- Accelerating the commercialisation of technologies and facilitating their transfer to industry;
- Facilitating the creation and expansion of local manufacturing/production capacity;
- Improving the competitiveness of local technology-based industries;
- Enhancing collaboration and networking among private sector industry, SMEs and academia to leverage local excellence and expertise;
- Offering incubation services in order to encourage and stimulate interest to commercialise developed intellectual property; and
- Leveraging funds including international funding.

Prior to the establishment of the current TIPs Business Unit, three technology innovation programmes were established by the previous sector Business Units. The new TIPs are:

- Animal Health (formerly known as the Tshwane Animal Health Cluster) established in 2013,
- uYilo e-Mobility established in 2013;
- Beef Genomics Programme established in 2014/15 Financial Year; and
- Dairy Genomics Programme recently approved in the 2015/2016 Financial Year.

The Unit's core MTEF allocation for 2015/16 was R21 million. This funding was allocated towards financing core operations for the existing TIPs and for establishing new TIPs. The key data on the Unit's investments for 2015/16 are summarised in the bar graphs as follows.

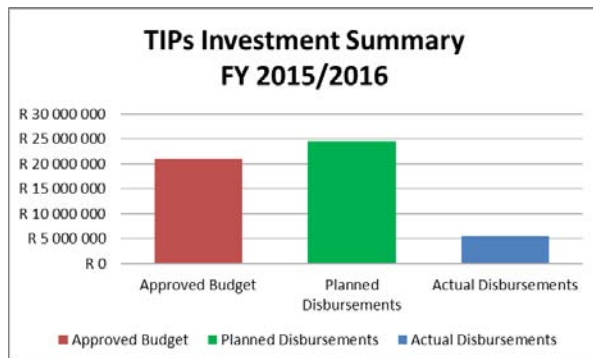


Figure 6.4 TIPs investment summary for FY2015/16

The Animal Health (AH) Programme

The AH TIP is a consortium of mainly institutional partners in the animal health research and development space that seeks to develop improved new vaccines, pharmaceuticals and diagnostics for the animal health industry, thus supporting the implementation of South Africa's Bioeconomy Strategy. Key partners in the TIP are Onderstepoort Biological Products, ARC Onderstepoort Veterinary Institute, CSIR and the Universities of Pretoria and Cape Town.

Since its establishment in 2013, the AH Programme has invested a total of R117.6 million in 28 animal health-related R&D projects. TIA approved an additional R26.8 million in the 2013/14 and 2014/15 financial years to support three projects, i.e., the UCT BTV and AHS projects, ARC Heartwater project and UP Automated 3D traps.

In March 2016, TIA convened the first Animal Health Technology Innovation Programme Conference as a platform for information sharing. This enabled all the members to present their respective projects, highlighting progress, sharing experiences and challenges. The conference was in line with one of the main objectives of the TIP, which is to provide a platform for collaboration and R&D of new animal health-related products and services. The event was thus held with the intention of discovering opportunities for collaboration.

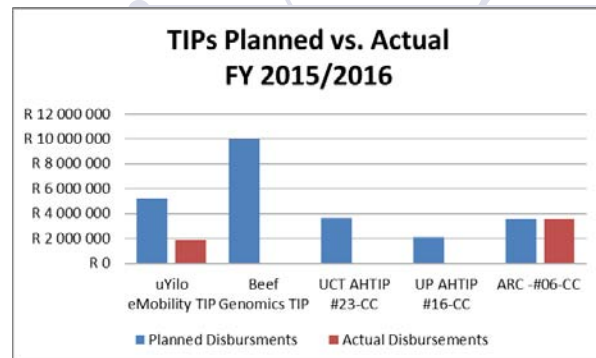


Figure 6.5: Planned and actual disbursements made for TIPs during FY2015/16

uYilo e-Mobility

uYilo e-Mobility was established in March 2013 to drive the development of advanced Electrical Vehicle (EV) and EV-related energy technologies in South Africa. The Programme focuses on three areas, all related to electric vehicles, i.e., energy storage, data management and infrastructure. Key partners within this initiative include the Nelson Mandela Metropolitan University (NMMU), eNtsa and various automotive original equipment manufacturing companies (commonly referred to as OEMs) through an industry committee and the Electric Vehicle Infrastructure Alliance (EVIA).

TIA has invested R28.4 million in the five years since the establishment of the Programme and continues to make great strides with its partners to drive the development of the EV market in South Africa. uYilo is therefore a good example of government efforts to foster a coordinated approach to stimulating the EV market and promoting the local industry. With support from key Government Departments, such as Transport, Trade and Industry and



The table below shows some of the TIPs milestones achieved during the period under review.

TIPs milestones achieved during the FY2015/16

Timeline	Milestone
June 2015	Funding of three technology development projects through the Kick Start Fund.
Sept 2015	The establishment of an accredited and commercial Battery Testing Laboratory (BTL).
Oct 2015	Exhibition of the uYilo programme at the Eco-Mobility Festival in Sandton, Gauteng.
Nov 2015	Hosting of the E-Mobility workshop whereby uYilo received exposure to national and international speakers, government representatives, industry and academia.
Dec 2015	The construction of a network charging facility.
Dec 2015	Commissioning of Live Testing Environment (LTE) solar arrays.
Dec 2015	Procurement of the Digatron lithium-ion cell tester.
Feb 2016	Launching of the e-bike fleet sharing platform.

The Department of Trade and Industry (dti) is calling for greater local production in the EV value chain and, with the proposed purchase of 3 000 to 5 000 EVs per year by Government from 2015, this signals Government's deliberate intentions to take steps towards greater e-mobility in the country. This will enable South Africa to make initial investments without taking significant risks, to assess impacts and technology options and allow flexibility to adapt to changing market conditions and technologies. This model is supported by TIA which acknowledges the need for innovation to happen on the ground.

The Department of Environmental Affairs (DEA, 2011) includes EVs in flagship programmes aiming to "encourage new energy efficient-vehicle technologies, such as electric vehicles, by setting procurement objectives for acquiring such vehicles." The result is a "living lab" approach which will allow the country to keep abreast of developments and to be ready to move in the direction of greater e-mobility, but not to invest too heavily in this area while there is significant market risk and uncertainty.

Venda

Vha TIA vho thoma Khethekanyo ya Mbekanyamushumo ya Vhurangeli ha zwa Thekholodzhi (TIP) sa ndila ya u tshimbidza pulane dza R&D dzi konanywaho dza madzangano manzhi. TIP ndi mbekanyamushumo ya mutanganelwa ine tshipikwa tshayo ha vha u khwathisa vhukoni ha vhashumisani kha u tutuwedza thandululo ya zwa thekholodzhi. Zwavhudivhudi vhudifhinduleli ha vha TIA ndi u lambadza nga masheleni, u tanganya na u tshimbidza zwo ralo, ndi vhatshimbidzi vhane vha thoma na u langa Mbekanyamushumo dza Vhurangeli ha zwa Thekholodzhi.

Youth Technology Innovation Programme (YTIP)

“Our Youth, Our Future”

Young people across the world continue to serve as a source of inspiration and hope for the future of many successful nations. South Africa is no exception. With Government implementing focussed and targeted programmes to support the youth, our Youth Technology Innovation Programme (YTIP) targets those that develop innovative solutions, and connects them with the much requisite technology and enterprise development support to drive them to success.

TIA's YTIP programme is a voucher-based funding instrument that targets youth between the ages of 18 and 35. The Programme aims to increase the understanding, meaning and value of technology innovation, thereby stimulating a culture of innovation amongst young South Africans. It also drives awareness initiatives to attract proposals from people in various communities.

This Programme continues to demonstrate its relevance and impact to young people, increasing the amount of spend from R2.2 million in FY2014/15 to R4 million for the FY2015/16. This amount was largely provided for young innovators to access technical services from the Technology Stations located at various universities in the country. The outputs were tangible, with eleven prototypes completed, fourteen youth-owned companies assisted with enterprise development support. Significantly, one of the long-standing beneficiaries of TIA's support, Milion Baby that developed the TodPod and continued to secure Venture Capital Funding has successfully filed a South African Patent Cooperation Treaty patent.

Figure 6.6: Provincial distribution of YTIP supported projects during FY2015/16

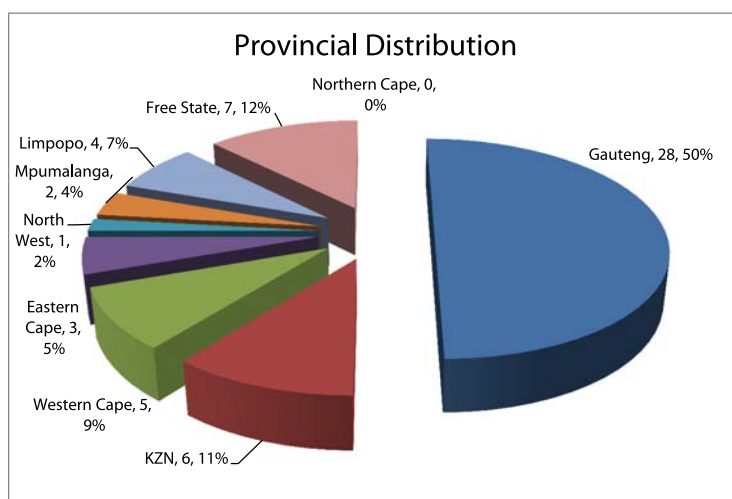
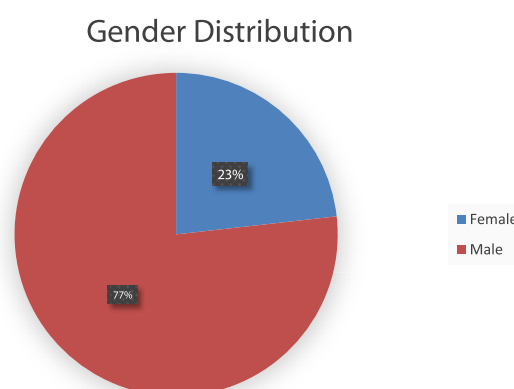


Figure 6.7: Gender distribution of individuals supported by the YTIP during FY2015/16



Taking Technology Innovation Further

Youth Technology Innovation Programme

The Harvesting Scissor (Omniharvester)

The Omniharvester is lightweight, durable and user friendly harvesting Scissor that allows pickers to reach fruit higher up the tree without elevating themselves.

It also has a lever at the bottom that uses a rope to force the blades together so they can cut the fruit stalk. The scissor blades have a spring in the middle that forces them apart after they cut the fruit stalk. The tool also has a net that is attached to it like a basketball net that extends to the bottom for collection. The Omniharvester is designed to make citrus fruit picking easier, quicker and more conveniently.

This project was funded to the tune of R 0.4 million and utilised for:

- Prototype Development at the Vaal University of Technology (VUT) Technology Station in Material Processing Technologies (TSMPT);
- Business coaching to assist the young techno-entrepreneur with the business acumen require to establish an enterprise with the product;

- Intellectual Property, to date, YTIP has assisted the recipient with a priority art search and provisional patent registration;
- A quarterly stipend R15 000 to assist the youth to register a business and have the funds to cover activities that are required early enterprise development. This included, but not limited to business registration and business account registration.

The project has been well received by the South African media being viewed as an innovative solution aimed at addressing socio-economic challenges. The project was profiled by ITWeb news and by the Mpumalanga news and has seen the recipient, Themba Sehauw win the first runner up prize of R350000 from the 2016 Total Startupper Competition.

Zulu

Abantu abasha emhlabeni jikelele bazoqhubeka nokuba yithemba nogqozi lwezizwe eziningi eziphumelelayo kanti neNingizimu Afrika nayo iyingxenyeyalezo zizwe. Uhlelo i-Youth Technology Innovation Programme lwakwa-TIA wuhlelo olusebenzisa amavawusha oluqondene nabantu abasha abaneminyaka yobudala ephakathi kwalena: 18-35. Lolu hlelo kuhloswe ngalo ukukhulisa ukuqonda, umuzwa kanye nobugugu kwezokusungulwa kobuchwepheshe, kanti ngalokho kuyobe sekuvukuzwa isiko lokuzisungulela izinto kubantu abasha baseNingizimu Afrika



Minister Naledi Pandor examines the Omniharvester at an exhibition during National Science Week

Solar Photovoltaic Blinds

The project aims to minimise the cost associated with the construction and maintenance of large scale solar powered projects and make solar power plants simpler, more convenient and affordable and allow a wide spread of solar power systems across the cities. The solar PV blind and the installation parts will only need to be bought assembled and mounted on an already existing window. It will generate enough electricity to lighting a house as well as power some appliances depending on the size and number of windows.

The applicant will use already existing conventional fabric window blind mechanisms to develop these innovative solar blinds using flexible solar panels. This technology addresses many draw backs associated with the conventional method of solar power generation. It eliminates the problem of space requirement for solar installation as well as heavy machinery and associated cost of solar facility installations. This concept was conceived by a young technology entrepreneur from Bloemfontein, Paseka Litabe, a student at Tshwane University of Technology.

The YTIP has assisted the recipient to build a functional prototype at the Vaal University of Technology Station in Material Processing Technologies (TSMPT); and with business coaching. Mr Litabe won the first prize for the most innovative green technology at the second Green Youth Indaba



A word from the Innovator

“South Africa has in the past years seen increasing demands for electrical power to which the state power utility was unable to meet the demands. This necessitated the need for innovative concept that can explore ways on exploiting renewable energy effectively and affordably. This project aims at doing so and moreover, doing it in a convenient manner.”
Paseka Litabe

Global Cleantech Innovation Programme (GCIP)



South Africa



The 10 GCIP-SA finalists with Minister Naledi Pandor and Mr Mohamed Eisa (UNIDO) and Mr Barlow Manilal

The Global Cleantech Innovation Programme for SMEs in South Africa (GCIP-SA) is part of a global initiative aimed at promoting clean technology innovation by identifying and supporting SMEs and start-ups with innovative technology solutions that can help solve the energy, environmental and economic challenges facing the planet.

The GCIP-SA combines a competition and a business accelerator programme where SMEs and start-ups are continuously trained, mentored and assessed on their business models, investor pitches, communication and financial skills for the development of a more marketable and investor-attractive product and business.

The focus is on entrepreneurs with innovative clean technology solutions, i.e. “technologies, products and services which generate superior commercial benefits to customers while addressing significant environmental concerns such as global warming, sustainability of natural resources and energy security” (Eco-Connect). The GCIP-SA specifically covers the areas of energy efficiency, renewable energy, water efficiency, and waste beneficiation.

The Programme is implemented by the United Nations Industrial Development Organisation (UNIDO) with funding by the Global Environment Facility (GEF). TIA is the executing partner and hosting institution for the GCIP in South Africa, while the US-based Cleantech Open serves as the main knowledge partner of the global programme. The GCIP was initially piloted in South Africa and is now implemented in five other countries namely Armenia, India, Malaysia, Pakistan and Turkey.

The Programme's outputs are clear and focused, namely:

- Increasing the number of SMEs that pursue innovations in clean technologies;
- Successfully providing programme support to alumni after project completion;
- Increasing the number of SMEs that participate as members of the national platform; and
- The tons of GHG emissions directly and indirectly avoided through the application of the supported Cleantech innovations.

GCIP Programme is centrally positioned to contribute directly to priority Outcome 10 of the national government, the National Development Plan and also supports South Africa's international commitments to the outcome of the COP 21. In line with the NDP Vision 2030, the GCIP-SA actively promotes the development and marketing of niche products and services, in order to create jobs through the domestic manufacture of innovative renewable energy technologies. By fostering innovative clean technology solutions and enterprises, the Programme contributes to South Africa's international commitments to reduce its carbon emissions.

In particular, the GCIP-SA reflects the NDP's call for higher levels of education, skills, and innovation capacity required for the transition to a low carbon economy and meeting the greenhouse gas emission targets; as well as developing new technologies through its intensive training and mentorship programme for participating innovators and entrepreneurs (including women and the youth).

...and the IPAP remains a key focal point.

The GCIP-SA contributes to realising the objectives of IPAP as well. It addresses GHG mitigation opportunities in industry by unearthing technological innovation that reduces emissions from industrial processes and the combustion of fuels in order to provide heat or mechanical work and from the consumption of electricity. Similarly, through its training programme, it works with small and fledgling businesses to incorporate an understanding and application of sustainable and resource efficient practices in the day-to-day operations of such businesses.

Programme Highlights

Over the call for applications period, 120 applicant registrations were logged, compared to the 68 that were received in 2014. 60 Applications were fully completed and submitted, up from 45 in the previous year. The call for applications sought to unearth ground-breaking or adapted existing technologies in the Cleantech arena. The call was open to SMEs and start-ups who could demonstrate a feasible concept with the potential for commercialisation.

Twenty-eight semi-finalists advanced to the next phase of the programme: 14% in the energy efficiency category, 54% in renewable energy, 25% in waste beneficiation and 7% in water efficiency.



GCIP-SA winner Mr Dave Lello and runners-up Messrs with Minister Naledi Pandor, Mr Mohamed Eisa (UNIDO) and Mr Barlow Manilal (TIA)

The GCIP-SA programme was fantastic. I am a serial entrepreneur and this is my fifth start-up. I wish I had these tools in the past. For a first time start-up, the Business Model Canvas and other aids will not only help you define your product but also validate the market and how to get to it! The content and process is worth more than any prize at the end!

– 2015 GCIP-SA winner Dave Lello from Khaya Power (now ekasi.energy).

A National Academy for South African semi-finalists was held in June 2015 at the CSIR International Convention Centre, with Mr Paul deGive, Curriculum Chair of Cleantech Open USA, as facilitator. The National Academy served as the kick-off event for the accelerator programme and introduced the semi-finalists to the GCIP-SA approach and methodology. The workshop was held in partnership with Sustainability Week and allowed for the semi-finalists to meet each other and the project team, whilst gaining an insight into the programme ahead.

Following the National Academy, the semi-finalist teams were matched with and assigned to generalist and expert mentors to guide them in the application of the business model development methodology, in preparation for their final pitches to an expert judging panel who would select the finalists and winners. Over a period of three months, the teams also participated in a series of international webinars facilitated by the Cleantech Open and consisting of in-depth discussions on the methodology, jointly with semi-finalists from the other GCIP countries.

As a new concept in the South African programme, Business Clinics were successfully trialled in Durban at the National Cleaner Production Centre of South Africa's Industrial Energy Efficiency Conference in July 2015, as a parallel session of the conference proceedings. The Business Clinics brought the semi-finalist teams from the various regions together again for the first time since the National Academy and provided a unique opportunity for them to engage one-on-one with topic specialists in Financing, Intellectual Property and Marketing in order to tackle specific challenges in their fledgling businesses.

In partnership with the GCIP-SA, the 8th South Africa Innovation Summit held in Cape Town in August 2015 hosted 22 GCIP-SA semi-finalists as part of a group of 43 entrepreneurs who presented their technology innovations to a panel of judges. Three GCIP-SA teams

won awards at the event: the Rocket Works walked away with the first place award valued at R100 000; the second place went to the zingBug Project, with a prize value of R70 000; and the third place valued at R50 000 was awarded to Solazela. The prizes were sponsored by the Climate Innovation Centre in the green technology category.

The National Gala event held on 15 October 2015 was attended by dignitaries such as Mrs Naledi Pandor, Minister of Science and Technology; Dr Mohamed Eisa, Director of the UNIDO Regional Office in South Africa; and TIA Chief Executive Officer Mr Barlow Manilal. Cleantech Open was represented by Vice-President of Global Programs Mr Kevin Braithwaite from the USA. The event was attended by approximately 200 guests from private and public companies, government departments, associations, institutions, universities, investors, GCIP-SA partners and the general public.

Khaya Power (now known as ekasi.energy) was announced as the 2015 winner, with Carbotect and Green Tower as runners-up. Three special prizes were also awarded - for Best Woman-Led Business, Best Youth-Led Business and Innovation for Social Impact; and four additional awards were sponsored by programme partners Spoor & Fisher and 1Effect.com.

The three top performers participated in 2015 Cleantech Open Global Forum held in San Francisco on 16 - 19 November 2015 where they joined the network of investors, potential partners and winners from other participating GCIP countries and the Cleantech Open team.





