CSIR
SHAREHOLDER'S COMPACT

Cycle commencing 1 April 2015

science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

CSIR
our future through science

CSIR Shareholder's Compact

Cycle Commencing 1 April 2015

Draft

28 January 2015

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Overview of Shareholder's Compact

The Shareholder's Compact is the performance agreement between the CSIR and the Department of Science and Technology. It consists of the text of the Compact itself (Chapter 2) and a series of supporting appendices covering the following aspects:

- Strategic planning documents:
  - The long-term CSIR Strategic Plan (Appendix A);
  - The CSIR Annual Performance Plan (Appendix B).
- Documents setting out the governance structures and risk management strategies of the CSIR:
  - The CSIR governance structure (Appendix C);
  - The CSIR Board terms of reference (Appendix D);
  - The Risk Management Plan (Appendix E);
  - The Fraud Prevention Plan (Appendix F);
  - The Materiality / Significance Framework (Appendix G).
- The CSIR's Financial Plan (Appendix H) and PFMA Exemptions (Appendix I).

Shareholder's Compact

SHAREHOLDER'S COMPACT

FOR THE CYCLE COMMENCING 1 APRIL 2014

MADE AND ENTERED INTO BY AND BETWEEN:

THE MINISTER OF SCIENCE AND TECHNOLOGY

Ms Naledi Pandor, in her capacity as Executive Authority of the CSIR, being the responsible Cabinet member (hereinafter referred to as "the Executive Authority")

and

THE CSIR BOARD

herein represented by Prof. Thokozani Majozi, the Chairperson of the Board, who duly represents the CSIR by virtue of being appointed Chairperson of the CSIR Board on 12 December 2014 by the Minister of Science and Technology

(hereinafter referred to as "the Accounting Authority")

(The parties are hereinafter collectively referred to as "the Parties")

WHEREAS:

The Parties wish to conclude a Shareholder's Compact in order to underscore a constructive working relationship between them, clarify mutual expectations that are to be satisfied, articulate the CSIR's role in support of the effective functioning of the National System of Innovation and establish a framework of good corporate governance;

Chapter 29.2 of the Treasury Regulations issued under the Public Finance Management Act furthermore requires the Accounting Authority of a Schedule 3B public entity to annually conclude a Shareholder's Compact with its Executive Authority; and

The CSIR Board is the organisation's Accounting Authority and the Minister of Science and Technology is its Executive Authority as Cabinet member responsible for the CSIR;

The Parties have negotiated and reached agreement on the contents of the Shareholder's Compact and wish to record the same in writing;

NOW THEREFORE THE PARTIES HEREBY AGREE AS FOLLOWS:

1. **GLOSSARY OF TERMS**

   In this Shareholder's Compact the following words and/or phrases shall have the following meanings:

   1.1 **Accounting Authority** shall mean the CSIR Board as established in terms of section 7 of the Scientific Research Council Act;

   1.2 The **Corporate Plan**, as embodied in Annexures A to H to this Shareholder's Compact, with

   Annexure A being the CSIR Strategic Plan,
   Annexure B being the CSIR Annual Plan for the 2015/16 financial year,
   Annexure E being the CSIR's Risk Management Plan,
   Annexure F the CSIR's Fraud Prevention Plan,
   Annexure G the Materiality Framework, and
   Annexure H the Financial Plan (consisting in turn of the Budget and Cashflow for 2015/16; the Group Three Year Financial Plan and the 3-year borrowing plan);

   1.3 **Annexure C** shall mean Annexure C to this Shareholder's Compact, being the Accounting Authority's Formal Terms of Reference;

   1.4 Annexure D shall mean Annexure Ito this Shareholder's Compact, being documentary proof of the exemptions granted in favour of the CSIR in terms of the PFMA;

   1.5 **Annual Budget** shall mean the CSIR's annual budget as embodied in Annexures A, B and H attached hereto;