Best woman-led business winner Ms Santa Scheepers with Minister Naledi Pandor, Director of UNIDO's SA Regional Office Mr Mohamed Eisa, and TIA CEO Mr Barlow Manilal

The Global Forum also covered various business opportunities and informative and inspiring activities, such as:

- A tour by GCIP winners and country coordinators to various locations in Silicon Valley and visits to companies such as PARC Museum, Alta Motors, Tesla Factory and Silver Springs Networks;
- The opportunity for GCIP winners to perfect their technology demonstrations under guidance of mentors, in preparation for the global judging process;
- Presentations by GCIP winners, Cleantech Open Global Ideas and USA finalists during the judging for major prizes in various awards categories at the GSV Labs;
- Participation by Cleantech Entrepreneurs in an Investor Breakfast at the GSV Labs where they could network with each other and connect with business leaders and potential investors;
- The opportunity for Cleantech Entrepreneurs to showcase their technology innovations;
- An Investor Connect session for the participating Cleantech Entrepreneurs to engage with potential investors on a one-on-one basis at the GSV Labs; and

- An Entrepreneur Reception event for the entrepreneurs to network and to interact with potential investors, business leaders, alumni and other entrepreneurs at the GSV Labs.

The Global Forum 10-year celebration included an exhibition, technology demonstration, awards presentations and a Gala Dinner at the Herbst Theatre in San Francisco. The activities were helpful and insightful to the entrepreneurs, with the winners expressing appreciation to the Programme for the opportunities presented and the lessons learned.

Khaya Power (now ekasi.energy) won the first place in the Global Cleantech Open competition. The company developed a micro-gasifier stove with an electrically driven fan, which is smoke-free and burns biomass efficiently. The innovation targets households in developing countries that have inadequate, unreliable or no access to grid-supplied power.



An Innovative Solution for the “Last Mile” Transport Challenge

The zingCo electric vehicle project won the GCIP-SA award for the best woman-led project in 2015 for the conversion of old VW Beetles into electric vehicles or zingBugs. The project has since been expanded to include the development of a two-wheeled motor scooter, the zingBike, and aims to address the challenge of “last-mile” transport, namely the fact that many residences and businesses are situated further than an easy walking distance from a transit point.

By addressing the last mile the project will help capitalize on investments in public transport while also making a significant contribution in terms of carbon footprint savings. The zingBug could save an estimated 525 tonnes of CO₂ per annum per 1 000 vehicles travelling 5.2 million km's, measured over a period of 260 working days, while the zingBike will save 788 t CO₂ per 10 000 bikes travelling 26 million km's over the same period.



Innovation for Social Impact winner, Sizwe Mnamatha with Minister Naledi Pandor, TIA CEO Mr Barlow Manilal, and Director of UNIDO's SA Regional Office Mr Mohamed Eisa

A prototype of the zingBug has been completed and a research and development partnership has been established with the North West University. Legal processes are currently underway to certify the vehicles for sales in South Africa. The zingBike has been tested extensively in Alexandra over a period of six months. Funding are currently being pursued to initiate a much larger scale commercial pilot in a major metro area.

Both products will ultimately be assembled in South Africa, thus creating jobs through distribution channels and labour-intensive local assembly. By opening up traditionally underserved segments the zingBug and zingBike could improve the mobility of millions in South Africa and the rest of Africa.

According to zingCo owner Santa Scheepers, the GCIP-SA training was invaluable in helping her to move from employee to entrepreneur. “We are now in a much stronger position to apply for funding. The business gained some credentials but we also derive confidence from knowing we have indeed covered all bases.”

One Person's Waste is Another's Fertiliser

Zuka-Yethu, winner of the GCIP-SA's 2015 award for social impact, is an innovative black-owned start-up that turns food waste into an income-generating commodity. The company produces an affordable alternative to liquid organic fertilizer from recycled vegetable and fruit waste using the ancient concept of vermi-composting.

Waste collected from communities is fed to red wiggler worms, kept in worm factories. The worms eat the waste as it decomposes, and their urine, called leachate, is harvested. The product – a powerful fertiliser and pesticide - is then sold to farmers.

According to Zuka's founder and CEO, Sizwe Mnamatha, the product is intended to address socio-economic challenges like unemployment, food insecurity and waste management. Partnerships have already been established with the municipality of Grahamstown and the Department of Agriculture to employ people to collect waste and produce and package the product, while discussions are also underway with a number of other institutions.

Mnamatha aims to upscale the project from the current small group of waste pickers in Grahamstown to involve more communities, thus enabling them to provide for their families by selling the fertiliser and using it in their own food gardens.

The road to building this innovative waste management company has been challenging, but Mnamatha explains how the GCIP-SA has helped him along the way: "The GCIP-SA energised me to think differently, embrace and identify "hidden" value in resources that we as communities already possess that hold solutions to the challenges faced by humanity, while also helping to create a sustainable environment for all nature to thrive."



2015 GCIP-SA and Cleantech Open global winner Mr Dave Lello in discussion with a potential investor at the Investor Connect event in Silicon Valley, USA.



Best woman-led business winner Santa Scheepers' zingBug and zingBikes and which aim to address the challenge of "last-mile" transport.

Innovation Skills Development (ISD)

“Growing Capabilities – Entrepreneurial Skills for Leaders of Tomorrow”

Through our interaction with clients, we understand the challenges they face at key growth transitions, and this has enabled us to identify critical areas where they require support – from starting up to achieving scale. Our Innovation Skills Development Programme (ISD) has developed a number of flagship programmes, delivered through effective local and international partnerships. All these aim to equip our client company leaders, managers and teams with the tools, knowledge and ambition to target and cross these stages of growth. The ISD Programme saw phenomenal growth in interest and uptake and has made great impact on the NDP outcomes and government's transformation imperatives.

Chuma Commercialisation Programme

This Programme aims to strengthen the entrepreneurial capacity of scientists and engineers to commercialise the outputs of their research. The Programme is delivered through a mentored commercialisation practitioner approach that incorporates formal experiential learning; placement at various platforms including the Technology Transfer Offices; Intellectual Property law firms and Venture Capital companies. It emphasises formal training and dedicated mentoring support for each candidate. The programme is tailored to fast track their development in a 2 year timeframe in order to build capacity for new technology commercialisation within the NSI.

In 2015/16 Financial Year, a total of ten (10) Masters Candidates were selected and placed as commercialisation interns at the various partner institutions. The candidates have successfully completed induction training in Commercialisation offered by University of Oxford's ISIS Enterprise Commercialisation Specialists and have been put through training programmes by NIPMO and SARIMA.

Table 1 – Geographic and Gender Distribution

	Gauteng and the Free State	Western Cape	KwaZulu-Natal	Eastern Cape	Total
Females	2	3	1		6
Males	1	1		2	4
Total	3	4	1	2	10

The Internship Programme

The Internship Programme aims to create awareness of career opportunities in Science Technology and Innovation and to develop skills around new, emerging and future technologies to stimulate economic growth and job creation. Interns are placed in companies and R&D projects. The objectives of this Programme are three-fold:

- To provide workplace experience to learners and graduates allowing them practical exposure to their academic training, thus enhancing employability;

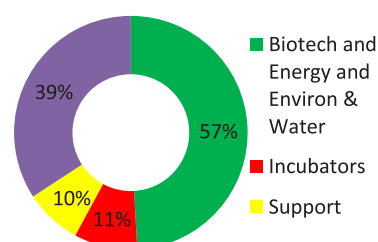
- To provide them with critical thinking skills level 3 training to create innovation awareness and stimulate creativity and innovation; and
- - To provide basic life, work readiness and business skills supported by mentorship.

This Programme saw a total of 136 interns (compared to 41 in 2014/15) placed for capacity building opportunities within TIA platforms, the incubators, Technology Transfer Offices (TTO) and broader industry. Of these 22 were placed through the National Research Foundation Internship Programme and 114 interns through the Internship Programme in partnership with the EWSETA. The interns worked mostly on projects varying from smart grid and energy efficiency, fibre optics technologies, bioprocessing, intellectual property, IT and Knowledge Management.

Gender and Regional Distribution												
Qualification Level	Gauteng		KwaZulu-Natal		Western Cape		Eastern Cape		Total		Total	%
	F	M	F	M	F	M	F	M	F	M		
National Higher Certificate	4	11	0	0	0	0	0	0	4	11	15	12%
National Diploma	19	20	11	9	2	3	3	1	35	33	68	60%
Degree	5	4	4	5	0	0	3	0	12	9	21	19%
Postgraduate	5	2	2	0	0	0	1	0	8	2	10	9%
NRF intern	9	5	7	1							22	
Total	42	2	24	15	2	3	7	1	75	61	136	100%

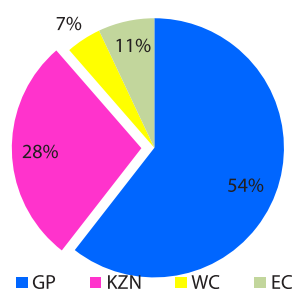
Distribution by Project Focus		
Sector	Number	Percentage
Biotech and Energy; Environment and Water	56	49%
Incubators	10	9%
Support	9	8%
IT/KM	39	34%
Total	114	100%

Figure 6.8: Sectors involved in the Internship Programme



Regional Distribution				
	Total	Male	Female	Percentage
Gauteng	61	31	30	54%
KwaZulu-Natal	32	17	15	28%
Western and Eastern Cape	18	9	4	18%
Total	114	57	49	100%

Figure 6.9: Regional distribution for the Internship Programme



Internships

The Energy, Environmental, Water and Sanitation sectors hosted 56 interns placed in partnership with companies such as Mintek, SANEDI, Skypower, Coega, Municipalities, NECSA and Uyilo. The ICT sector hosted 39 interns in companies such as Vumatel, Netvybez, IBM, Fibreco, Mcorp etc, and the incubators hosted 10 interns in both ICT and Engineering Start-up support (CHEMIN and Smart Exchange) and nine (9) interns were placed in support functions in the energy, tech start-up funding support companies.

In addition to experiential placement with the host companies, TIA took the interns through the self-discovery training which covers the self-awareness, creativity stimulation and high order thinking skills (HOT) as well as the Idea to product training culminating into creative idea challenge sessions. The training and innovation challenge sessions were done in four regions successfully covering.

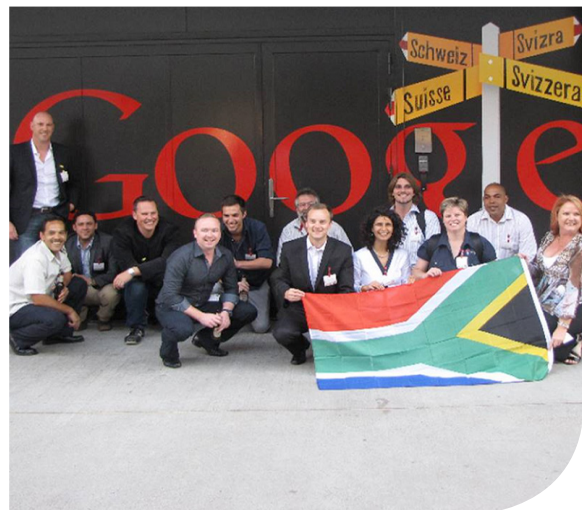


Swiss South African Technology Entrepreneur Programme

The Swiss South African Technology Entrepreneur Programme was first launched in 2010 and has trained more than 1 000 potential technology entrepreneurs since its inception. It represents a typical science and technology cooperation between Switzerland and South Africa that fosters links academia with industry.

The programme aims to address entrepreneurship challenges inherent to the field of science, engineering and technology; expose a greater number of post graduate students to entrepreneurship and business principles to increase the likelihood of commercialisation of patents and establishment of new biotechnology ventures and; offers a platform for skills exchange between Swiss and South African actors in technology-entrepreneurship and give young tech entrepreneurs the opportunity to assess and compare their own strengths and strategies in the field of tech-entrepreneurship and strengthens the links and the cooperation between the South African and Swiss academic communities.

The programme runs through three phases. Phase I being a basic course on Entrepreneurship and Business Skills. This is followed by Phase II, the Advanced Technology Entrepreneurship Certificate Course, and Phase III, the Swiss South African VentureLeader workshop hosted in Switzerland. The top 10 entrepreneurs emerging from these progress stages are selected for Phase III during which they are afforded the opportunity to advance their business skills and exposure in Switzerland.





During 2014 and 2015 the entrepreneurs of the Swiss South Africa Business Development Programme participated in the annual Swiss Google Pitchfest where they achieved significant milestones in their growth trajectory:

- In 2014, Swiss SA VentureLeaders took 3 out of 5 finalists spots and winner at the Google Pitchfest in Zurich. Rapid Response, one of the participants, went on to partner with ER24 (SA's biggest emergency response company) and linked to the MediClinic hospitals. The organisation then signed contracts with Huawei and TomTom.
- At the 2015 Zurich Google Pitchfest 13 South African entrepreneurs competed against Swiss start-ups from the Swiss VentureLeaders programme. The SA VentureLeaders won 5 of the 6 finalists' spots and the honours of the winning pitch.
- In 2015 two of the start-ups, Quainted and Custos, had international venture capital investments from Italy and USA respectively. Khepri BioSciences also received the SAB Foundation Social Innovation Award.
- Two of the previous years' start-ups received investment from the Industrial Development Corporation of more than R40 million each.

Advanced Critical Thinking Skills	Total	Black	White	Male	Female
Phase I: Basic Entrepreneur	201	125	76	123	74
Phase II: Advanced Tech Entrepreneur	30	13	17	20	10
Phase III: VentureLeader	13	5	8	9	4

Gauteng Accelerator Programme (GAP)

The GAP Biosciences programme is a joint initiative with the Innovation Hub and in collaboration with Emory University's Goizueta Business School in Atlanta, Georgia, USA. The Programme significantly contributes to economic growth in Gauteng, in terms of job creation, supporting local innovative/biotechnology industries with skills transfer and business development through the business basics workshop and executive training programmes.

- 47 Individuals attended the business basics workshop;
- 14 Teams entered into the business plan competition;
- 8 Semi-finalist teams were selected;
- 32 Individuals attended the executive training programme; and
- 3 Teams, Extra Green from University of the Witwatersrand; K-squared cosmetics an entrepreneur from Krugersdorp; and HANK test from North West University were awarded the seed fund and accepted into the Maxum incubation programme at the BioPark@Gauteng.

	Total	Black	White	Male	Female
Basic Entrepreneur	47	41	6	22	25
Exec Education	32	23	9	15	17



UK Newton Fund Leaders in Innovation Fellowship Programme

TIA, under the DST-led South Africa Newton Fund Programme has partnered with the Royal Academy of Engineering in the UK to implement the Leaders in Innovation Fellowship Programme. Out of a stiff competition of 50 applications from the higher education institutions and SMEs, 16 innovators benefitted from a 2 week workshop in the UK, with access to expert mentors, and opportunities for international partnering and networking. The programme has transformed significantly in equity and gender, where 56% of the beneficiaries were Black and 56% were women.

Equity	Female	Male	Total
Black	6	3	9
White	3	4	7
Total	9	7	16
	56%	44%	100%



Foresight Leadership Innovation Program (FLIP)

TIA has teamed up with the Global Institute for Leadership Development and faculty from Stanford University and the American University to deliver a course designed to build the innovation capability of South Africans within Government, Academia, Industry and communities. A total of 177 candidates were trained by the faculty from the Centre for Foresight and Innovation at Stanford University - a strategic think tank highly respected for its expertise in strategic planning, innovation management, and foresight engineering in Gauteng, Cape Town and KwaZulu-Natal, respectively. These workshops saw the development of two multiparty agreements, i.e. the Integrated Rural Community Colleges Programme, SkillsBook and the E-waste beneficiation agreement.

	Gauteng		Western Cape		KwaZulu-Natal		Total
Gender	Female	Male	Female	Male	Female	Male	
Black	22	19	6	22	29	28	126
White	3	16	17	10	1	4	51
Total	25	35	23	32	30	32	177

Technology Stations Programme (TSP)

The Technology Stations Programme (TSP) was established to enable Universities of Technology (UoT) to provide technology development services to small and medium enterprises (SMEs). This Programme oversees and manages the activities of 18 Technology Stations located at 11 Universities of Technology throughout the country. It provides innovative Science, Engineering and Technology (SET) solutions for complex engineering challenges in various industrial sectors aimed at supporting Government's socio-economic priorities. The Department of Science and Technology provides financial support through TIA, to the higher education institutions which house Technology Stations.

The 18 Technology Stations are well positioned to support industry, SMMEs and higher education institutions. Their activities offer serve to bridge the gap between local suppliers in taking advantage of the recapitalization and expansion programmes by enhancing their competitiveness through technology improvement. They provide technology transfer infrastructure that plays a critical role for transferring technologies from higher education institutions to technology users.



Key goals, KPA's, measures and indicators of TIA Technology Stations Programme (TSP)



Performance overview for FY2015/16

The TSP unit has provided management and systems-wide support to assist 18 TSs hosted at 9 HEIs across the country to deliver on the core goal of the Programme, the summary programme deliverables, outputs and achievements from FY 2015/16 activities includes;

Investments
A total of R63 million in grants was allocated to HEIs for 18 TSs
R4.5 million spent towards co-funded SME-related projects
R8.6 million invested in high-end technology infrastructure at four HEIs
R0.7 million - Administration cost
Corporate Achievements
Over 2 100 enterprises supported through TS and Institutes of Advanced Tooling (IATs) activities
27 knowledge innovation products supported by the stations
Management Achievements
Over 235 products or prototypes developed
285 competitive improvements for market access of products
110 SMEs secured contracts as a result of TS support
17 official disclosures with NIPMO through the TS efforts
20 fully functional prototypes completed
33 funded youth projects currently at various TSs for support with product design, CAD/CAM and quality improvements
95 enterprises' projects were implemented in collaboration with stakeholders and/or another agency in the NSI
At least 100 matriculated youths participated in "Enterprise Development" (ED) skilling and training interventions to increase opportunities in the job market for unemployed youths
Three TSs received certifications and accreditation in quality management systems such as ISO 9001:2015 and other industry recognised best practices

The TSP has contributed towards the achievement of the DST and national objectives relating to technology innovation, enabling and support. The wide network of Technology Stations offered sophisticated and effective technological solutions to more than 2 000 enterprises and individuals in the FY2015/16. The Programme has also directly contributed to the indicators of the DST on the knowledge-based indicators by becoming a critical enabler in 13 prototypes and technology transfer packages onto the regional innovation system with the higher education institutions.

Allocation of Funds

The Programme disbursed a total of R82 million across seven South African provinces. The funds disbursed were a combination of core grant, Science Engineering and Technology Industry Internship Programme (SETIIP) and; additional grants awarded for SEED fund, Youth Technology Innovation Programme (YTIP), and Major Projects Equipment. The additional grants for Major Projects and Equipment's were granted on a merit based approach. The average core grant was at R3.6 million among all eighteen Technology Stations. The core grant depicted in the table below is a sum of the entire core grant disbursed in FY2015/16, which amounts to R65 million.

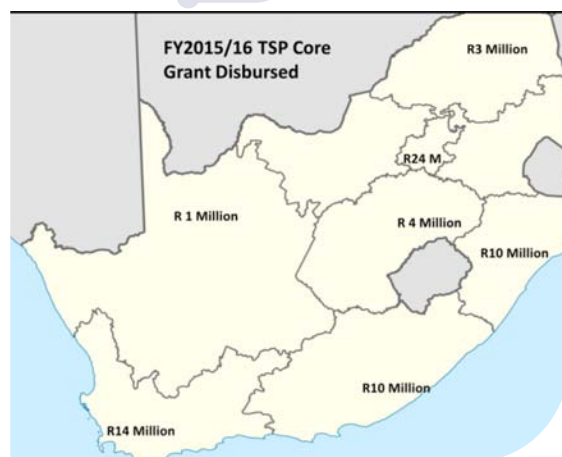
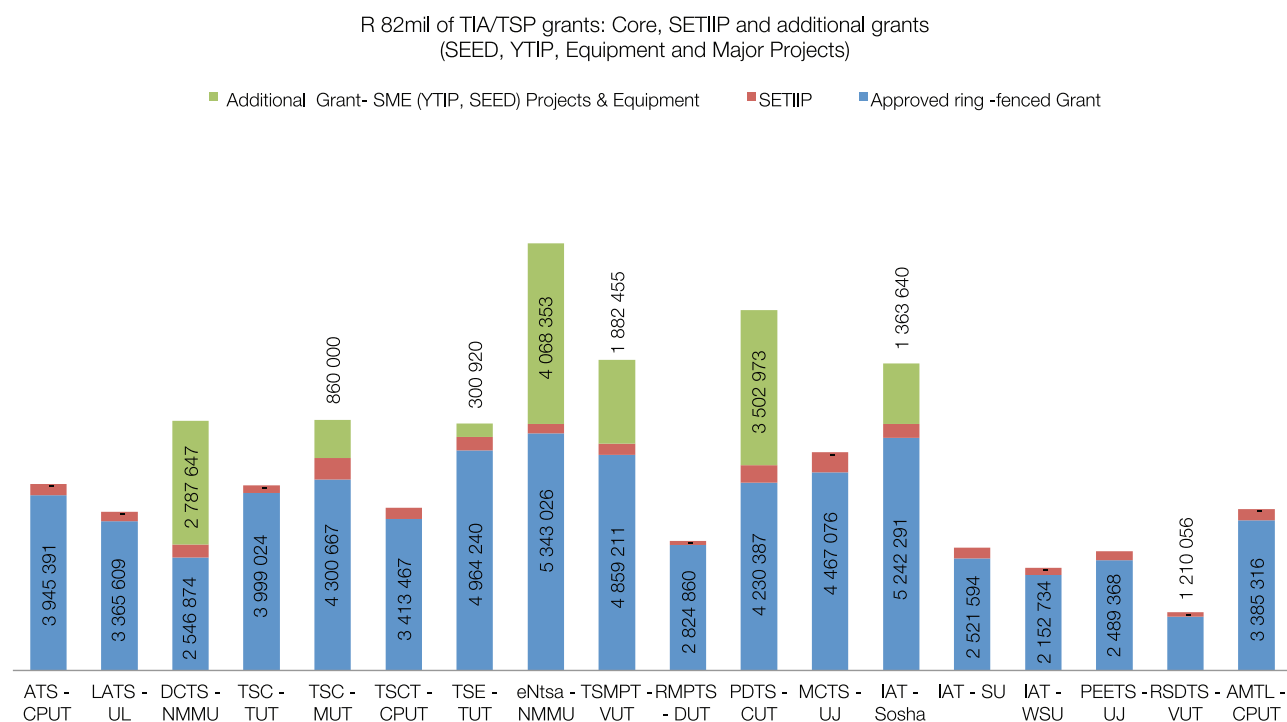


Figure 6.9: Allocation of grant funding by province

Figure 6.10: Grant allocations categorised according to Technology Station



Strategic Objectives

The network of 18 TSs delivered support to a total of 2,197 SMEs representing 109% over the Annual Performance target. Year on year, this number exceeded the previous 2014/15 reported number 2188 SMEs receiving technical support. The key outputs of this outstanding performance consisted of thirteen (13) prototypes and technology demonstrators. This number adds to 235 products and prototypes when the support to innovators from the Youth Programme and the Seed Fund are included.

Of the 2,197 support provided, 670 were registered SMEs and 1173 were innovators and entrepreneurs that received a combination of technological support and or training from the Technology Stations. 62% of the support was provided to previously disadvantaged individuals and 56% of the innovators and entrepreneurs were women.

Summary of data on SME support provided and demographic distributions

Total enterprises receiving support	2 197
Percentage APP target achieved to date	109%
Accumulative disaggregate data: Type of enterprises provided with innovation enabling and support	
Registered SME	670
Non-Registered Technology Entrepreneurs	345
Non-Registered Innovators and Entrepreneurs	1 173
Non-accumulative disaggregate data: Demographic data of enterprises supported in the TSP	
Gender: Women	664
PDIs	1 347
Race: SA Nationals	1 633
Youth projects supported by the Technology Stations	933
Disabled individuals	23

The following graph is a representation of each of the 18 Station's contribution of the 2,197, towards TIA's strategic objective 2.3, number of enterprises receiving technological support in FY2015/16, against the TS Annual Performance Plan.

Figure 6.11: Contributions of Technology Stations according to APP targets

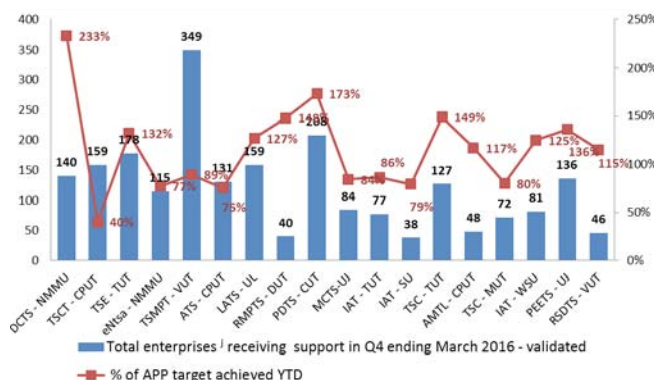
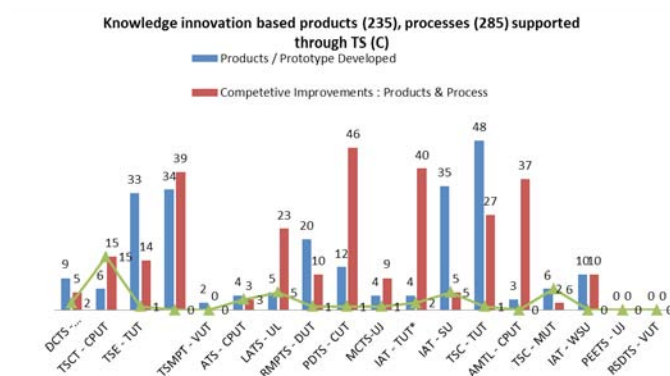


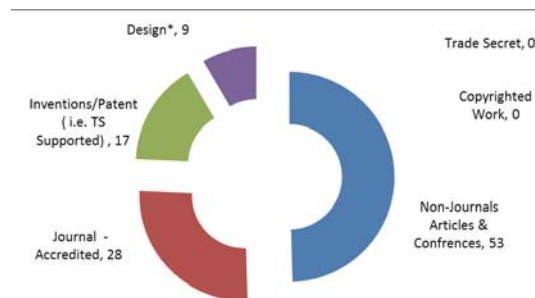
Figure 6.12: Knowledge innovation contributions categorised according to Technology Station



Of the knowledge based products and processes there were few official disclosures as required by the Intellectual Property Rights (IPR) Act for Public Financed Research and Development Act, depicted in the following diagram.

- R29 million and R16 million recovered respectively as other grants or sundry income
- R3.8 million in industry bodies' contributions
- R14 million preferential cost recovery from SMEs

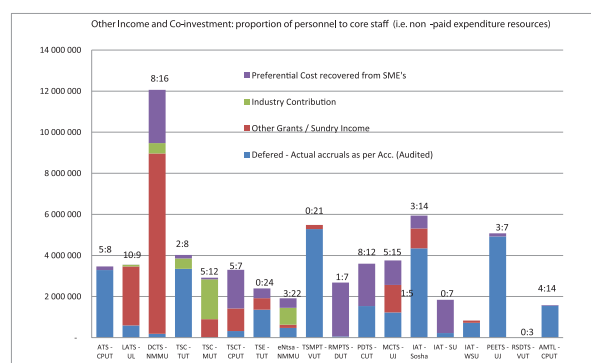
Figure 6.13: IPR disclosures during FY2015/16



External Income Received

It is important to note that with the core grant that was provided to the Technology Stations, they managed to secure additional funding and other income through preferential cost recovery from SMEs, industry contribution, and sundry income. The amount of other income and co-investment has a ratio above it, which highlights the proportion of staff from the higher education institutions available to support the Technology Stations staff.

Figure 6.14: Other income and investment received as other grants, sundry income, industry contributions, preferential cost recovery from SMEs and deferred accruals for FY2015/16 categorised according to Technology Station



Contributing to the NDP

The triple challenges of poverty, unemployment and inequality require that Government intensifies its efforts to drive initiatives that will lead to economic growth that is inclusive, equitable and leads to job creation and eradication of poverty.

Through the diverse types of support provided by the Technology Stations in collaboration with various strategic partners, industry engagements and co-investment, a number of projects implemented in collaboration with other stakeholders and in the NSI.

The Technology Stations supported at least 34 projects in partnership with stakeholders in the NSI which led to enterprises securing contracts. Some highlights include;

The Department has begun to identify ways in which its work and the NSI could contribute to the reduction of inequality, poverty and unemployment. Some of the DST's initiatives are outlined below. NSI support for private-sector companies, both STI and financial, should lead to increased turnover and greater employment.

The DST will assess how the TIA's Technology Stations Programme and Technology Localisation Programme ensure that the turnover of small and medium enterprises (SMEs) is increased, and that SMEs secure better contracts with large private-sector companies.

DST Strategic Plan 2015-2020

Technology Station in Chemicals (TSC) – Mangosuthu University of Technology

- TSC developed a new formulation for an extrusion die lubricant for one SME and a plasticizer admixture for another SME. Themzak was able to penetrate the market by supplying their product (the extruder die lubricant) to a subsidiary of a brick company, which was ready to trade as the industry implementation partner for the plasticiser;
- Somkhanda is supplying Boxer supermarket in KwaZulu-Natal (KZN) with cosmetics;
- Sanqaba is supplying clinics with cleaning detergents;
- Melokuhle is supplying clinics with cleaning detergents in the KZN province and branching out to Swaziland; and
- Sankahla Co-Operative is supplying clinics with cleaning detergents and branching out to Zimbabwe.

TSC – Tshwane University of Technology

One project secured a contract with the Department of Education in Gauteng to supply the schools with wax polish.

Product Development Technology Station (PDTS) – Central University of Technology

Tork Craft secured a contract since the PDTS's intervention.

Agri-food Technology Station (ATS) – Cape Peninsula University of Technology

- ATS assisted Espinaca Innovations to help increase their production and supply to Pick n Pay.

- Green Cell technologies product development attracted an export contract after the intervention of the Technology Station.
- The fish drying project will be rolled out together with local government around the fish communities in province.
- ATS assisted Comessa Foods with food safety implementation and the company now supplies Pick n Pay, Checkers and Food Lovers Market with popcorn and tortilla wraps.

Institute of Advanced Tooling (IAT) – Stellenbosch University

Clients already have contracts in place before coming to the TS. Clients use the services of the IAT to complete their secured contracts.

Metal Casting Technology Station (MCTS) – University of Johannesburg

- Lauds Foundry managed to secure a contract.
- MCTS with other service providers assisted Microfinish with improving the yield, reduction in raw materials and reduction in operational costs which resulted in the competitiveness of their export market share.

Institute of Advanced Tooling (IAT) – Tshwane University of Technology

One SME secured contract with MSSL for supplying tow bar Brackets for one of the locally established car manufacturing companies.

Advanced Manufacturing Technology Laboratory (AMTL) – Cape Peninsula University of Technology

The Coastal Buoy programme advanced the agreement between CPUT and the Department of Environmental Affairs and Western Cape Government: Directorate Disaster and Risk Management.

Technology Station Clothing and Textiles (TSCT) – Cape Peninsula University of Technology

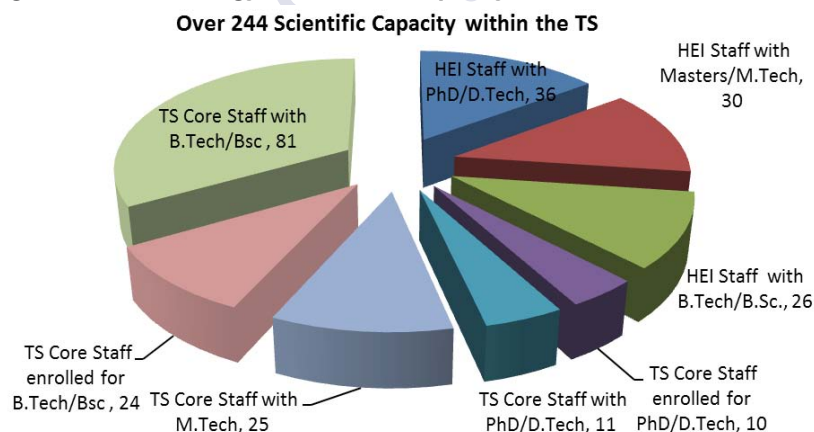
14 SMEs managed to secure contracts through the intervention of the TS, including Sweet-Orr and Move Pretty.

Technology Station in Electronics (TSE) – Tshwane University of Technology

14 SMEs managed to secure contracts through the intervention of the TS, including Sweet-Orr and Move Pretty.

Xhosa

Inkqubo Yezititshi Yolwazi Ngobugcisa jikelele-Technology Station Programme (TSP) yasekelwa ukulungiselela liyunivesithi Zobugcisa ukuba zinike iinkonzo zophuhliso lobugcisa kumashishini amancinci naphakathi. Le Nkqubo yongamela ze ilawule imisebenzi Yezititshi Zobugcisa ezili-18 ezibekwe Kwiiyunivesithi Zobugcisa ezili-11 kulo lonke ilizwe. Inika Isayensi entsha, Ubunjineli noLwazi Ngobugcisa Jikelele izisombululo zemingeni enzima yobunjineli kumacandelo oshishino ohlukahlukaneyo ajoliswe ekuxhaseni imiba engxamisekileyo Karhulumente Yoqoqosho lwentlalo.

*Building Knowledge and Creating Jobs***Figure 6.15: Technology Station staff capacity and education level**

There are over 240 Scientists, Engineers and Technologists at the Technology Stations. The number includes staff at both the Technology Station and HEIs. There was an estimated 432,000 man-hours utilised in FY2015/16. Of this time, 47% was spent on SME support, assisting with technical activities; and 12% of those hours on training clients and SMEs to increase the competitiveness of their businesses. The graph above does not include the interns that were placed at the Technology Stations. In 2015 there were 103 interns that went through the Programme. Of these, 12 were placed at industry partners.

Students involved at Technology Stations FY 2015/16												
Male						Female						
SA Afr	SA Clrd	SA Ind	SA Wh	Non SA Afr	Non SA Wh	SA Afr	SA Clrd	SA Ind	SA Wh	Non SA Afr	Non SA Wh	Total M+F
45	3	2	7	1	-	38	2	2	3	-	-	103

The demographics of the interns were representative to those at the Technology Stations. Approximately 32% of the Technology Stations' staff was female and the average age was 35, which allowed for effective succession planning. The TSP also increased student exposure through the Science Engineering and Technology Industry Internship Programme (SETIIP) to real industry projects which provided opportunities for students to secure employment.

Moving up the value chain

Mapping interventions by their Technology Readiness Level (TRL)

TRL 8	45% of innovative products for clients supported in the TSP to access new markets and new knowledge-based products as a result of designs, copyrights and the application of R&D publications from HEIs.
TRL 4 to 7	47% of innovators and clients' products were supported through skills and training, routine services to comply with local and international standards and specification, enterprises receiving technological intervention and know-how and trade secrets in TS transferred to enterprise to enable them to improve their product and process competitiveness.
TRL 1 to 3	8% spent on R&D on behalf of SMEs to investigate new products or processes beyond existing state of the art and applying scientific methods to improve competitiveness and compliance to prescribed standards. Some of the categories of R&D are initiated from within the UoT with the intention to market them at a later stage. Academic findings from the DST internship (BTech, MTech, DTech) reports from the house R&D.

Technology Platforms Programme (TPP)

The Technology Platforms Programme (TPP) identifies opportunities for the creation of new technology platforms, supports and manages established technology platforms to ensure that they lower the barriers of biotechnology innovators in the National System of Innovation (NSI) to engage in technology innovation

The TPP provides funding and support to facilitate access to key technical infrastructure and expertise that enables technological innovation in strategic technology areas. TIA funding ensures that Technology Platforms acquire cutting-edge research equipment, facilities and associated world-class expertise to lower barriers for public and private users to engage in technology innovation.

In FY2015/16, the existing portfolio of Technology Platforms was envisaged to deliver primarily on TIA's Strategic Objective 2, namely, to provide an enabling environment for technology innovation in collaboration with other role players, and to contribute to the realisation of the bio-economy strategy.

The Technology Platforms Programme pursued the following objectives:

- a) Funding the core operations and monitoring of the performance of the existing portfolio of Technology Platforms to support the development of biotechnology-based knowledge innovation products;
- b) Support promising projects supported by the various Technology Platforms and facilitate access to receive follow-on funding;

- c) Exploring the feasibility of establishing new Technology Platforms; and
- d) Raising funds to support core operations, projects, infrastructure, and/or human capital development initiatives for Technology Platforms from beneficiaries of the MTEF allocation and from funding sources other than TIA.

Portfolio Performance

Funding Commitments

Number of Technology Platforms	8
Total funds disbursed	R64 million (118% utilised for the Programme as a percentage of the total expenditure)
Funds disbursed as a proportion of the bio-economy ring-fenced allocation	36% of the bio-economy projects ring-fenced allocation of R157 million
2015/16 FY commitment	R57 million

The Technology Platforms unit disbursed R 40 million to fund the core operations of the existing platforms in order to support the development of biotechnology-based knowledge innovation products. This funding enabled the Platforms to deliver 26 knowledge innovation projects on behalf of clients, and one international patent expansion for mine drainage remediation using barium

carbonate dispersed alkaline substrate. TIA supported the revitalisation and expansion of current capability by supporting additional capital expenditure requirements amounting to R22 million or 35% of total expenditure for the FY2015/16.

The portfolio contributed four knowledge innovation products that received follow-on funding. These were mainly in the form of prototypes and patents registered. The portfolio attracted R47 million in third-party funds. A significant amount of this funding, R37 million, is foreign direct investment into local R&D activities. The Programme also realised a further R12 million in co-funding from its strategic partners.

TIA in partnership with the Small Enterprise Development Agency (SEDA) provided funding amounting to R25.5 million for the conversion of the NCSA facility into a Microalgal Technology Development and Demonstration Centre for the next 3 years. The Centre will be a multi-disciplinary technology development and commercial facility that fills the gap between post-proof of concept technology development and the commercial-scale production of microalgal biomass.

Creating Value for Clients and Partners

The Technology Platforms saw a phenomenal growth of 40% in their portfolio, hosting a total number of 102 projects in FY2015/16, representing an increase from the 75 projects supported in FY2014/15. The following graphs show the spread of the projects by principal client affiliation, technology development stages of these projects within Technology Readiness Level (TRL) 3 to 7 and by focus area.

Figure 6.16: Project spread percentages categorised according to principal client affiliation in FY2015/16

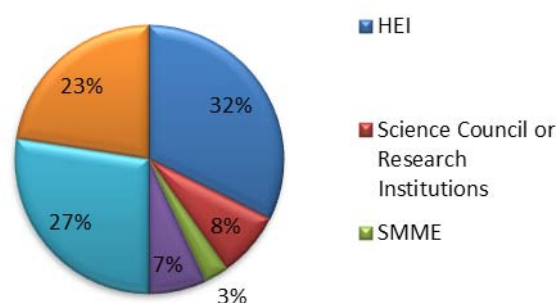


Figure 6.17: Project spread percentages categorised according to technology readiness level (TRL) in FY2015/16

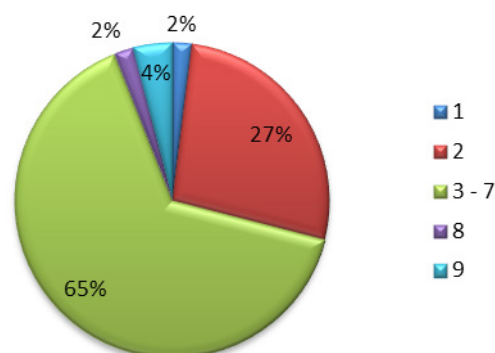
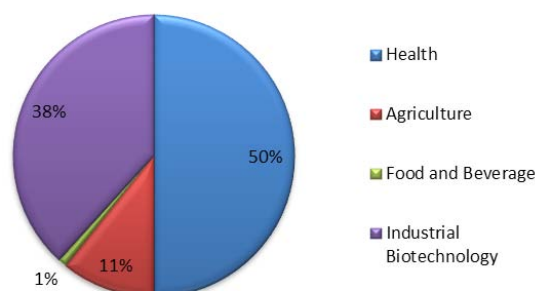


Figure 6.18: Project spread percentages categorised according to focus area in FY2015/16



Human Capacity Development

Towards NDP Outcome 5: A skilled and capable workforce to support an inclusive growth path

The capability of the infrastructure is also deployed towards the training and development of an industry-ready core of students who gain exposure through the development of technology-based solutions to real-life problems. In addition to the 63 students that were supported there were also 34 interns that were supported during the FY2015/16. The demographics of the students and/or interns are summarised in the tables and figures below.