1.6 **Balanced Scorecard Framework** shall mean the Executive Authority's framework for evaluating the performance of science, engineering and technology institutes described in the Department of Science and Technology (DST) publication entitled "Reviewing the SETI scorecards" dated May 2003;

1.7 **Basic Conditions of Employment Act** shall mean Act No 75 of 1997;

1.8 **B-BBEE Codes** shall mean the Broad-Based Black Economic Empowerment Codes as published in the Government Gazette from time to time;

1.9 **Employment Equity Act** shall mean Act No 55 of 1988;

1.10 **Effective Date** shall mean the effective date of this Shareholder's Compact, which shall be 1 April 2015;

1.11 **Executive Authority** shall mean the Minister of Science and Technology;

1.12 **KPIs** shall mean the performance measures described in the Corporate Plan, against which the performance of the CSIR shall be evaluated;

1.13 **Labour Relations Act** shall mean Act No 66 of 1995;

1.14 **Materiality Framework** shall mean the materiality framework as envisaged by Clauses 7.3 and 14. below and as recorded in Annexure G;

1.15 **Parties** shall mean the Executive Authority and the Accounting Authority respectively;

1.16 **Public Finance Management Act** ("PFMA") shall mean Acts No 1 and 29 of 1999;

1.17 **Shareholder's Compact** shall mean this document and all annexures thereto;

1.18 **Scientific Research Council Act** shall mean the CSIR's enabling legislation, namely Act No 46 of 1988, as amended by Act No 71 of 1990;

1.19 **Skills Development Act** shall mean Act No 97 of 1998;

1.20 **Treasury Regulations** shall mean the Regulations issued in terms of section 76 of the Public Finance Management Act.

2. THE SHAREHOLDER'S COMPACT

2.1 This Shareholder's Compact represents the agreement between the Executive Authority of the CSIR, being the Minister of Science and Technology, and the Accounting Authority of the CSIR, being the CSIR Board, herein represented by the Chairperson of the Board, by virtue of being appointed Chairperson of the CSIR Board on 12 December 2014 by the Minister of Science and Technology. It is a reflection of the expectations of each of the Parties, expressed in terms of outcomes and outputs that need to be achieved during the financial year starting on 1 April 2015.

2.2 This Shareholder's Compact shall operate as from the Effective Date and will be reviewed by the Parties at the end of the financial year ending on 31 March 2016.

3. LEGAL REQUIREMENT AND PRIMARY RELATIONSHIP BETWEEN THE SIGNATORIES

3.1 Chapter 29 of the Treasury Regulations impose the following legal requirements on the Accounting Authority of a Schedule 3B public entity, such as the CSIR, and its Executive Authority in terms of the conclusion of a Shareholder's Compact:

> "*29.2 Shareholder's compact*
>
> *29.2.1 The accounting authority for a public entity listed in Schedule 2, 3B or 3D must, in consultation with its executive authority, annually conclude a shareholder's compact.*
>
> *29.2.2 The shareholder's compact must document the mandated key performance measures and indicators to be attained by the public entity as agreed between the accounting authority and the executive authority.*"

3.2 The CSIR's Accounting Authority therefore hereby concludes this Shareholder's Compact with its Executive Authority.

4. FRAMEWORK FOR SHAREHOLDER'S COMPACT

4.1 In terms of Section 3 of its enabling legislation, namely the Scientific Research Council Act, the mandate of the CSIR is as follows: "The objects of the CSIR are, through directed and particularly multidisciplinary research and technological innovation, to foster, in the national interest, and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in co-operation with principals from the private or public sectors and thereby to contribute to the improvement of the quality of life of the people of the Republic; and to perform any other functions that may be assigned to the CSIR by or under this Act.".