Table: Study level of students receiving TIA support during FY2015/16

Undergraduate	5
Honours	8
Masters	24
Ph.D	18
Post-Ph.D	3

Figure 6.19: Percentage spread of qualification level of students receiving TIA support during FY2015/16

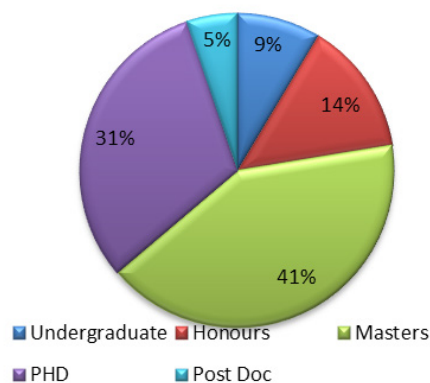


Figure 6.20: Percentage spread of students and interns receiving TIA support during FY2015/16 categorised according to race

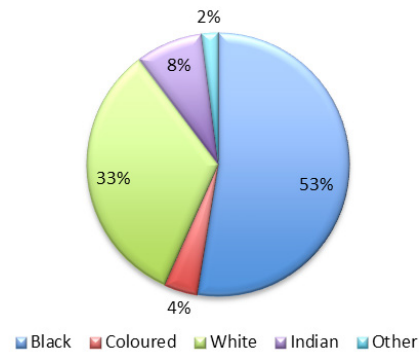
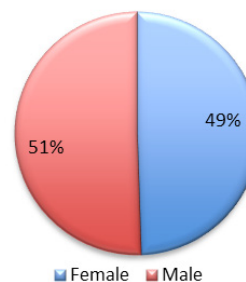


Figure 1.21: Percentage spread of students and interns receiving TIA support during FY2015/16 categorised according to gender



Technology Platform Highlights



The Centre for Proteomic and Genomic Research (CPGR) piloted an 'omics' accelerator program to stimulate and support life science and biomedical start-ups in South Africa. The program is unique as it focuses on cutting-edge 'omics' technological capabilities; provides a professional organisation compliant with key quality management standards (ISO 9001:2008, ISO 17025); and has expertise in running a life science business. It blends these features into an offering that facilitates the development of products, the testing of business models, and the starting of new ventures in a lean and cost-effective fashion.

The CPGR has launched its first start-up company, Tokaid Biotech, that offers food quality control testing services, with an initial focus on meat contamination and adulteration in the Halaal food sector.

Tokaid Biotech offers their clients the following services

- Animal product speciation through DNA analysis, using technologies and techniques more conducive to low cost, high quality analyses. The offered platforms platforms we offer are multiplex PCR and Next Generation Sequencing, and can provide qualitative and quantitative data on request
- Audits of their suppliers' products for confirmation of their compliance to required standards, ensuring integrity throughout the supply chain.
- Products available to the end consumer are tested to ensure compliance to labelling regulations, as well as any other standards the client requires.



PIONEERING WORLD-CLASS
DRUG DISCOVERY IN AFRICA

As part of an attempt to make the drug discovery process more relevant to Africa, H3D has started a project on African hepatocytes. H3D is Africa's first integrated drug discovery and development centre, founded in April 2011 at the University of Cape Town (UCT) and pioneers world-class drug discovery in Africa.

The aim of the African hepatocytes project is to determine if African patients have a different metabolism than that of Caucasians and Asians for whom most drugs and dosage requirements are developed in order to ultimately develop a new assay.

6 Innovation Enabling and Support

Part 6

Amino South Africa

Amino (South Africa) is a start-up company in the Industrial Biotechnology sector producing amino acids from vegetable raw materials. In 2015 the company attracted €1 million for the establishment of a production facility in Kwazulu-Natal and, thus, creating employment opportunities. Amino SA benefited from the infrastructure and analytical services of the Bioprocessing Platform to assist with the validation of its processes and to analyse raw materials prior to the construction of the production plant. The ability of the platform to provide incubation support and analytical services has facilitated the business start-up and contributed to the company's commercialisation efforts.

(NDP: OUTCOME 5: A skilled and capable workforce to support an inclusive growth path, OUTCOME 6: An efficient, competitive and responsive economic infrastructure network, SO 2.3)



SAENSE

NDP - Outcome 10: Protecting and enhancing our environmental assets and natural resources

The activities of the Novel Applications and Exploring Novelty in Specialized Environments (SAENSE) Platform continued in FY2015/16 to cement its reputation as a leading provider of in situ environmental bioremediation solutions and their success with pilot plants on site with industrial partners. Two (2) Techno-economic audits were performed during the past FY2015/16 to determine the commercial viability of the full scale plants. The next step would be to develop these as full scale plants.

The National Metabolomics Platform collaborated with Next Biosciences in making newborn screening available to newborn babies countrywide and has been branded as FirstScreen. Discovery Medical Aid is covering the cost of the test from their members available Medical Savings Account, without accumulation. The project speaks to Outcome 2 of the NDP, namely: A long and healthy life for all South Africans; SO 2.2)

Biosafety South Africa

NDP Outcome 11: Create a better South Africa and contribute to a better Africa and a better world

Biosafety South Africa (BSA) has firmly established itself as a thought leader on biosafety risk assessment of genetically modified organisms in South Africa and among our regional partners. BSA accepted an invitation from National Commission on Research, Science and Technology, an entity mandated by the government of Namibia to implement the Biosafety Act, 2006 (Act no. 7, 2006) which provides for measures to regulate activities that involve the R&D, production, marketing, importation, transportation, and transboundary movement of GMOs.

Dr Hennie Groenewald, the Executive Manager of BSA presented on “Public awareness of GMOs from a South African perspective: Risk analysis as a basis for sound decision making,” to share regulatory best-practice and contribute to Namibia’s implementation of GMO regulations.





A photograph of a man and a woman in business attire sitting at a table. The man, who is Black, is smiling and looking towards the camera. He is wearing a light grey suit jacket, a light blue striped shirt, and a light blue striped tie. He is holding a pen over a document on the table. The woman, who is white with long blonde hair, is partially visible on the left side of the frame, also smiling. On the table, there is a glass of water and a smartphone. A large white number '7' is overlaid in the top left corner. A blue diagonal graphic element is in the bottom right corner, containing the text 'Stakeholder Engagement Activities' in white.

7

**Stakeholder
Engagement
Activities**

Introduction

Successful execution of TIA's mandate is inextricable linked to positive and purposeful relations with our stakeholders. TIA has a large number of important stakeholders whose needs and interests it serves directly and indirectly. The three most important stakeholders, who form the core of the TIA ecosystem, are: the Innovator, the Investor and the Citizen.

In the year under review, we understood that the organisation had just emerged from the most challenging restructuring process that not only impacted our employees but, more importantly, our stakeholders. Hence, our primary energies were dedicated to fixing what in many instances, were severely damaged relationships that negatively impacted our Brand.

Strategic Engagements and Roadshows

The TIA Annual Report is an important tool, not only for reporting on organizational performance, but for communicating with our stakeholders openly, highlighting our successes and where we are lacking. This remains a fundamental principle that drives our brand building based on transparency and openness to gain the trust and confidence of all our stakeholders.

Hence, in 2015, for the first time, TIA embarked on roads-shows in Gauteng, Kwazulu Natal, Cape Town and Eastern Cape to directly interact with stakeholders. This provided an opportunity to engage with our stakeholders in the respective regions, opening up an opportunity to receive feed-back and yet, providing a platform for our communities of innovators to showcase their innovations to their local communities.

Understanding South Africa's Research Journey

TIA continued to work closely with its partner institutions that house the research community from which it sources its key pipeline of opportunities, the research community. One such relationship is with SARIMA where TIA continues to participate actively at their Annual Conferences to build strong and long lasting relationship with our Offices of Technology Transfer.

By the same token, TIA participates in the key structures of the South African Technology Network (SANT), a network of the 15 Universities of Technology established with the aim to provide a forum to discuss higher education (HE) issues pertinent to UoTs, including cooperative education, teaching, research, technology transfer and innovation. In its continued efforts to strengthen its relationships with the Universities of Technology, TIA partnered with the SATN in hosting the 8 Annual International Conference under the theme of, "Entrepreneurship Education for Economic Revival" The SATN Conference was held on 19-21 October 2015 at VUT Science Park.

Our Customers. Our *raison de etere*,

The impact of TIA's past challenges on our stakeholders could not be second-guessed. Hence, to acquire a good grasp of the issues, TIA commissioned an independent Customer Satisfaction Survey for the Financial Year 2015/16 to determine our customer's level of satisfaction with TIA's services. This was more-so, necessitated by the desire to measure our efforts in the first year of implementing of the new Strategic Plan 2015 2020.

The objectives of the study were five-fold, i.e.

- To analyse the market in which TIA operate and understand the trends and insights of the market;
- To understand the satisfaction levels amongst TIA clients, partners and other stakeholders that provide complimentary services to innovators;
- To assess the drivers of and barriers to satisfaction as well as to determine any issues with service delivery
- To provide an understanding of stakeholder expectations and satisfaction levels with TIA's services; and
- To outline a set of steps that needs to be taken to remedy any areas of concern as well as determine "best practice".

The results of this study were unequivocal and instructive, finding that:

- Overall satisfaction level of 5.7 out of 10 is low, arising out of customers who have been denied funding, long turn-around times and poor communication. TIA should aim for a score of 7.5.
- TIA is governed by good leadership principals and strategies, however there is breakdown in execution and implementation of the strategy which leads to poor service delivery;
- The organisation is showing signs of settling down following the restructuring process and pockets of improvements were starting to emerge.

The Report recommended that TIA should focus on three specific areas in the immediate term;

- Improving turn-around times, ensuring that we keep the promises that we make. Where this is not possible, delays be communicated accordingly;
- Improving feed-back and providing regular progress updates to applicants;
- Providing adequate notice for submission of further information.

Thought Leadership

Our experts are continuously engaged in a wide range of initiatives with their respective stakeholders in government, the academic community, industry, including SMMEs and civil society to understand their challenges and needs and thus continuously seek shared solutions. This includes leading discussions on topical issues around the respective areas of expertise to help inform the innovation discourse.

Advanced Manufacturing, key to realizing IPAP

In July 2015, TIA, jointly with the Department of Science and Technology co-hosted a Seminar on Strategy Road-mapping, presented by Mr Bill Colquhoun, a Principal Industrial Fellow from the University of Cambridge as an effort to strengthen the capacity of our experts in methodologies for development of Road-maps. In this regard, our Team also participated in a 4 day "Expert Panel" workshop in the finalization of the Advanced Manufacturing Road-Maps for the 4 strategic technology domains of Aero-Structures, Affordable & Smart Automation, Advanced Electronics and Photonics. Our Team continued to actively participate in the Joint Aerospace Steering Committee (JASC) that is chaired by the DST and the Department of Trade and Industry where they lead the development of topics related to transformation in the sector and as well as funding models.

Is our Venture Capital adequately engaged?

In March 2016 TIA hosted a Thought Leadership Dialogue in Cape Town on the role of Venture Capital in supporting Technology Innovation in South Africa. This session was attended by a diverse number of participants from institutions of high learning, public and private sector, the venture capital industry and other funding institutions. The workshop sought to unpack three specific questions. i.e. What is the role of Venture Capital (VC) in the South African funding landscape with a particular focus on technology innovation. Secondly, to understand how VC integrates within the funding landscape; and thirdly, looking at creating an alliance between funders in the country. This workshop represented an important step in TIA's efforts to attract key funding sources that will grow the pot of support to innovators and technology entrepreneurs.

Measuring our impact on SMMEs

In October 2015, TIA participated in a Workshop organized by the National Advisory Council on Innovation (NACI) under the Innovation and Entrepreneurship Advice Area where TIA presented a highly sought after model to develop and test a methodology for assessment of the impact of the Technology Station Programme among companies that are integrated into the Programme's monitoring and evaluation system to be conducted annually as a long-term quality management tool. This identified a number of key impact assessment points which NACI is looking to improve, inclusive of competitiveness; productivity; cost and time reduction; production volumes in manufacturing; quality improvements, and innovation. This session highlighted TIA's continued search for more effective monitoring and evaluation models that emphasise impact and is likely to be tested and rolled to different institutions.



Building our Knowledge

The TIA's newly established Technology Innovation Programme, spent much the in the year consolidating past investments, evaluating past performance and developing new implementation models. As part of this process the Programme TIA hosted the first Conference of Animal Health Technology Innovation Programme in Pretoria in March 2016. The 2 day session served as a platform for information sharing, exchanging experiences and challenges and to serve as platform to find opportunities for collaboration.

Partnering for Impact

Teamwork is buzzword that has come to characterize the TIA way, embedded in its name "T" and core to its Values. We acknowledge that for TIA to deliver greater impact in the national system of innovation, strategic partnerships are key.

In October 2015, TIA established a strategic relationship with the Air Traffic Navigation Services Company to support the Aviation sector. In so doing, TIA will lead a deliberate drive to promote innovation within the civil aviation sector, thus strengthening Africa's own air traffic navigation capabilities. The strength of this relationship was signified with the launch of the ATNS inaugural Avi Innovation Awards, proudly sponsored by TIA.

Equally significant, was the signature of a purposeful Memorandum of Understanding with the Small Enterprise Development Agency (SEDA) in March 2015. After many months of hard work by our teams to structure an implementable partnership that will deliver high impact, TIA and SEDA saw it fit to sign the MoU at the inaugural South African Business Incubation Conference held in March 2015 at the Gallagher Convention Centre in Midrand. The objectives are clear. To strengthen South Africa's incubation capabilities that will produce a large number of highly successful technology entrepreneurs.

Beyond these, TIA works closely with many other partners in the NSI to increase the impact of its activities. The EWSETA has for the last few years co-funded TIA's Innovation Skills Development Programme that has seen many interns trained and placed in industry in the energy and water sectors.

Our Technology Stations Programme, with its wide network of 18 centres also continues to attract a large and diverse set of collaborations, including Science Councils, State Owned Enterprises (SOEs) and Government Departments. The Stations' governance structures and advisory committees, continue to serve as a strong basis for engaging the private sector and unlocking strategic support and opportunities for SMMEs.

The Technology Stations consist of key personnel from a breadth of affiliated higher education institutions, industry bodies, representation from trade unions, public and private funders, municipalities, training authorities, science councils, government departments as well as SMEs and large private companies. Below is a breakdown of the numbers as follows;

- 23% leading private companies i.e. Tiger Brands, GM South Africa, De Beers, Johnson & Johnson;
- 3% of the representation is municipalities and metros i.e. ZF Mgcawu Municipality, City of Johannesburg;
- 12% science councils i.e. Council for Scientific and Industrial Research, Water Research Commission, other councils i.e. South Africa Fruit & Vegetable Canners Export Council (SAFVCA), South African Fashion Council, South African Council for Natural Scientific Professionals;
- 18% from funding agencies i.e. IDC, government departments such as the Department of Economic Development and Tourism, Department of Public Works and training authorities e.g. CHIETA (The Chemical Industries Education and Training Authority);
- 2 trade unions i.e. Clotex and Sactawu and
- 2 State Owned Entities i.e. Prasa, Transnet
- 54% is a combination of SMEs and HEI representatives.

"Our fifth priority is promoting science, technology and innovation in Africa. We are part of an African research and innovation system. We look for international cooperation to support science and technology capacity-building in Africa. For this priority we seek to leverage our portfolio of international relations and are keen to partner with Asian, American or European nations in reinforcing African capacities"

Honourable, Naledi Pandor Minister of Science & Technology, DST Strategic Plan 2015-2020

The African Agenda

TIA continuously looks for opportunities to strengthen relations with our counterparts in the African continent. Therein, we are guided by the Department's strategic agenda that emphasizes capacity building and knowledge exchange. For this purpose, TIA has deliberately engaged a few selected partners in the continent during the year.

Tanzania

TIA hosted an eight member delegation from the Tanzanian Ministry of Communication, Science and Technology led by Permanent Secretary Mr Mngodo at the TUT Technology Station for Electronics Engineering in July 2015. This visit took place in the context of the Joint Committee Meeting between South Africa and Tanzania on Bilateral Scientific Cooperation. From this visit TIA and COSTECH, a TIA counterpart institution, agreed to launch a knowledge exchange programme around the Technology Station model and the Technology Platforms on Drug discovery.

Angola

TIA participated in the Angolan Science and Technology Conference in Luanda, Angola in September 2015 where we showcased our Technology Stations model and undertook institutional visits to Agostino Neto University, the IPTEC and Sinfotech Research Centres. These visits helped TIA to identify partnership opportunities to pursue joint innovation projects in the water and the environment sectors.

Namibia

Most significantly, TIA signed a Memorandum of Understanding (MoU) with the Namibian Commission on Research Science and Technology (NCRST) on 29 September 2015 in Windhoek, Namibia. TIA and NCRST had several engagements in the past and the MoU served to crystallise the relationship.



TIA signing an MOU with the Namibian delegation

The MOU covers four collaboration areas:

- Joint review of research projects for potential technology development support;
- Joint Workshops/Seminars on commercialization and Intellectual Property (IP) management;
- Experience sharing on the establishment technology station, start-ups and incubation services; and,
- Training on Technology Management for government institutions/programmes

Marketing Communication & Brand-Building

The results and findings of a Market Survey conducted by Pulse Research in 2014 continue to inform our efforts in promoting awareness about TIA, its services and programmes. The study concluded the TIA is not well-known in the market, especially by its key target customers, i.e. the innovators.

This has been particularly exacerbated by two the organisational restructuring process, that resulted in the closing down of our offices in a few regions. This required that TIA needed to find nimble ways to ensure that its messages get to the right people.



Our Strategic Stakeholder Relations and Communications Team have therefore been particularly engaged in a series of events and activities to position a positive TIA brand. A few highlights included participating at various national and regional conferences such as the well-known South African Innovation Summit, My World of Tomorrow, Global Forum for Innovation in Agriculture, the South African Energy Association for Efficiency, etc.

These platforms, not only enabled TIA to spread its message, but strategic enablers to connect our diverse community of TIA supported innovators with customers and funders.

Taking Science to our Communities

In support of the Minister of Science and Technology's drive to promote science, technology and innovation amongst our communities, TIA actively participated in the National Science Week activities that ran from 1 to 5 August 2015, starting with the launch held at the University of Northwest in Mafikeng. TIA took this opportunity to showcase some of the young successful innovators, one of whom developed the Harvesting Scissor and some of our Technology Stations capabilities. TIA continued through the week with activities in Gauteng, Kwazulu Natal and Cape Town.

Media Engagement

TIA's media engagements were primarily driven by the Communications Unit, largely around the CEO, aimed at creating an opportunity to share his vision and open a window to the media on TIA's activities and future performance going forward. For the Financial Year, TIA largely enjoyed positive media coverage with most stories ranging between neutral and positive.

In addition to the CEO's media drive, there were various engagements by the Heads of Business Units that, in the majority of cases were aimed at increasing awareness about TIA and its services.

A report by produced by the SAASTA Media Monitoring Services shows that TIA was mentioned in the media a total of 136 times with a total Advertising Value Equivalent (AVE) of R7 531 761 through a number of platforms.



8

Annual Financial Statements

14.21
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+ 1352.14
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List of Annual Financial Statements and Supporting Documents

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Board's Responsibilities and Approval

The Board is required by the Public Finance Management Act (Act 1 of 1999), to maintain adequate accounting records and is responsible for the content and integrity of the consolidated and separate financial statements and related financial information included in this report. It is the responsibility of the Board to ensure that the consolidated and separate financial statements fairly present the state of affairs of the entity and its controlled entities ("the economic entity") as at the end of the financial year and the results of its operations and cash flows for the period then ended. The external auditors are engaged to express an independent opinion on the consolidated and separate financial statements and were given unrestricted access to all financial records and related data.

The consolidated and separate financial statements have been prepared in accordance with Generally Recognised Accounting Practice (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board.

The consolidated and separate financial statements are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Board acknowledges that it is ultimately responsible for the system of internal financial control established by the economic entity and places considerable importance on maintaining a strong control environment. To enable the Board to meet these responsibilities, the Board sets standards for internal control aimed at reducing the risk of error in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the economic entity and all employees are required to maintain the highest ethical standards in ensuring the economic entity's business is conducted in a manner that in all reasonable circumstances is

above reproach. The focus of risk management in the economic entity is on identifying, assessing, managing and monitoring all known forms of risk across the economic entity. While operating risk cannot be fully eliminated, the economic entity endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Board is of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the financial statements. However, any system of internal financial control can provide only reasonable, and not absolute assurance against material misstatement or deficit.

The Board has reviewed the economic entity's cash flow forecast for the year to 31 March 2017 and, in the light of this review and the current financial position, they are satisfied that the economic entity has access to adequate resources to continue in operational existence for the foreseeable future.

The financial statements set out on pages 137 to 182, which have been prepared on the going concern basis, were approved by the Board on 30 May 2016 and were signed on its behalf by



Ms Khungeka Njobe

Chairperson

Audit and Risk Committee Report

Financial Overview

Audit Committee Statement

The TIA engaged in a performance contract with the Honourable Minister of the DST to oversee the effective delivery of TIA's mandate in line with the TIA Act, the PFMA, King III Report and other applicable legislation and directives.

In pursuit of the above, the Board is empowered to appoint an Audit and Risk Committee as a subcommittee of the Board whose role is to oversee TIA's financial and non-financial resource management systems for efficiency and effectiveness. In doing so the Committee provides an oversight function for the workings of the Internal Audit function, External Audit and the Auditor-General. The Board representatives serving on the Audit and Risk Committee offer the Board advice while observing objectivity in the execution of their mandate. The Committee has performed its duties and responsibilities during the financial year, according to its Charter, which is reviewed annually according to best practice.

Audit and Risk Committee

Composition and attendance

Chairperson: Dr Steve Lennon
 Members: Prof David Ellis Kaplan
 Ms Rosetta Xaba
 Adv Motlatjo Josephine Ralefatane
 Mr Mahomed Moolla (Resigned January 2016)

Number of meetings held: (4) Four.

Legend	In attendance
X	Apology received
R	Resigned
A	Absent

Table 12: Audit and Risk Committee Members' Attendance Record

ARC Member	Number of meetings attended	21 May 2015	22 July 2015	12 November 2015	11 February 2015
Dr Steve Lennon (Chairman)	4				
Adv Motlatjo Josephine Ralefatane	2	X		A	
Mr Mahomed Moolla	3				R
Ms Rosetta Xaba	3			X	
Prof David Kaplan	3		X		

The Audit Committee carried out its functions through the Audit Committee meetings and discussions with executive management and Internal Audit. In giving effect to its Charter during the period under review, the Committee assisted the Board to:

- Evaluate the adequacy and efficiency of the internal control systems, accounting practices, information systems and auditing processes applied in the management of TIA.
- Discharge its duties relating to the safeguarding of assets, the implementation of adequate IT systems, effective control processes and the preparation of accurate financial reports and statements in compliance with all applicable legal requirements and accounting standards.
- Comply with applicable laws, regulations, licenses, standards and best practice guidelines.
- Improve the credibility and objectivity of the accountability process.
- Improve the effectiveness of the Internal and External Audit functions and be a forum for improving communications between the Board and the Internal and External Auditors.

Quarterly Reports

The Committee ensured compliance with Treasury Regulation 5.3.1 for the establishment of procedures for quarterly reporting to the Executive Authority in order to facilitate effective performance monitoring, evaluation and corrective action. The Audit Committee is satisfied with the content and quality of the quarterly reports prepared and issued by the Accounting Officer of the Department during the year under review. However, the Committee indicated that pre-determined objectives and corresponding targets need to be reviewed.

Annual Financial Statements

The Audit Committee reviewed the annual financial statements and accounting practices in detail and is satisfied that the information contained in the annual financial statements and that the application of accounting practices are correct and reasonable.

Internal Audit

Last financial year it was reported that the Internal Audit function would be restructured and integrated in TIA. This has been implemented and, in the year under review, the Internal Audit function reported to the office of the CEO and provided TIA with effective, integrated assurance against risk and internal audit services. The Audit and Risk Committee approved the 2015/16 risk-based Internal Audit Plan that was developed by the Internal Audit function. The task of The Internal Audit function during 2015/16 was to assist management in achieving the goals of TIA by evaluating the process through which risk and control information is communicated, the monitoring of TIA's targets and ensuring that accountability is entrenched and corporate values are preserved. Deficiencies in the system of internal control identified in the previous year have been improved on significantly.

External Audit

The Committee is satisfied that the external auditors, Ngubane & Co, are independent and have complied with sections 90(2)(b) and 94(8) of the Companies Act, No. 71 of 2008 (as amended) and confirms that there are no conflicts of interest, as determined by the criteria prescribed by the Independent Regulatory Board for Auditors. The Committee, in consultation with management, agreed to the engagement letter, audit plan and audit fees for the financial year ended 31 March 2016. In consideration of the external audit plan, the Committee is satisfied that it is comprehensive and adequately interrogates the risk areas identified.

Audit & Risk Committee Report

Risk Management

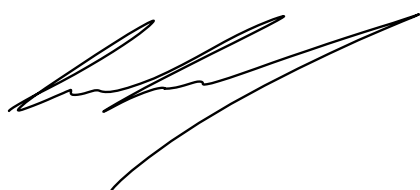
The TIA's embedded processes require the Audit and Risk Committee to provide effective oversight and adequate guidance on risk management. The committee believes that the methodology adopted is sound. Quarterly monitoring ensured effective progress in the committed mitigation action plans and timely identification of emerging risks. As a complement to effective evaluation of risk management, the Internal Audit function evaluates whether the internal controls, which management relies on to mitigate risks to acceptable levels, are appropriate and functioning as intended and provides recommendations for enhancement or improvements in the control environment. In addition, the Committee facilitated a Board engagement on strategic risk which was useful in the identification and treatment of strategic risks for TIA.

Irregular Expenditure

Management was tasked with conducting a review of all historical investment contracts with a view to improving the control environment. The Audit Committee is confident that management had adequately addressed processes and procedures required to significantly reduce irregular expenditure. The Committee is pleased with the reduction in irregular expenditure in the year under review and is of the view that this is due to the stronger control measures now in place within TIA.

Going Concern

On examination of the accounting records and all other audit procedures performed there is no doubt regarding TIA's ability to continue as a going concern in the future. A going concern qualification was therefore not a consideration, given TIA's financial viability.



Dr Steve Lennon

Chairman of the Audit and Risk Committee

Independent Auditors Report

Report of the external auditors, Ngubane & Co., to the Board of Directors on Technology Innovation Agency Group

Report on the Financial Statements

Introduction

We have audited the accompanying consolidated annual and the annual financial statements of Technology Innovation Agency, which comprise the statements of financial position as at 31 March 2016, the statements of financial performance, statements of changes in equity and statements of cash flows for the year then ended and a summary of significant accounting policies and other explanatory information, as set out on pages 137 and 182.

Directors' responsibility for the financial statements

The board which constitutes the accounting authority, are responsible for the preparation and fair presentation of these consolidated and separate financial statements in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and in the manner required by the Public Finance Management Act of South Africa, and for such internal control as the accounting authority determines is necessary to enable the preparation of consolidated and separate 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 consolidated and separate financial statements based on our audit. We conducted our audit in accordance with Public Audit Act of South Africa, the General Notice issued in terms thereof and International Standards on Auditing. Those standards require that we comply with ethical requirements, and plan and perform the audit to obtain reasonable assurance about whether the consolidated and separate 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 judgement, 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 I have obtained is sufficient and appropriate to provide a basis of our audit opinion.

Opinion

In our opinion, the consolidated and separate financial statements present fairly, in all material respects, the consolidated and separate financial position of Technology Innovation Agency as at 31 March 2016, and its consolidated and separate financial performance and cash flows for the year then ended in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standard of GRAP) and in the manner required by the Public Finance Management Act of South Africa.

Report on other legal and regulatory requirements

Public Audit Act Requirements (PAA)

In accordance with the Public Audit Act of South Africa (PAA) and the General Notice issued in terms thereof, we report findings relevant to reported performance against predetermined objectives of selected objectives presented in the annual performance report, compliance with laws and regulations as well as internal control. We performed

Independent Auditors Report

tests to identify reportable findings as described under each subheading but not to gather evidence to express assurance on these matters. Accordingly, we do not express an opinion or conclusion on these matters.

Predetermined objectives

We performed procedures to obtain evidence about the usefulness and reliability of the information on the Performance Information Report as set out on pages 38 - 40. of the Annual Report. The procedures performed were limited to the following selected objectives:

- Number of technologies, products, processes and services reaching demonstration stages;
- Number of technologies, products, processes and services taken up in the market;
- Number of knowledge innovation products produced by TIA supported programmes;
- Number of knowledge innovation products produced by TIA supported programmes receiving third-party funding;
- Number of Small and Medium Enterprises receiving technology support from Technology Stations and Platforms;
- The number of PDI-owned SMEs as a percentage of total SMEs supported; and
- Number of technology innovation initiatives undertaken by TIA

The reported performance against predetermined objectives was evaluated against the overall criteria of usefulness and reliability.

The usefulness of information in the Performance Information Report relates to whether it is presented in accordance with the National Treasury annual reporting principles and whether the reported performance is consistent with the planned objectives. The usefulness of information further relates to whether indicators and targets are measurable (i.e. well defined, verifiable, specific, measurable and time bound) and relevant as required by the National Treasury Framework for managing programme performance information.

The reliability of the information in respect of the selected objectives is assessed to determine whether it adequately reflects the facts (i.e. whether it is valid, accurate and complete). We report that there were no material findings on the Performance Information Report concerning the usefulness and reliability of the information.

Compliance with legislation

We performed procedures to obtain evidence that the public entity had complied with applicable legislation regarding financial matters, financial management and other related matters. We did not identify any instances of material non-compliance with specific matters in the key applicable laws and regulations, as set out in the General Notice issued in terms of PAA.

Internal control

We considered internal control relevant to our audit of the financial statements, performance Information Report and compliance with legislation. We did not identify any deficiencies in internal control which we considered sufficiently significant for inclusion in this report.



Ngubane & Co. (JHB) Inc.
Director: Dawn Mbatha
Chartered Accountant (SA)
Registered Auditor
Midrand

31 May 2016

for the year ended 31 March 2016

TECHNOLOGY INNOVATION AGENCY | ANNUAL REPORT | 2015/16

Statements of Financial Performance

for the year ended 31 March 2016

Revenue

Revenue from non-exchange transactions	15	429,310	389,370	429,310	389,370
Other income	16	15,898	53,123	17,980	65,457
Interest received	17	17,810	18,166	17,356	17,871

Expenditure

Employee related costs	18	(92,618)	(123,771)	(83,557)	(110,512)
Project funding expenditure	19	(334,383)	(363,354)	(335,119)	(371,530)
Depreciation and amortisation		(6,693)	(7,885)	(6,332)	(7,460)
Lease rentals on operating lease		(9,181)	(10,348)	(8,594)	(9,657)
Project funding impaired	20	(43,638)	(1,632)	(43,638)	(1,952)
Other operating expenses	21	(36,914)	(35,622)	(31,987)	(33,834)

		6,698	10,299	(1,717)	262
Gain on foreign exchange		(1,717)	262	(1,717)	262
Surplus from equity accounted investments		8,415	10,037	-	-

Deficit for the year

Attributable to:

Owners of the controlling entity		(52,956)	(70,960)	(46,298)	(61,985)
Non-controlling interest		(755)	(694)	-	-
		(53,711)	(71,654)	(46,298)	(61,985)

Statements of Changes in Net Assets

for the year ended 31 March 2016

Economic entity

Balance at 01 April 2014

Changes in net assets

Currency translation differences

Deficit for the year

Balance at 01 April 2015

Changes in net assets

Currency translation differences

Deficit for the year

Balance at 31 March 2016

Foreign currency translation reserve	Accumulated surplus	Total attributable to owners of the economic entity/ controlling entity	Non- controlling interest	Total net assets
R '000	R '000	R '000	R '000	R '000
(340)	284,564	284,224	(6,636)	277,588
340	(70,960)	(70,620)	(694)	(71,314)
340	-	340	-	340
-	(70,960)	(70,960)	(694)	(71,654)
-	213,604	213,604	(7,330)	206,274
(469)	(52,956)	(53,425)	(755)	(54,180)
(469)	-	(469)	-	(469)
-	(52,956)	(52,956)	(755)	(53,711)
(469)	160,648	160,179	(8,085)	152,094

Controlling entity

Balance at 01 April 2014

Changes in net assets

Deficit for the year

Balance at 01 April 2015

Changes in net assets

Deficit for the year

Balance at 31 March 2016

-	253,148	253,148	-	253,148
-	(61,985)	(61,985)	-	(61,985)
-	(61,985)	(61,985)	-	(61,985)
-	191,163	191,163	-	191,163
-	(46,298)	(46,298)	-	(46,298)
-	(46,298)	(46,298)	-	(46,298)
-	144,865	144,865	-	144,865

Cash Flow Statements

for the year ended 31 March 2016

Cash flows from operating activities

Receipts

Grants
Interest income
Other receipts

Payments

Employee costs
Project funding expenses
Other payments

Net cash flows used in operating activities

Cash flows from investing activities

Purchase of property and equipment
Purchase of intangible assets
Repayment of loans received
Loans granted
Proceeds on sale of investments
Increase in loans from shareholders

Cash flows from financing activities

Ring fenced funding received
Conditional grants paid

Net decrease in cash and cash equivalents

Cash and cash equivalents at the beginning of the year

Cash and cash equivalents at the end of the year

Note(s)	Economic entity		Controlling entity	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
	525,009	427,573	515,471	413,811
	429,310	389,370	429,310	389,370
	12,371	14,622	11,917	14,327
	83,328	23,581	74,244	10,114
	(484,607)	(512,801)	(475,399)	(499,191)
	(92,699)	(123,771)	(83,557)	(110,512)
	(334,383)	(363,354)	(335,119)	(371,530)
	(57,525)	(25,676)	(56,723)	(17,149)
23	40,402	(85,228)	40,072	(85,380)
	(1,927)	(17,329)	(1,884)	(17,368)
5	(7,317)	(1,479)	(7,317)	(1,374)
6	(43)	(261)	-	(261)
	-	167	-	167
	(3,650)	(15,900)	(3,650)	(15,900)
	9,083	-	9,083	-
	-	144	-	-
	27,864	6,837	27,864	6,835
	73,080	19,709	73,080	19,709
	(45,216)	(12,872)	(45,216)	(12,874)
	66,339	(95,720)	66,052	(95,913)
	74,798	170,518	66,281	162,194
4	141,137	74,798	132,333	66,281

Statements of Comparison of Budget and Actual Amounts

for the year ended 31 March 2016

		Approved budget	Adjust- ments	Final Budget	Actual amounts on comparable basis	Difference between final budget and actual
	Note(s)	R '000	R '000	R '000	R '000	R '000
Controlling entity						
Statement of Financial Performance						
Revenue						
Revenue from non-exchange transactions		385,188	-	385,188	385,188	-
Other income	32.1	98,122	(48,000)	50,122	62,102	11,980
Interest received	32.2	10,000	1,000	11,000	17,356	6,356
Total revenue		493,310	(47,000)	446,310	464,646	18,336
Expenditure						
Employee related costs	32.3	(87,229)	-	(87,229)	(83,557)	3,672
Project funding expenditure	32.4	(351,651)	(30,100)	(381,751)	(378,757)	2,994
Other operating expenses	32.5	(54,430)	700	(53,730)	(46,913)	6,817
Total expenditure		(493,310)	(29,400)	(522,710)	(509,227)	13,483
Operating deficit		-	(76,400)	(76,400)	(44,578)	31,822
Loss on foreign exchange		-	-	-	(1,717)	(1,717)
Surplus/(Deficit)	32.6	-	(76,400)	(76,400)	(46,295)	30,105

Accounting Policies

for the year ended 31 March 2016

1. Presentation of Financial Statements

The financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP), issued by the Accounting Standards Board in accordance with Section 91(1) of the Public Finance Management Act (Act 1 of 1999).

These financial statements have been prepared on an accrual basis of accounting and are in accordance with historical cost convention as the basis of measurement, unless specified otherwise. They are presented in South African Rand. Amounts are rounded to the nearest thousand.

1.1 Consolidation

Basis of consolidation

The consolidated financial statements are the financial statements of the economic entity presented as those of a single entity.

The consolidated financial statements incorporate the financial statements of the controlling entity and all controlled entities, including special purpose entities, which are controlled by the controlling entity.

Control exists when the controlling entity has the power to govern the financial and operating policies of another entity so as to obtain benefits from its activities.

The results of controlled entities, are included in the consolidated financial statements from the effective date of acquisition or date when control commences to the effective date of disposal or date when control ceases. The difference between the proceeds from the disposal of the controlled entity and its carrying amount as of the date of disposal, including the cumulative amount of any exchange differences that relate to the controlled entity are recognised in net assets in accordance with the Standards of GRAP on The Effects of Changes in Foreign Exchange Rates, is

recognised in the consolidated statement of financial performance as the surplus or deficit on the disposal of the controlled entity.

An investment in an entity is accounted for in accordance with the Standards of GRAP on Financial Instruments from the date that it ceases to be a controlled entity, unless it becomes an associate or a jointly controlled entity, in which case it is accounted for as such. The carrying amount of the investment at the date that the entity ceases to be a controlled entity is regarded as the fair value on initial recognition of a financial asset in accordance with the Standards of GRAP on Financial Instruments.

When the reporting dates of the controlling entity and a controlled entity are different, the controlled entity prepares, for consolidation purposes, additional financial statements as of the same date as the controlling entity unless it is impracticable to do so. When the financial statements of a controlled entity used in the preparation of consolidated financial statements are prepared as of a reporting date different from that of the controlling entity, adjustments are made for the effects of significant transactions or events that occur between that date and the date of the controlling entity's financial statements.

Adjustments are made when necessary to the financial statements of the controlled entities to bring their accounting policies in line with those of the controlling entity.

All intra-entity transactions, balances, revenues and expenses are eliminated in full on consolidation.

Non-controlling interests in the net assets of the economic entity are identified and recognised separately from the controlling entity's interest therein, and are recognised within net assets. Losses applicable to the minority in a consolidated controlled entity may exceed the non-controlling interest in the controlled entity's net assets. The excess, and any further losses applicable to the non-controlling

parties, are allocated against the controlling interest except to the extent that the non-controlling entity has a binding obligation to, and is able to, make an additional investment to cover the losses. If the controlled entity subsequently reports surpluses, such surpluses are allocated to the controlling interest until the non-controlling entity's share of losses previously absorbed by the majority has been recovered.

Non-controlling interests in the surplus or deficit of the economic entity is separately disclosed.

Investment in associates

An associate is an entity over which the controlling entity has significant influence and which is neither a controlled entity nor a joint venture. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

An investment in associate is accounted for using the equity method. Under the equity method, investments in associates are carried in the consolidated statement of financial position at cost adjusted for post acquisition changes in the economic entity's share of net assets of the associate, less any impairment losses.

Distributions received from an investee reduce the carrying amount of the investment.

The most recent available financial statements of the associate are used by the economic entity in applying the equity method. When the reporting dates of the economic entity and the associate are different, the associate prepares, for the use of the economic entity, financial statements as of the same date as the financial statements of the economic entity unless it is impracticable to do so.

When the financial statements of an associate used in applying the equity method are prepared as of a different reporting date from that of the economic entity, adjustments are made for the effects of

significant transactions or events that occur between that date and the date of the economic entity's financial statements.

The economic entity's financial statements are prepared using uniform accounting policies for like transactions and events in similar circumstances.

Deficits in an associate in excess of the economic entity's interest in that associate are recognised only to the extent that the economic entity has incurred a legal or constructive obligation to make payments on behalf of the associate. If the associate subsequently reports surpluses, the economic entity resumes recognising its share of those surpluses only after its share of the surpluses equals the share of deficits not recognised.

Any goodwill on acquisition of an associate is included in the carrying amount of the investment, however, a gain on acquisition is recognised immediately in surplus or deficit.

Surpluses and deficits on transactions between the economic entity and an associate are eliminated to the extent of the economic entity's interest therein.

The controlling entity discontinues the use of the equity method from the date that it ceases to have significant influence over an associate and account for the investment in accordance with the Standards of GRAP on Financial Instruments from that date, unless the associate becomes a controlled entity or a joint venture, in which case it is accounted for as such. The carrying amount of the investment at the date that it ceases to be an associate is regarded as the fair value on initial recognition as a financial asset in accordance with the Standards of GRAP on Financial Instruments.