4.2 The Shareholder's Compact

This Shareholder's Compact is concluded between the CSIR's Accounting Authority and its Executive Authority pursuant to the provisions of the Treasury Regulations referred to under clause 3.1 above. The CSIR's mission, vision and strategic objectives are outlined in the Corporate Plan, which also incorporates the outcomes, strategic business initiatives and key performance measures and indicators; the CSIR Strategic Plan and the CSIR Annual Plan for the 2015/16 planning cycle; the CSIR's Risk Management Plan; the CSIR's Fraud Prevention Plan; the Materiality Framework; the Budget and Cashflow for 2014/15; the Group three year financial plan and the organisation's 3 year

borrowing plan. The Accounting Authority undertakes to oversee the implementation of the said elements of the Corporate Plan.

5. **INTERNAL TRANSFORMATION**

Transformation plans and policies

The Corporate Plan of the CSIR deals with, in Appendix A, matters relating to, amongst others, transformation. In giving effect to the Corporate Plan, the Accounting Authority will ensure full compliance by the CSIR to all applicable legislation, such as, but not limited to, the Employment Equity Act, the Skills Development Act, the Labour Relations Act, the Basic Conditions of Employment Act, the B-BBEE Codes and the like.

6. **THE ROLE AND POWERS OF THE ACCOUNTING AUTHORITY**

6.1 In terms of Section 7 of the Scientific Research Council Act, the affairs of the CSIR ”shall be managed by a Board, which shall determine the policy and objectives of the CSIR and shall exercise control generally over performance of its functions, the exercise of its powers and the execution of its duties by the CSIR.” In order to further give effect to its mandate, the Accounting Authority has adopted formal Terms of Reference to govern its own activities, which is attached hereto as Annexure ”C” and to which the members thereof fully subscribe.

6.2 In terms of Section 56 of the Public Finance Management Act, the Accounting Authority has delegated in writing certain of the powers entrusted or delegated to it to officials in the CSIR. To this end, the Accounting Authority has also adopted an approval framework which governs the authorisation process in the CSIR. It deals with, amongst others, the development of strategic plans, development of operational plans and budgets, appointment of staff, approval of salaries and acquisition and disposal of assets. It also defines authority levels in relation to organisational positions.

6.3 The Materiality Framework for reporting losses through criminal conduct and irregular, fruitless and wasteful expenditure, as well as for significant transactions as envisaged by Sections 55 (2) and 54 (2) of the Public Finance Management Act is, in addition, in place and is included as Annexure G attached hereto.

7. **UNDERTAKINGS BY THE ACCOUNTING AUTHORITY OF THE PUBLIC ENTITY**

7.1 The Accounting Authority undertakes to act in total accordance with the approved Corporate Plan attached hereto.

7.2 In the event that it is envisaged that the Accounting Authority will not be able to fully execute the plans as embodied in Annexure A, it will promptly and in writing inform the

Executive Authority accordingly, through the Office of the Director-General of Science and Technology, to seek its advice prior to making decisions or taking action.

7.3 The Accounting Authority confirms that it will fully comply with the provisions of Sections 50 and 51 of the Public Finance Management Act, as more fully dealt with in Annexures E, F and Gattached hereto, as well as with the reporting requirements as embodied in the Public Finance Management Act and the relevant Treasury Regulations.

7.4 The Accounting Authority undertakes to ensure that the CSIR at all relevant times complies with its statutory mandate as encapsulated in Section 3 of the Scientific Research Council Act.

8. UNDERTAKINGS BY THE EXECUTIVE AUTHORITY AS SHAREHOLDER

8.1 The Executive Authority, where required, through, or assisted by the Accounting Authority, undertakes to allow the CEO of the CSIR to attend to the operational aspects and business of the enterprise as has been approved in the Corporate Plan through ensuring the following:

8.1.1 Issuing of instructions and requests for information with sufficient prior notice and response times;

8.1.2 Not to renege on written guarantees and undertakings given;

8.1.3 Not to cause delays in critical decisions required;

8.1.4 To provide the organisation with strategic direction and control; and

8.1.5 To fully comply with the relevant provisions of the Public Finance Management Act as well as the Treasury Regulations insofar as the same relates to it in terms of the relationship between the Parties.