Accounting Policies

for the year ended 31 March 2016

1.2 Significant judgements and sources of estimation uncertainty

In preparing the financial statements in conformity with GRAP, management is required to make judgements, estimates and assumptions that affect the amounts represented in the financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the financial statements. These estimates and underlying assumptions are reviewed by management on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods. Significant judgements include:

Loans and receivables

The economic and controlling entity assesses its loans and receivables for impairment at the end of each reporting period. In determining whether an impairment loss should be recorded in surplus or deficit, the economic entity makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flows from a financial asset.

The impairment for loans and receivables is calculated on an individual basis, based on historical losses, financial position of the entity, repayment terms and the commercial viability of the business.

Impairment testing (non-financial assets)

The recoverable amounts of individual assets have been determined based on the higher of value-in-use calculations and fair values less costs to sell. These calculations require the use of estimates and assumptions. It is reasonably possible that the assumptions used may change which may then impact our estimations and may then require a material adjustment to the carrying value of tangible assets.

The economic and controlling entity review and test the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. If there are indications that impairment may have occurred, estimates are prepared of expected future cash flows for each asset. Expected future cash flows used to determine the value in use of other assets are inherently uncertain and could materially change over time.

1.3 Property and equipment

Property and equipment are tangible non-current assets that are held for use in the production or supply of goods or services, rental to others, or for administrative purposes, and are expected to be used during more than one period.

The cost of an item of property and equipment is recognised as an asset when:

- it is probable that future economic benefits or service potential associated with the item will flow to the economic entity; and
- the cost of the item can be measured reliably.

Property and equipment are initially measured at cost. The cost of an item of property and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

Where an asset is acquired through a non-exchange transaction, its cost is its fair value as at date of acquisition.

Where an item of property and equipment is acquired in exchange for a non-monetary asset or monetary assets, or a combination of monetary and non-monetary assets, the asset acquired is initially measured at fair value (the cost). If the acquired item's fair value was not determinable, it's deemed cost is the carrying amount of the asset(s) given up.

Accounting Policies

for the year ended 31 March 2016

When significant components of an item of property and equipment have different useful lives, they are accounted for as separate items (major components) of property and equipment.

Costs include costs incurred initially to acquire or construct an item of property and equipment and costs incurred subsequently to add to, replace part of, or service it. If a replacement cost is recognised in the carrying amount of an item of property and equipment, the carrying amount of the replaced part is derecognised.

The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located is also included in the cost of property and equipment, where the entity is obligated to incur such expenditure, and where the obligation arises as a result of acquiring the asset or using it for purposes other than the production of inventories.

Recognition of costs in the carrying amount of an item of property and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management.

Items such as spare parts, standby equipment and servicing equipment are recognised when they meet the definition of property and equipment.

Major inspection costs which are a condition of continuing use of an item of property and equipment and which meet the recognition criteria above are included as a replacement in the cost of the item of property and equipment. Any remaining inspection costs from the previous inspection are derecognised. Property and equipment is carried at cost less accumulated depreciation and any impairment losses.

Property and equipment is carried at cost less accumulated depreciation and any impairment losses.

The useful lives of items of property and equipment have been assessed as follows:

Item	Useful life (in years)
Buildings	20-25
Furniture and office equipment	2-6
Motor vehicles	4
Leasehold improvements	Shorter of the period of the lease agreement or the useful life
Other property, plant and equipment	5-10
Laboratory equipment	6-8

The residual value, and the useful life and depreciation method of each asset is reviewed at the end of each reporting date. If the expectations differ from previous estimates, the change is accounted for as a change in accounting estimate.

Reviewing the useful life of an asset on an annual basis does not require the entity to amend the previous estimate unless expectations differ from the previous estimate.

Each part of an item of property and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Items of property and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

Accounting Policies

for the year ended 31 March 2016

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

1.4 Intangible assets

An asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so; or
- arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the economic entity or from other rights and obligations.

A binding arrangement describes an arrangement that confers similar rights and obligations on the parties to it as if it were in the form of a contract.

An intangible asset is recognised when:

- it is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the economic entity; and
- the cost or fair value of the asset can be measured reliably.

The economic entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

Where an intangible asset is acquired through a non-exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.

Intangible assets are carried at cost less any accumulated amortisation and any impairment losses.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Amortisation is provided to write down the intangible assets, on a straight line basis, to their residual values as follows:

Item	Useful life
Computer software	2 years

1.5 Investments in controlled entities Controlling entity financial statements

In the entity's separate financial statements, investments in controlled entities are carried at cost less any accumulated impairment.

Accounting Policies

for the year ended 31 March 2016

The cost of an investment in a controlled entity is the aggregate of:

- the fair value, at the date of exchange, of assets given, liabilities incurred or assumed, and equity instruments issued by the entity; plus
- any costs directly attributable to the purchase of the controlled entity.

1.6 Investments in associates

Controlling entity financial statements

An investment in an associate is carried at cost less any accumulated impairment.

1.7 Financial instruments

Classification

The entity has the following types of financial assets (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

Class	Category
Investment in controlled entities	Financial assets at cost
Investment in associates	Financial assets at cost
Other financial assets	Financial assets at cost
Cash and cash equivalents	Financial assets at amortised cost
Loans and receivables	Financial asset at amortised cost

The entity has the following types of financial liabilities (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

Class	Category
Trade and other payables	Financial liability measured at amortised cost
Finance lease obligation	Financial liability measured at amortised cost
Loans from shareholders	Financial liability measured at amortised cost

Initial recognition

The entity recognises a financial asset or a financial liability in its statement of financial position when the entity becomes a party to the contractual provisions of the instrument.

The entity recognises financial assets using trade date accounting.

Initial measurement of financial assets and financial liabilities

The entity measures a financial asset and financial liability initially at its fair value plus transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

The entity first assesses whether the substance of a concessionary loan is in fact a loan. On initial recognition, the entity analyses a concessionary loan into its component parts and accounts for each component separately. The entity accounts for that part of a concessionary loan that is a social benefit in accordance with the Framework for the Preparation and Presentation of Financial Statements, where it is the issuer of the loan.

Accounting Policies

for the year ended 31 March 2016

1.7 Financial instruments (continued)

Subsequent measurement of financial assets and financial liabilities

The entity measures all financial assets and financial liabilities after initial recognition using the following categories:

- Financial instruments at amortised cost.
- Financial instruments at cost.

All financial assets are subject to an impairment review.

Reclassification

The entity does not reclassify a financial instrument while it is issued or held unless it is:

- a combined instrument that is required to be measured at fair value; or
- an investment in a residual interest that meets the requirements for reclassification.

Gains and losses

For financial assets and financial liabilities measured at amortised cost or cost, a gain or loss is recognised in surplus or deficit when the financial asset or financial liability is derecognised or impaired, or through the amortisation process.

Impairment and uncollectibility of financial assets

The entity assess at the end of each reporting period whether there is any objective evidence that a financial asset or group of financial assets is impaired. The impairment is calculated on an individual basis, based on historical losses, financial position of the entity, repayment terms and the commercial viability of the business.

Financial assets measured at amortised cost:

If there is objective evidence that an impairment loss on financial assets measured at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows

(excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced through the use of an allowance account. The amount of the loss is recognised in surplus or deficit.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed by adjusting an allowance account. The reversal does not result in a carrying amount of the financial asset that exceeds what the amortised cost would have been had the impairment not been recognised at the date the impairment is reversed. The amount of the reversal is recognised in surplus or deficit.

Financial assets measured at cost:

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, the amount of the impairment loss is measured as the difference between the carrying amount of the financial asset and the present value of estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment losses are not reversed.

Derecognition

Financial assets

The entity derecognises financial assets using trade date accounting.

The entity derecognises a financial asset only when:

- the contractual rights to the cash flows from the financial asset expire, are settled or waived;
- the entity transfers to another party substantially all of the risks and rewards of ownership of the financial asset; or

- On derecognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received is recognised in surplus or deficit.

If a transfer does not result in derecognition because the entity has retained substantially all the risks and rewards of ownership of the transferred asset, the entity continues to recognise the transferred asset in its entirety and recognise a financial liability for the consideration received. In subsequent periods, the entity recognises any revenue on the transferred asset and any expense incurred on the financial liability. Neither the asset, and the associated liability nor the revenue, and the associated expenses are offset.

Financial liabilities

The entity derecognises a financial liability (or a part of a financial liability) from its statement of financial position when it is extinguished — i.e. when the obligation specified in the contract is discharged, cancelled, expires or waived.

The difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid, including any non-cash assets transferred or liabilities assumed, is recognised in surplus or deficit. Any liabilities that are waived, forgiven or assumed by another entity by way of a non-exchange transaction are accounted for in accordance with the Standards of GRAP on Revenue from Non-exchange Transactions (Taxes and Transfers).

Presentation

Interest relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Dividends or similar distributions relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Losses and gains relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Distributions to holders of residual interests are recognised by the entity directly in net assets. Transaction costs incurred on residual interests are accounted for as a deduction from net assets.

A financial asset and a financial liability are only offset and the net amount presented in the statement of financial position when the entity currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In accounting for a transfer of a financial asset that does not qualify for derecognition, the entity does not offset the transferred asset and the associated liability.

1.8 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.

When a lease includes both land and building elements, the entity assesses the classification of each element separately.

Finance leases - lessee

Finance leases are recognised as assets and liabilities in the statement of financial position at amounts equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments.

The discount rate used in calculating the present value of the minimum lease payments is the interest rate implicit in the lease.

Accounting Policies

for the year ended 31 March 2016

1.8 Leases (continued)

Minimum lease payments are apportioned between the finance charge and reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate on the remaining balance of the liability.

Operating leases - lessor

Operating lease revenue is recognised as revenue on a straight-line basis over the lease term.

Initial direct costs incurred in negotiating and arranging operating leases are added to the carrying amount of the leased asset and recognised as an expense over the lease term on the same basis as the lease revenue.

Income for leases is disclosed under revenue in statement of financial performance.

Operating leases - lessee

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised in the statement of financial position as an operating lease asset or liability.

1.9 Impairment of cash-generating assets

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Impairment is a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation (amortisation).

Carrying amount is the amount at which an asset is recognised in the statement of financial position after deducting any accumulated depreciation and accumulated impairment losses thereon.

A cash-generating unit is the smallest identifiable group of assets managed with the objective of generating a commercial return that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets.

Costs of disposal are incremental costs directly attributable to the disposal of an asset, excluding finance costs and income tax expense.

Depreciation (Amortisation) is the systematic allocation of the depreciable amount of an asset over its useful life.

Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

Recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs to sell and its value in use.

Useful life is either:

- (a) the period of time over which an asset is expected to be used by the economic entity; or
- (b) the number of production or similar units expected to be obtained from the asset by the economic entity.

Criteria developed by the economic entity to distinguish cash-generating assets from non-cash-generating assets are as follows below.

Value in use

Value in use of a cash-generating asset is the present value of 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.

When estimating the value in use of an asset, the economic entity estimates the future cash inflows and outflows to be derived from continuing use of the asset and from its ultimate disposal and the economic entity applies the appropriate discount rate to those future cash flows.

1.10 Budget information

Economic entity is typically subject to budgetary limits in the form of appropriations or budget authorisations which is given effect through authorising appropriation via a vote.

General purpose financial reporting by the economic entity shall provide information on whether resources were obtained and used in accordance with the legally adopted budget. The standard applies to entities that are required or elect to make publicly available their approved budgets, in the economic entity's case this principle only applies to the budget of the controlled entity.

The approved budget is prepared on an accrual basis and presented by economic classification.

The approved budget covers the financial period from 1 April 2015 to 31 March 2016.

The financial statements and the budget are on the same basis of accounting therefore a comparison with the budgeted amounts for the reporting period have been included in the Statement of comparison of budget and actual amounts.

Comparative information is not required.

1.11 Related parties

The economic entity operates in an economic sector currently dominated by entities directly or indirectly owned by the South African Government. As a consequence of the constitutional independence of the three spheres of government in South Africa, only entities within the national sphere of government are considered to be related parties.

Management are those persons responsible for planning, directing and controlling the activities of the economic entity, including those charged with the governance of the economic entity in accordance with legislation, in instances where they are required to perform such functions.

1.12 Employee benefits

Employee benefits are all forms of consideration given by an entity in exchange for services rendered by employees.

Termination benefits are employee benefits payable as a result of either:

- an entity's decision to terminate an employee's employment before the normal retirement date; or
- an employee's decision to accept voluntary redundancy in exchange for those benefits.

Short-term employee benefits

Short-term employee benefits are employee benefits (other than termination benefits) that are due to be settled within twelve months after the end of the period in which the employees render the related service.

Short-term employee benefits include items such as:

- wages, salaries;

Accounting Policies

for the year ended 31 March 2016

1.12 Employee benefits (continued)

- short-term compensated absences (such as paid annual leave and paid sick leave) where the compensation for the absences is due to be settled within twelve months after the end of the reporting period in which the employees render the related employee service;
- bonus, incentive and performance related payments payable within twelve months after the end of the reporting period in which the employees render the related service; and

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 entity measures the expected cost of accumulating compensated absences as the additional amount that the entity expects to pay as a result of the unused entitlement that has accumulated at the reporting date.

The entity recognises the expected cost of bonus, incentive and performance related payments as accruals when the entity has a present legal or constructive obligation to make such payments as a result of past events and a reliable estimate of the obligation can be made. A present obligation exists when the entity has no realistic alternative but to make the payments.

Post-employment benefits: Defined contribution plans

Defined contribution plans are post-employment benefit plans under which an entity pays fixed contributions into a separate entity (a fund) and will have no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employee benefits relating to employee service in the current and prior periods. The entity contributes to a pension fund under this definition.

1.13 Contingencies

Contingent assets and contingent liabilities are not recognised in the statement of financial position, but are disclosed as a note to the financial statements.

1.14 Revenue from exchange transactions

Revenue is the gross inflow of economic benefits or service potential during the reporting period when those inflows result in an increase in net assets, other than increases relating to contributions from owners. Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services or use of assets) to another entity in exchange.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

Revenue from exchange transactions include interest, royalties and dividends earned as well as profit on sale of assets.

Measurement

Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts and volume rebates.

Interest, royalties and dividends

Revenue arising from the use by others of entity assets yielding interest, royalties and dividends is recognised when:

- It is probable that the economic benefits or service potential associated with the transaction will flow to the entity, and
- The amount of the revenue can be measured reliably.

Interest is recognised, in surplus or deficit, using the effective interest method.

Royalties are recognised in surplus or deficit, as they are earned in accordance with the substance of the relevant agreements.

Dividends, or their equivalents are recognised, in surplus or deficit, when the entity's right to receive payment has been established.

1.15 Revenue from non-exchange transactions

Revenue comprises gross inflows of economic benefits or service potential received and receivable by an entity, which represents an increase in net assets, other than increases relating to contributions from owners.

Conditions on transferred assets are stipulations that specify that the future economic benefits or service potential embodied in the asset is required to be consumed by the recipient as specified or future economic benefits or service potential must be returned to the transferor.

Control of an asset arises when the entity can use or otherwise benefit from the asset in pursuit of its objectives and can exclude or otherwise regulate the access of others to that benefit.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services, or use of assets) to another entity in exchange.

Expenses paid through the tax system are amounts that are available to beneficiaries regardless of whether or not they pay taxes.

Non-exchange transactions are transactions that are not exchange transactions. In a non-exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Restrictions on transferred assets are stipulations that limit or direct the purposes for which a transferred asset may be used, but do not specify that future economic benefits or service potential is required to be returned to the transferor if not deployed as specified.

Stipulations on transferred assets are terms in laws or regulation, or a binding arrangement, imposed upon the use of a transferred asset by entities external to the reporting entity.

Transfers are inflows of future economic benefits or service potential from non-exchange transactions, other than taxes.

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.

Accounting Policies

for the year ended 31 March 2016

1.15 Revenue from non-exchange transactions (continued)

When, as a result of a non-exchange transaction, the entity recognises an asset, it also recognises revenue equivalent to the amount of the asset measured at its fair value as at the date of acquisition, unless it is also required to recognise a liability. 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.

1.16 Investment income

Investment income is recognised on a time-proportion basis using the effective interest method.

1.17 Finance costs

Borrowing costs are interest and other expenses incurred by an entity in connection with the borrowing of funds.

Borrowing costs are recognised as an expense in the period in which they are incurred.

1.18 Irregular and fruitless and wasteful expenditure

Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, requirements of any applicable legislation, including the PFMA.

Fruitless and wasteful expenditure means expenditure that was made in vain and would have been avoided had reasonable care been exercised.

All irregular and fruitless and wasteful expenditure are charged against the respective class of expenditure in the statement of financial performance in the period in which they are incurred and disclosed in a note in the period in which it is identified.

2. Standards and interpretations

2.1 Standards and interpretations issued, but not yet effective

The economic entity has not applied the following standards and interpretations, which have been published and are mandatory for the economic entity's accounting periods beginning on or after 01 April 2016 or later periods:

Standard/ Interpretation:	Effective date: Years beginning on or after	Expected impact:
GRAP 18: Segment Reporting	01 April 2017	The adoption of this amendment will not have a material impact on the results of the company but will result in more disclosure than would have previously been provided in the financial statements
GRAP 20: Related parties	01 April 2017	The impact of the amendment is not material.
GRAP 109: Accounting by Principals and Agents	01 April 2017	The impact of the amendment is not material.

Notes to the Financial Statements

for the year ended 31 March 2016

3. Trade and other receivables

	Economic entity		Controlling entity	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Trade receivables	3,415	4,283	2,045	2,834
Prepayments	1,102	558	1,105	558
Deposits	444	944	364	864
Other receivables *	12,879	59,429	12,604	59,783
	17,840	65,214	16,118	64,039

* Included in other receivables are the results of sales of investments in associates that were concluded on 30 and 31 March 2016. The amounts due were received in April 2016.

Fair value of trade and other receivables

The entity is of the opinion that the carrying value approximates the fair value of trade and other receivables at period end, due to the short term nature of these balances.

Trade and other receivables past due but not impaired

Trade and other receivables which are less than 3 months past due are not considered to be impaired. At 31 March 2016, R nil (2015: R nil) was past due but not impaired.

The ageing of amounts past due but not impaired is as follows:

3 months past due	429	305	14	275
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Trade and other receivables impaired

The amount of the provision for impairment is R 311 084 as of 31 March 2016 (2015: R 311 084).

The ageing of these balances are as follows:

Over 6 months	429	311	311	311
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Reconciliation of provision for impairment of trade and other receivables

Opening balance	311	311	311	311
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The creation and release of the provision for impaired receivables has been included in operating expenses in the statement of financial performance. Amounts charged to the allowance account are generally written off when the recovery of such amounts is improbable.

No collateral is held as security.

Notes to the Financial Statements

for the year ended 31 March 2016

4. Cash and cash equivalents

Cash and cash equivalents consist of:

	Economic entity		Controlling entity	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Cash on hand	6	11	6	11
Bank balances	141,131	74,787	132,327	66,270
	141,137	74,798	132,333	66,281

The R132 327 000 cash balance in the Controlling entity on 31 March 2016 is committed in full through funding agreements. Refer to note 26 for detail on these agreements.

The entity is of the opinion that the carrying value approximates the fair value of cash and cash equivalents at period end, due to the short term nature.

Notes to the Financial Statements

for the year ended 31 March 2016

5. Property and equipment

	2016			2015		
	Cost	Accumulated depreciation / impairment	Carrying value	Cost	Accumulated depreciation / impairment	Carrying value
	R '000	R '000	R '000	R '000	R '000	R '000
Economic entity						
Land and buildings	1,676	(861)	815	1,676	(742)	934
Furniture and office equipment	27,637	(18,957)	8,680	21,303	(15,968)	5,335
Motor vehicles	303	(303)	-	312	(296)	16
Leasehold improvements	14,214	(14,185)	29	14,214	(11,509)	2,705
Other property and equipment	7,374	(7,281)	93	7,194	(7,021)	173
Laboratory equipment	13,121	(11,630)	1,491	11,693	(8,848)	2,845
Total	64,325	(53,217)	11,108	56,392	(44,384)	12,008
Controlling entity						
Land and buildings	2,700	-	2,700	2,700	-	2,700
Furniture and office equipment	26,251	(17,844)	8,407	19,818	(14,901)	4,917
Motor vehicles	299	(299)	-	308	(293)	15
Leasehold improvements	14,214	(14,185)	29	14,214	(11,509)	2,705
Laboratory equipment	12,872	(11,478)	1,394	12,854	(10,779)	2,075
Total	56,336	(43,806)	12,530	49,894	(37,482)	12,412

Notes to the Financial Statements

for the year ended 31 March 2016

5. Property and equipment (continued)

Reconciliation of property and equipment - Economic entity - 2016

	Opening balance	Additions	Disposals	Other changes, movements	Deprecia- tion	Closing balance
	R '000	R '000	R '000	R '000	R '000	R '000
Land and buildings	934	-	-	-	(119)	815
Furniture and office equipment	5,335	7,299	(808)	762	(3,908)	8,680
Motor vehicles	16	-	(9)	-	(7)	-
Leasehold improvements	2,705	-	-	-	(2,676)	29
Other property, plant and equipment	173	-	-	-	(80)	93
Laboratory equipment	2,845	18	-	-	(1,372)	1,491
	12,008	7,317	(817)	762	(8,162)	11,108

Reconciliation of property and equipment - Economic entity - 2015

Land and buildings	984	-	-	-	(50)	934
Furniture and office equipment	9,362	681	(80)	-	(4,628)	5,335
Motor vehicles	71	-	-	-	(55)	16
Leasehold improvements	5,138	141	(8)	-	(2,566)	2,705
Other property, plant and equipment	193	105	-	-	(125)	173
Laboratory equipment	5,009	552	-	-	(2,716)	2,845
	20,757	1,479	(88)	-	(10,140)	12,008

Notes to the Financial Statements

for the year ended 31 March 2016

Reconciliation of property and equipment - Controlling entity - 2016

	Opening balance	Additions	Disposals	Other changes, movements	Depreciation	Closing balance
	R '000	R '000	R '000	R '000	R '000	R '000
Land and buildings	2,700	-	-	-	-	2,700
Furniture and office equipment	4,917	7,299	(808)	762	(3,763)	8,407
Motor vehicles	15	-	(9)	-	(6)	-
Leasehold improvements	2,705	-	-	-	(2,676)	29
Laboratory equipment	2,075	18	-	-	(699)	1,394
	12,412	7,317	(817)	762	(7,144)	12,530

Reconciliation of property and equipment - Controlling entity - 2015

Buildings	2,700	-	-	-	-	2,700
Furniture and office equipment	8,905	681	(80)	-	(4,589)	4,917
Motor vehicles	71	-	-	-	(56)	15
Leasehold improvements	5,138	141	(8)	-	(2,566)	2,705
Laboratory equipment	4,067	552	-	-	(2,544)	2,075
	20,881	1,374	(88)	-	(9,755)	12,412

Pledged as security

None of the assets above have been pledged as security or have restrictions on title.

The carrying value of assets included in furniture and office equipment under finance leases: R186 477 (2015: R130 814).

Depreciation related to technology platform programme's is included in project expenditure.

Notes to the Financial Statements

for the year ended 31 March 2016

6. Intangible assets

	2016			2015		
	Cost	Accumulated amortisation / impairment	Carrying value	Cost	Accumulated amortisation / impairment	Carrying value
	R'000	R'000	R'000	R'000	R'000	R'000
Economic entity						
Computer software	4,126	(3,265)	861	4,083	(2,847)	1,236
Controlling entity						
Computer software	3,457	(2,641)	816	3,457	(2,229)	1,228

	Opening balance	Additions	Amortisation	Total
	R'000	R'000	R'000	R'000

Reconciliation of intangible assets - Economic entity - 2016

Computer software	1,236	43	(418)	861
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Reconciliation of intangible assets - Economic entity - 2015

Computer software	1,692	261	(717)	1,236
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Reconciliation of intangible assets - Controlling entity - 2016

Computer software	1,228	-	(412)	816
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Reconciliation of intangible assets - Controlling entity - 2015

Computer software	1,679	261	(712)	1,228
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Restricted title

None of the above intangible assets have restrictions in title or have been pledged as security.

Notes to the Financial Statements

for the year ended 31 March 2016

7. Investments in controlled entities

Name of company	Reporting period end	% holding 2016	% holding 2015	Carrying amount 2016 R'000	Carrying amount 2015 R'000
Active investments					
African Clinical Research Organisation (Pty) Ltd	31 Mar	81.67%	81.67%	-	-
Bio2Biz (Pty) Ltd	31 Dec	58.75%	58.75%	-	-
Genecare Molecular Genetics (Pty) Ltd *	30 Sep	-%	100.00%	-	-
Investments in deregistration/liquidation					
Capelands Nurseries (Pty) Ltd	31 Mar	100.00%	100.00%	-	-
Ithemba Pharmaceuticals (Pty) Ltd	31 Dec	50.10%	50.10%	-	-
Natural Carotenoids South African (Pty) Ltd	31 Jul	98.83%	98.83%	-	-
				-	-

* This entity was sold during the current financial year.

The carrying amounts of controlled entities are shown net of impairment losses.

Controlled entities with different reporting dates from that of the controlling entity

A number of controlled entities have reporting dates that differ from the controlling entity. If the reporting date is within a 3 month period of the reporting period of the controlling entity, the annual financial statements for that period will be used in consolidating the results of the entity. The management accounts for the entities were reviewed in order to ensure that no significant changes took place between the reporting date and 31 March, 2016.

Where the reporting dates differ with more than 3 months, a review of the financial affairs of the entity is performed up to the reporting date of the controlling entity and this is used for consolidation purposes.

Notes to the Financial Statements

for the year ended 31 March 2016

8. Investments in associates

Name of entity	Reporting period end	% holding 2016	% holding 2015	Equity accounted amount 2016	Equity accounted amount 2015	Carrying amount 2016	Carrying amount 2015
				R'000	R'000	R'000	R'000
Active investments							
Biogold Holdings (Pty) Ltd *	31 Mar	-%	33.30%	-	2,088	-	3,000
Blue Cube Systems (Pty) Ltd	31 Dec	25.00%	25.00%	5,718	3,456	3,013	3,013
Centre of Proteomic and Genomic Research NPC	31 Mar	50.00%	50.00%	-	-	-	-
Citrogold (Pty) Ltd *	31 Mar	-%	33.90%	-	8,171	-	1,488
Femtech (Pty) Ltd	28 Feb	69.00%	69.00%	-	-	-	-
LifeAssay (Pty) Ltd	28 Feb	26.00%	26.00%	-	-	-	-
Kapa Biosystems (Pty) Ltd	31 May	-%	49.00%	-	-	-	-
Ribotech (Pty) Ltd	31 Aug	35.00%	35.00%	-	-	-	-
Stellenbosch Wind Energies Technologies (Pty) Ltd	31 Mar	26.00%	26.00%	-	-	-	-
Xsit (Pty) Ltd **	31 Mar	-%	50.00%	-	7,527	-	7,900
Investments in deregistration/liquidation							
Adept Airmotive (Pty) Ltd ***	28 Feb	-%	25.00%	-	-	-	-
Azitu Biotech (Pty) Ltd ***	31 Mar	-%	60.00%	-	-	-	-
Bio Career Technology (Pty) Ltd	28 Feb	51.00%	51.00%	-	-	-	-
Commercial Aquaculture (Pty) Ltd	28 Feb	34.00%	34.00%	-	-	-	-
Control Maize Trading (Pty) Ltd	28 Feb	51.00%	51.00%	-	-	-	-
Edgi Tech (Pty) Ltd	28 Feb	26.00%	26.00%	-	-	-	-
Eyeborn (Pty) Ltd	31 Mar	25.00%	25.00%	-	-	-	-
Geratech Zirconium Benefication (Pty) Ltd	28 Feb	48.02%	48.02%	-	-	-	-
Jerihsa Medical (Pty) Ltd	28 Feb	31.00%	31.00%	-	-	-	-
Medupi Pharma (Pty) Ltd **	28 Feb	59.60%	59.60%	-	-	-	-
Mycoroot (Pty) Ltd	28 Feb	25.00%	25.00%	-	-	-	-
Niocad (Pty) Ltd	28 Feb	22.00%	22.00%	-	-	-	-
Nkomazi Chemicals (Pty) Ltd	30 Jun	35.74%	35.74%	-	-	-	-
Nulane Investment 219 (Pty) Ltd	28 Feb	26.00%	26.00%	-	-	-	-
Optimal Energy (Pty) Ltd	28 Feb	33.80%	33.80%	-	-	-	-
Robonica (Pty) Ltd	31 Mar	41.00%	41.00%	-	-	-	-
Silverlake Trading (Pty) Ltd	28 Feb	28.00%	28.00%	-	-	-	-
Tenacent SA (Pty) Ltd	28 Feb	20.00%	20.00%	-	-	-	-
				5,718	21,242	3,013	15,401

Notes to the Financial Statements

for the year ended 31 March 2016

The carrying amounts of investments in associates are shown net of impairment losses. Although the controlling entity holds more than 50% of the voting powers in some of the entities, the investment is not considered a controlled entity because the controlling entity does not have control over the entity due to voting rights/appointment powers of directors. These investments are therefore classified as investments in associates.

* The controlling entity sold its shares in these companies on 30 November 2015.

** The controlling entity entered into a sale of share agreement with Medupi Pharma (Pty) Ltd and Xsit (Pty) Ltd on 30 March 2016 and 31 March 2016 respectively. The settlement of the sale was effected subsequent to year end.

*** The controlling entity received a final liquidation dividend for these entities.

Movements in carrying value

	Economic entity		Controlling entity	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Opening balance	21,242	40,668	15,401	20,789
Share of surplus	8,164	10,037	-	-
Sale of investment in associate	(23,688)	(29,463)	(12,388)	(5,068)
Impairment of investments in associates	-	-	-	(320)
	5,718	21,242	3,013	15,401

Principal activities

Legal name

Blue Cube Systems (Pty) Ltd
 Centre for Proteomic and Genomic Research
 Femtech (Pty) Ltd
 Kapa Biosystems (Pty) Ltd
 LifeAssay Diagnostics (Pty) Ltd
 Ribotech (Pty) Ltd
 Stellenbosch Wind Energies Technologies (Pty) Ltd

Principal activity

Development of real-time IT systems for Mining applications
 The provision of an 'omics' technology platform
 Production of recombinant proteins
 Manufacture of next generation novel enzymes
 Manufacturer of vitro diagnostics test kits
 Manufacturing of rHOG-CSF. Product is used in cancer treatment
 Manufacturing unique high quality wind turbines for use in renewable energy electrical power systems

All the above entities are incorporated in South Africa.

Notes to the Financial Statements

for the year ended 31 March 2016

8. Investments in associates (continued)

Summary of controlling entity's interest in associates

	2016	2015
	R'000	R'000
Total assets	131,228	171,890
Total liabilities	(194,888)	(281,126)
Net assets/(liabilities)	(63,660)	(109,236)
Revenue	56,746	264,213
Surplus/(deficit)	(6,880)	16,994

Associates with different reporting dates

A number of associate entities have reporting dates that differ from that of the controlling entity. If the reporting date is within a 3 month period of the reporting period end of the controlling entity, the annual financial statements for that period will be used in the results of the entity using equity accounting. The management accounts for the entities were reviewed in order to ensure that no significant changes took place between reporting date and 31 March, 2016.

Unrecognised share of losses of associates

The economic entity has discontinued recognising its share of the deficits of associate companies, as the investment is held at R nil and the economic entity has no obligation for any deficits of the associate. The total unrecognised deficits for the current period amount to R 5,764,853 (2015: R 6,084,818). The accumulated unrecognised deficits to date amount to R 52,584,299 (2015: R 144,787,848).

Notes to the Financial Statements

for the year ended 31 March 2016

9. Loans and receivables

Associates

Azitu Biotech (Pty) Ltd

The loan has no fixed repayment terms and accrues interest at prime less 4% for the first 5 years of the loan. Thereafter the loan accrues interest at prime.

Xsit (Pty) Ltd *

The loan has no fixed repayment terms and accrues interest at prime plus 1%

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
-	1,900	-	1,900
-	8,109	-	8,109
-	10,009	-	10,009

* The controlling entity sold its share in the company, therefore the loan repayable to the controlling entity is disclosed under other entities.

Management does not intend to realise these loans within the next 12 months.

Other entities

Agriprotein (Pty) Ltd

The loan bears interest at prime and is repayable on demand after 24 months from first disbursement over a period of 60 months.

Balancell (Pty) Ltd *

The loan bears interest at prime and interest repayments will commence 18 months after first disbursement. Capital will become repayable 42 months after first disbursement.

SA Cardiosynthetics (Pty) Ltd *

The loan bears interest at prime + 10% and is repayable on demand after 36 months, over a period of 60 months.

Safe Eggs (Pty) Ltd **

The loan has no fixed repayment terms and accrues interest at prime.

Xsit (Pty) Ltd

The loan has no fixed repayment terms and accrues interest at prime plus 1%

13,237	10,512	13,237	10,512
-	7,642	-	7,642
-	16,044	-	16,044
-	167	-	167
5,989	-	5,989	-
19,226	34,365	19,226	34,365

* These loans were impaired during the current financial year.

** This loan was settled during the current financial year.

Management does not intend to realise the loans within the next 12 months.

Notes to the Financial Statements

for the year ended 31 March 2016

9. Loans and receivables (continued)

Carrying amounts of loans and receivables are shown net of impairment losses. Loans and receivables include the following categories:

	Economic entity		Controlling entity	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Loans to associates	-	10,009	-	10,009
Loans to other entities	19,226	34,365	19,226	34,365
	19,226	44,374	19,226	44,374

Loans to associates and other entities impaired

As of 31 March 2016, loans to associates and other entities of R 163,811,540 (2015: R 160,149,318) were impaired and provided for. The movement from prior year to current year includes the deregistration of previously impaired investee companies as well as current year impairment.

The creation and release of provision for impaired receivables has been included in operating expenses in the statement of financial performance. Amounts charged to the allowance account are generally written off when the recovery of such amounts is improbable.

The maximum exposure to credit risk at the reporting date is the carrying amount of each class of loan mentioned above. The economic entity does not hold collateral as security.

Notes to the Financial Statements

for the year ended 31 March 2016

10. Other financial assets

Designated at fair value

The Biologicals and Vaccines Institute of SA (Pty) Ltd

This loan was impaired during the current financial year.

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
26,300	40,572	26,300	40,572

11. Finance lease obligation

Minimum lease payments due

- within one year

Less: future finance charges

Present value of minimum lease payments

Present value of minimum lease payments due

- within one year

194	202	194	202
-	(14)	-	(14)
194	188	194	188
194	188	194	188

It is the economic entity's policy to lease certain office equipment under finance leases.

The average lease term is 5 years and the average effective borrowing rate was 15% (2015: 14%).

Interest rates are linked to prime at the contract date. All leases have fixed repayments and no arrangements have been entered into for contingent rent.

Notes to the Financial Statements

for the year ended 31 March 2016

12. Trade and other payables

Trade payables *

Employee related accruals

Other payables

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
14,255	22,613	12,978	26,188
6,222	7,480	5,739	6,841
2,399	2,419	2,399	2,400
22,876	32,512	21,116	35,429

13. Loans from shareholders

Loans from shareholders

2,762	2,762	-	-
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These loans are non-interest bearing and have no fixed repayment terms.

14. Committed conditional grants and receipts

Committed conditional grant balances comprise of:

Unspent conditional grants and receipts

Advanced manufacturing technology strategy

Alternative energy

Biodesign initiative programme

BIO-entrepreneurship programme

Bio-fuels

Biosafety communication strategy

DST KZN regional innovation strategy

ICT flagship programme

Innovation bridge

Limpopo agri food technology station

NRF newton fund

Sugarcane

Technology station programme

Technology station expansion programme

3,531	1,594	3,531	1,594
-	258	-	258
10,031	-	10,031	-
128	607	128	607
8,047	1,470	8,047	1,470
1,530	1,939	1,530	1,939
1,097	1,030	1,097	1,030
3,000	3,000	3,000	3,000
7,081	-	7,081	-
93	2,129	93	2,129
2,000	2,000	2,000	2,000
1,822	1,710	1,822	1,710
90	56	90	56
5,636	429	5,636	429
44,086	16,222	44,086	16,222

Notes to the Financial Statements

for the year ended 31 March 2016

15. Revenue from non-exchange transactions

DST allocation received during the year

Committed conditional grant funding recognised for:

Advanced manufacturing technology strategy

BIO-entrepreneurship programme

Bio-fuels

Biosafety communication strategy

HEI Seed fund programme

Technology station programme

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
385,188	338,386	385,188	338,386
391	-	391	-
521	890	521	890
66	6,151	66	6,151
521	176	521	176
5,000	-	5,000	-
37,623	43,767	37,623	43,767
429,310	389,370	429,310	389,370

16. Other income

Royalties received

Sundry receipts

EWSETA funding received

NRF funding received

Profit on disposal of assets

(Loss)/Profit on sale of investment

Limpopo agri food technology station

UNIDO funding received

5,652	517	5,652	517
20,004	12,704	738	640
3,075	2,205	3,075	2,205
700	1,385	700	1,385
61	124	61	124
(17,653)	35,069	3,695	59,467
2,870	-	2,870	-
1,189	1,119	1,189	1,119
15,898	53,123	17,980	65,457

Notes to the Financial Statements

for the year ended 31 March 2016

17. Investment income

Interest received

Interest earned - Loans and receivables
Interest earned - Bank
Interest received - Loans and receivables

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
5,439	3,544	5,439	3,544
11,743	14,023	11,289	13,728
628	599	628	599
17,810	18,166	17,356	17,871

18. Employee related costs

Remuneration
Defined contribution plans

86,682	116,668	77,621	103,409
5,936	7,103	5,936	7,103
92,618	123,771	83,557	110,512

Employee related costs for the controlling entity reduced significantly due to the fact that the entity embarked on an organisational design process. Staff numbers decreased from the previous financial year resulting in the reduction seen above.

Employee costs for the internal technology platforms are included in project funding expenditure disclosed in note 19.

Notes to the Financial Statements

for the year ended 31 March 2016

19. Project funding expenditure

Project grants - third party

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
334,383	363,354	335,119	371,530

Project funding expenditure is made up of the following:

Technology development	81,196	145,510	81,196	153,686
Technology innovation programme	4,344	9,832	4,344	9,832
Technology station programme	83,433	86,684	83,433	86,684
Technology platform programme *	67,118	41,368	67,118	41,368
Youth technology innovation programme	5,249	4,573	5,249	4,573
Seed fund	70,297	43,710	70,297	43,710
Innovation skills development programme	21,154	12,978	21,154	12,978
Contracted conditional grant spend not disclosed above	1,499	13,491	1,499	13,491
Other	93	5,208	829	5,208
	334,383	363,354	335,119	371,530

* Included in the technology platform programme expenditure are operational costs associated with internal platforms such as salaries and depreciation.

20. Project funding impaired

Impairment of financial assets at cost	14,272	-	14,272	320
Impairment of financial assets at amortised cost	29,366	1,632	29,366	1,632
	43,638	1,632	43,638	1,952

Notes to the Financial Statements

for the year ended 31 March 2016

21. Other operating expenses

Other operating expenses include expenditure such as:

Auditors remuneration

Consulting and professional fees

IT expenses

Marketing

Placement fees

Telephone and fax

Training

Travel and accommodation

Electricity

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000

1,221	1,679	1,092	1,584
6,022	8,655	5,440	7,311
7,153	7,196	6,921	6,875
1,914	479	1,595	250
593	1,075	593	1,075
1,091	1,694	932	1,438
3,156	3,000	3,137	2,912
5,525	3,845	5,524	3,843
1,428	1,653	1,272	1,491

22. Taxation

The controlling entity is exempt from income tax in terms of the provisions of section 10(1)(cA)(i) of the Income Tax Act.

23. Net cash flows used in operating activities

Deficit	(53,711)	(71,654)	(46,298)	(61,985)
Adjustments for:				
Depreciation and amortisation	8,743	10,859	7,565	10,471
(Gain)/loss on foreign exchange	(469)	340	-	-
Income from equity accounted investments	(8,415)	(10,037)	-	-
Assets written off	(46)	88	(44)	88
Sale of investments	17,653	5,065	(3,695)	5,068
Project funding impaired	43,638	1,632	43,638	1,952
Interest on loan accounts	(5,439)	(3,544)	(5,439)	(3,544)
Changes in working capital:				
Trade and other receivables	49,494	(29,541)	59,959	(55,343)
Trade and other payables	(11,046)	11,564	(15,614)	17,913
	40,402	(85,228)	40,072	(85,380)

Notes to the Financial Statements

for the year ended 31 March 2016

24. Related parties

Relationships

Members

Refer to members' report note

Controlled entities

Refer to note 7

Associates

Refer to note 8

National Department

Ministry of Science and Technology

National Government Business Enterprises

Council for Scientific and Industrial Research

National Public Entities

Agricultural Research Council/Onderstepoort Biological Products SOC

Related party balances

Loan accounts - Owing to related parties

ACRO - Batswadi Pharmaceuticals (Pty) Ltd

2016

2015

R'000

R'000

(2,625)

(2,625)

Committed conditional grants

Ministry of Science and Technology

(44,086)

(16,222)

Related party transactions

Interest received from related parties

TIA - Interest received from associates

(628)

(599)

Royalties received from related parties

TIA - Royalties received from associates

(986)

(377)

Allocations received

TIA - Ministry of Science and Technology

(429,310)

(389,370)

TIA - National Research Foundation

(700)

(1,385)

Project funds returned

TIA - Council for Scientific and Industrial Research

(2,484)

-

Grants disbursed

TIA - Council for Scientific and Industrial Research

11,852

9,483

TIA - Agricultural Research Council

6,792

9,832

TIA - Grants disbursed to associates

372

14,061

Notes to the Financial Statements

for the year ended 31 March 2016

25. Members' emoluments

Executive

2016

TIA

Mr B Manilal - CEO (from 01/04/2015)

Mr W van der Merwe - CFO

Ms F Pienaar (from 01/07/2015)

Dr S Gumbi (until 30/11/2015) **

Ms P Maruping (until 31/01/2016)

Ms F Harrisunker

Emoluments	Annual Bonus	Allowances*	Other	Total
R'000	R'000	R'000	R'000	R'000
2,496	-	15	-	2,511
1,920	68	20	-	2,008
1,130	-	-	-	1,130
1,277	63	88	289	1,717
1,680	70	86	-	1,836
837	-	-	-	837
9,340	201	209	289	10,039

* Allowances include the following: Cell phone, car, acting, travel and subsistence.

** Although Dr S Gumbi terminated her employment contract with the controlling entity on 30 November 2015, her services were retained on a fixed term contract for the remaining 4 months of the financial year.

2015

TIA

Prof R Kfir - Interim CEO (from 01/05/2014 to 31/03/2015)

Mr W van der Merwe - CFO

Mr M Mazibuko - COO (until 28/02/2015)

Dr S Gumbi

Ms P Maruping

Ms M Mkhwanazi (30/11/2014)

Ms C Mamabolo (from 01/12/2014)

Ms A Machobane (from 01/05/2014 to 31/01/2015)

Ms F Harrisunker (from 01/01/2015)

Adv T Polaki (until 30/05/2014)

Emoluments	Bonus	Allowances*	Other	Total
R'000	R'000	R'000	R'000	R'000
2,007	-	3	-	2,010
1,515	71	165	-	1,751
1,573	-	109	-	1,682
1,645	81	26	-	1,752
1,741	91	177	-	2,009
1,246	-	217	-	1,463
304	46	46	-	396
450	-	1	-	451
206	-	-	-	206
173	-	28	-	201
10,860	289	772	-	11,921

* Allowances include the following: Cell phone, car, acting, travel and subsistence.

Notes to the Financial Statements

for the year ended 31 March 2016

Board

2016

TIA

Ms K Njobe
Ms H Brown
Prof D Kaplan
Dr S Lennon
Dr B Mehlomakulu (until 13/05/2015)
Adv M Ralefatane
Ms R Xaba
Mr M Moolla (until 20/01/2016)
Dr P Terblanche
Prof D Hildebrandt (from 09/09/2015)

ACRO (non-executive directors)

Mr D du Toit
Mr C Whitfield

Members' fees	Committees fees	Other fees	Total
R'000	R'000	R'000	R'000
134	-	-	134
126	-	-	126
135	-	-	135
134	-	-	134
72	-	-	72
136	-	-	136
86	-	-	86
2	-	-	2
170	-	-	170
41	-	-	41
-	9	-	9
-	9	-	9
1,036	18	-	1,054

2015

TIA

Ms K Njobe
Ms H Brown
Mr F Hendricks (until 31/12/2014)
Prof D Kaplan
Dr S Lennon
Dr B Mehlomakulu
Adv M Ralefatane
Ms R Xaba
Mr M Moolla
Dr P Terblanche

ACRO (non-executive directors)

Mr D du Toit
Mr C Whitfield

Members' fees	Committees fees	Other fees	Total
R'000	R'000	R'000	R'000
77	-	-	77
39	-	-	39
38	-	-	38
44	-	6	50
38	-	-	38
61	-	-	61
52	-	-	52
14	-	-	14
-	-	6	6
49	-	1	50
-	13	-	13
-	19	-	19
412	32	13	457

Notes to the Financial Statements

for the year ended 31 March 2016

26. Contingencies

Contingent liabilities

Roll over of funds

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 2015/2016 financial year, the controlling entity will apply to retain accumulated funds. The financial impact of the final outcome of this application on the financial statements as well as the timing of the potential outflow of economic benefit could not be determined at period end. The controlling entity did obtain approval to retain surpluses as reported for 2014/2015.

Project funding

Project funding in terms of funding agreements.

Funding agreements

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
235,665	254,149	236,073	258,818

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

Contingent assets

Controlling entity: The controlling entity invested funds to the value of R5,381,739 with Corporate Money Managers (Pty) Ltd, which was placed under curatorship in previous periods. At the date of this report no finality has been reached on claims instated against the fund.

27. Commitments

Authorised capital expenditure

Already contracted for but not provided for

- Property and equipment
- Intangible assets

-	864	-	864
-	1,386	-	1,386
-	2,250	-	2,250

This committed expenditure relates to computer equipment and will be financed by available funds.

Notes to the Financial Statements

for the year ended 31 March 2016

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000

Operating leases - as lessee (expense)

Minimum lease payments due

- within one year	9,546	8,339	8,828	8,339
- in second to fifth year inclusive	15,605	4,841	15,423	4,841
	25,151	13,180	24,251	13,180

Operating lease payments represent rentals payable by the economic entity for certain of its offices. Leases are negotiated for an average term of five years and rentals are fixed for an average of three years. No contingent rent is payable.

28. Risk management

Capital risk management

The economic entity's objectives when managing capital is to safeguard their ability to continue as a going concern in order to provide benefits to its stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

The capital structure of the economic entity consists of cash and cash equivalents disclosed in note 4 and reserves as disclosed in the statement of financial position.

There are no externally imposed capital requirements and there were no changes in what the entity does to manage capital.

Financial risk management

The economic entity's activities expose it to a variety of financial risks: market risk (including currency risk, foreign currency risk and cash flow interest rate risk), credit risk and liquidity risk.

Notes to the Financial Statements

for the year ended 31 March 2016

28. Risk management (continued)

Liquidity risk

The economic entity manages liquidity risk through the compilation and monitoring of cash flow forecasts as well as ensuring that there are adequate banking facilities.

The maturity profiles of the financial instruments are summarised as follows:

Economic entity

At 31 March 2016	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
	R '000	R '000	R '000	R '000
Trade and other payables	16,654	-	-	-
Loans from shareholders	-	-	-	2,762
Finance lease obligations	194	-	-	-

At 31 March 2015	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
	R '000	R '000	R '000	R '000
Trade and other payables	25,032	-	-	-
Loans from shareholders	-	-	-	2,762
Finance lease obligations	188	-	-	-

Controlling entity

At 31 March 2016	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
	R '000	R '000	R '000	R '000
Trade and other payables	15,377	-	-	-
Finance lease obligations	194	-	-	-

At 31 March 2015	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
	R '000	R '000	R '000	R '000
Trade and other payables	28,588	-	-	-
Finance lease obligations	188	-	-	-

Notes to the Financial Statements

for the year ended 31 March 2016

Interest rate risk

Changes in interest rates will affect the revenue from exchange transaction revenue stream as the return on investment of surplus funds is linked to the prime rate.

Cash flow interest rate risk

Financial instrument	Current interest rate	Due in less than a year	Due in one to two years	Due in two to three years	Due in three to four years	Due after five years
		R '000	R '000	R '000	R '000	R '000
Cash reserves at CPD	5.71%	102,851	-	-	-	-
Cash reserves at Standard Bank of South Africa	5.50%	29,476	-	-	-	-
Other cash reserves at commercial banks	Various	8,804	-	-	-	-

Credit risk

Potential concentrations of credit risk consist mainly of cash and cash equivalents and trade receivables. The economic entity limits its counterparty exposures from its bank accounts by investing surplus funds with well-established financial institutions with a high quality credit standing. The credit exposure to any one counterparty is managed by monitoring transactions.

Trade receivables comprise a widespread customer base. Management evaluates credit risk relating to customers on an ongoing basis. At year end 31 March, 2016 the economic entity did not consider there to be any significant concentration of credit risk which had not been adequately impaired. The amount in the statement of financial position is the maximum exposure to credit risk.

Loans and receivables, investment in controlled entities, investment in associates and other investments consist mainly of funding granted to start up companies. The exposure to credit risk is managed through ongoing review of the operating results and financial position of the investee companies. Should the entity have doubt over the recoverability of the loan or the value of the investment, the loan/investment is impaired and further funding is carefully considered.

Financial assets exposed to credit risk at year end were as follows:

Financial instrument	Economic entity - 2016	Economic entity - 2015	Controlling entity - 2016	Controlling entity - 2015
	R '000	R '000	R '000	R '000
Cash and cash equivalents	141,131	74,787	132,327	66,270
Trade and other receivables	17,840	65,214	16,118	64,039
Loans and receivables	19,226	44,374	19,226	44,374

The entity has little doubt over the recoverability of trade and other receivables not considered to be impaired at year end.

Notes to the Financial Statements

for the year ended 31 March 2016

28. Risk management (continued)

The entity has reviewed the financial position of each of the entities where they have not impaired the loan disbursed or investment made to the investee company and based on this, management is of the opinion that at period end the amount is recoverable.

Foreign exchange risk

Foreign currency exposure arises from the sale of goods by entities within the economic entity.

A controlled entity, ACRO, operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the US dollar and the Euro. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities and net investment in foreign operations.

The economic entity reviews its foreign currency exposure, including commitments on an ongoing basis.

29. Irregular expenditure

Opening balance

Incurred by controlled entities

Incurred by controlling entity - relates to current year

Incurred by controlling entity - identified in the current year but relates to prior years

Less: Condoned

Less: Written off as not condoned and not recoverable

Less: Condoned by the Board of controlled entities

Less: Amounts written off as company was sold

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
44,349	13,421	36,000	5,804
663	732	-	-
117	14,655	117	14,655
-	41,547	-	41,547
(17)	(2,585)	(17)	(2,585)
(100)	(23,421)	(100)	(23,421)
(663)	-	-	-
(426)	-	-	-
43,923	44,349	36,000	36,000

Economic entity: 13 controlled entities were inherited when the trusts (Biopad, Lifelab, Plantbio, Thumisano, Innovation Fund, Cape Biotech Trust) were combined to form TIA. The entities were not set up to comply with the detail requirements of Treasury Regulation 16A6.1. The controlling entity is continuing to exit these entities and of the original 13 only 5 are remaining.

Notes to the Financial Statements

for the year ended 31 March 2016

29. Irregular expenditure (continued)

Controlling entity: Treasury Regulation 16A6.1 states that the procurement of goods and services should be through way of quotation, using the Preferential Point system for amounts exceeding R30 000 or through a bidding process where the amount exceeds R500 000. Two items were paid during the current financial year, one which was incurred in the 2014/2015 financial year and settled in the current financial year where due process was not followed and the second one where appropriate approval was not obtained. Disciplinary action was considered, but not instituted after thorough investigation. Controls were put in place to prevent further irregular expenditure.

The controlling entity engaged in a detailed process in 2014/2015 to identify irregular expenses related to prior financial years. The purpose of the process was to clear all the legacy issues dating back to 2012/2013. Through this process, several project funding initiatives were identified where the approval was not done in line with the delegation of authority. Two of these projects amounting to R36 m are carried over to the following financial year due to recoverability being uncertain.

The Board of the controlling entity condoned irregular expenses where it is allowed in terms of the Treasury Regulation and practise notes issued, and accepted irregular expenses as not condoned not recoverable where value was received for payments made.

30. Fruitless and wasteful expenditure

Opening balance

Fruitless and wasteful expenses incurred by controlled entities

Less: Amount written off as not recoverable by the Board

Economic entity		Controlling entity	
2016	2015	2016	2015
R '000	R '000	R '000	R '000
58	430	-	371
-	-	-	1
-	(372)	-	(372)
58	58	-	-

31. Losses through Criminal Conduct

Losses through criminal conduct

Losses during the financial year

Losses recovered

27	47	27	47
(33)	(184)	(33)	(184)
(6)	(137)	(6)	(137)

Controlling entity: Losses relate to laptops stolen from the agency and its employees. Insurance claims were lodged to minimise the losses. The losses recovered also include insurance claims submitted in 2014/2015 only paid in 2015/2016.

Notes to the Financial Statements

for the year ended 31 March 2016

32. Budget differences

Material differences between budget and actual amounts

The cash surplus in the controlling entity carried over from the financial year 2014/2015 resulted in the budget being revised and approved by the Board to utilise the surplus cash. In addition to this, operational challenges experienced necessitated a further revision of the budget. This revision was approved by the Board and executed by management. These changes have been noted under adjustments in the Statement of Comparison of Budget and Actual amounts.

32.1 The main reason for the difference in other income is attributed to the fact that funding was received for specific contracts such as the HEI seed fund programme. Furthermore, royalty income was higher than expected and there were further exits of equity investments.

32.2 An amount of R5.4 m was accrued on loans and receivables granted to investment projects.

32.3 Employee costs were lower than budget due to the impact of the TIA organisation design process. Vacancies were only filled towards the end of the financial year after the final structure was approved by the Board. Staff costs decreased with almost R27.0 m when compared to the 2014/2015 financial year.

32.4 Internal and external factors resulted in the budget not being reached for project funding expenditure. Internal factors included vacancies in crucial support units, senior staff that left as part of the organisational design process, an increase in general governance by management and reducing funding to be paid where surplus funds exist at funded institutions. External factors impacting TIA was the “fees must fall” campaign at HEI, project milestones not met and cash received in quarter 4 of the financial year.

32.5 The controlling entity realised savings on operational expenditure attributable to cost saving initiatives undertaken in costs such as lease rentals and consulting fees.

32.6 The actual deficit was lower than the budget due to R18 m more income received than that which was originally planned. Furthermore, R7 m is a result of operational expenses being managed below budget and savings generated as mentioned in 32.5 above.

Glossary



AH	Animal Health
AM	Advanced Manufacturing
AMTL	Advanced Manufacturing Technology Laboratory
APP	Annual Performance Plan
ARC	Agricultural Research Council
ARTIST	Adaptive Real-Time Internet Streaming Technology
ASME	American Society of Mechanical Engineers
ATNS	Air Traffic Navigation Services
ATS	Agri-food Technology Station
BGP	Beef Genomics Programme
BI	Business Intelligence
BMIDC	Bio-Manufacturing Industry Development Centre
BSA	Biosafety South Africa
BTL	Battery Testing Laboratory
CCDI	Cape Craft and Design Institute
CoC	Centre of Competence
CPGR	Centre for Proteomic and Genomic Research
CPUT	Cape Peninsula University of Technology
CSIR	Council for Scientific and Industrial Research
CTC	Cost to company
CUT	Central University of Technology
DEA	Department of Environmental Affairs
DGP	Dairy Genomics Programme
DIFR	Disabling Injury Frequency Rate
DST	Department of Science and Technology
dti	Department of Trade and Industry
DUT	Durban University of Technology
ED	Enterprise Development
EE	Employment Equity
EPL	Electromechanical Price Labeling
EV	Electrical Vehicle
EVIA	Electric Vehicle Infrastructure Alliance
EVP	Employee Value Proposition
EWSETA	Energy and Water Sector Education and Training Authority

Glossary



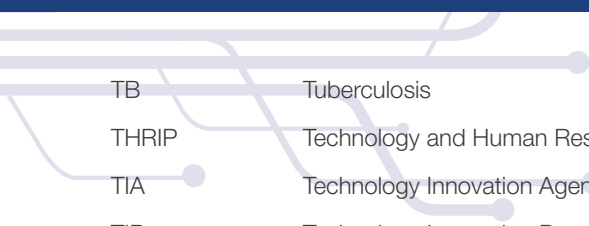
EXCO	Executive Committee
FLIP	Foresight Leadership Innovation Program
FY	Financial Year
GAP	Gauteng Accelerator Programme
GCIP	Global Cleantech Innovation Programme
GDP	Gross Domestic Product
GEF	Global Environment Facility
GERD	Gross Domestic Expenditure on Research and Development
GHG	Greenhouse gas
GMO	Genetically Modified Organism
GRAP	Generally Recognised Accounting Practice
HEI	Higher Education Institution
HR	Human Resources
HSRC	Human Science Research Council
IAT	Institute of Advanced Tooling
ICAS	Independent Counselling and Advisory Services
ICT	Information and Communications Technology
IDC	Industrial Development Corporation
IE&S	Innovation Enabling and Support
IIA	Institute of Internal Auditors
IoT	Internet of Things
IP	Intellectual Property
IPAP	Industrial Policy Action Plan
IPPF	International Professional Practice Framework
IPR	Intellectual Property Rights
ISD	Innovation Skills Development
ISP	Incubation Support Programme
KM	Knowledge Management
KPI	Key Performance Indicator
LTE	Live Testing Environment
MaPS	Materials and Process Synthesis
MCTS	Metal Casting Technology Station
MEA	Membrane Electrode Assembly
MMV	Medicines for Malaria Venture
MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework

Glossary



MTSF	Medium Term Strategic framework
MUT	Mangosuthu University of Technology
NACI	National Advisory Council on Innovation
NDP	National Development Plan
NGP	New Growth Path
NIPMO	National Intellectual Property Management Office
NMMU	Nelson Mandela Metropolitan University
NRF	National Research Fund
NSI	National System of Innovation
NWU	North-West University
OECD	Organisation for Economic Cooperation and Development
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
PAA	Public Audit Act
PDI	Previously Disadvantaged
PDTS	Product Development Technology Station
PFMA	Public Finance Management Act
PPPFA	Preferential Procurement Policy Framework and Act
R&D	Research and Development
RU	Rhodes University
SAASTA	South African Agency for Science and Technology Advancement
SAENSE	Novel Applications and Exploring Novelty in Specialized Environments
SARIMA	Southern African Research and Innovation Management Association
SATN	South African Technology Network
SC	Science Council
SEDA	Small Enterprise Development Agency
SET	Science Engineering and Technology
SETIIP	Science Engineering and Technology Industry Internship Programme
SFP	Seed Fund Programme
SHE	Safety, Health and Environment
SMART	Specific, Measurable, Attainable, Relevant and Time-bound
SME	Small and Medium Enterprise
SOE	State Owned Entity
SSRC	Strategic Stakeholder Relations and Communication
STA	Strategic Technology Area
STI	Science, Technology and Innovation

Glossary



TB	Tuberculosis
THRIP	Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TIP	Technology Innovation Programme
TRL	Technology Readiness Level
TS	Technology Station
TSCT	Technology Station Clothing and Textiles
TSE	Technology Station in Electronics
TSMPT	Technology Station in Material Processing Technologies
TSP	Technology Stations and Platforms
TTO	Technology Transfer Office
TUT	Tshwane University of Technology
UCT	University of Cape Town
UFH	University of Fort Hare
UFS	University of the Free State
UJ	University of Johannesburg
UKZN	University of KwaZulu-Natal
UL	University of Limpopo
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organisation
UNIVEN	University of Venda
UNIZULU	University of Zululand
UoT	University of Technology
UP	University of Pretoria
US	University of Stellenbosch
UWC	University of the Western Cape
VUT	Vaal University of Technology
Wits	University of the Witwatersrand
WSU	Walter Sisulu University
YTIP	Youth Technology Innovation Programme



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