8.2 The Executive Authority undertakes to honour the exemption granted to the CSIR from section 54 (2) of the Public Finance Management Act by its previous Executive Authority, namely the Minister of Trade and Industry, as well as – insofar as it may be applicable to the relationship between the Parties – the exemption granted to the CSIR from the provisions of Regulation 16 of the Treasury Regulations by National Treasury. Copies of the letters under which these exemptions are granted are attached hereto as Annexure I.

9. GOVERNANCE

9.1 The Accounting Authority recognises that systems of good corporate governance should be in place and be reviewed continuously to ensure that they are at all times sound and consistent with world-class standards, and that they are and remain relevant to the business of the CSIR. Apart from complying with the provisions of the Scientific Research Council Act, the Public Finance Management Act as well as the Treasury Regulations

issued thereunder, and all other applicable legislation, the Accounting Authority shall therefore ensure compliance with all major recommendations of the Code of Corporate Practices and Conduct as set out in the King III Report on Corporate Governance and the Protocol for Corporate Governance in the Public Sector (1997).

9.2 The Accounting Authority will strive to ensure that the CSIR upholds and sets in place review mechanisms and protocols to ensure that reports and publications, including public comment made by employees of the CSIR, are based on sound scientific analysis, and do not bring the institution into disrepute.

10. KEY PERFORMANCE INDICATORS (KPIs) LINKED TO THE BALANCED SCORECARD FRAMEWORK

The KPIs have been summarised according to the categories of the Balanced Scorecard Framework of the DST as shown in Table 2.1. The KPIs are also arranged to reflect the strategic priority areas of the CSIR. The latter is explained in more detail in Annexures A and B.

Balanced Scorecard Perspective	Strategic Focus Area	KPI	Target for 2014/15	Forecast for 2014/15	Target for 2015/16
Learning and Growth	Strengthening the Science, Engineering and Technology (SET) base and performing relevant R&D	Publication Equivalents	–	470	490
		Journal articles published	275	290	300
		New Technology Demonstrators	$\geq$ 25	30	$\geq$ 30
		New Patents	$\geq$ 15	15	$\geq$ 15
		Contract R&D (Rm)	1630	1630	1780
		Royalty & License Income (Rm)	5.8	6.0	7.4
Human Resources and Transformation	Building and Transforming Human Capital	Total size of SET base	1753	1810	1850
		Number of SET Base who are Black	912	990	1000
		Percentage of SET Base who are Black	52%	53%	54%
		Number of SET Base who are Female	561	600	630
		Percentage of SET Base who are Female	32%	33%	34%
		Number of SET Base with a PhD	320	320	330
		Percentage of SET Base with a PhD	18%	18%	18%
Financial and Investment	Financial Sustainability	Total Income (Rm)	2360	2360	2540
		PPE Investment	96	150	113
		Net Profit	49	49	54
Organisational	Good Corporate Governance and Citizenship	BBBEE Rating	Level 2	Level 2	Level 2
		DIFR	$\leq$ 0.3	$\leq$ 0.3	$\leq$0.3

Table 2.1: CSIR Key Performance Indicators: 2015/16

11. REPORTING

11.1 The Accounting Authority will report on the achievement of its KPIs quarterly based on Public Finance Management Act requirements.

11.2 A detailed KPI report approved by the Accounting Authority will be submitted to the Executive Authority annually on or before 31 July of each year in respect of the immediately preceding financial year. The format of such reporting will be based on the CSIR's KPIs linked to the categories of the Balanced Scorecard Framework.

11.3 The Accounting Authority will meet all the external audit requirements, the results of which will be made available to the Executive Authority, the external auditor of the CSIR being the Auditor-General, who is responsible for independently auditing and reporting on the financial statements of the CSIR.

12. EXTRA-ORDINARY REPORTING

The Accounting Authority will, at its discretion, report to the Executive Authority on matters of strategic importance and/or operational issues that fall outside the agreed framework of this Shareholder's Compact and the Public Finance Management Act as agreed from time to time during its Board meetings.

13. SUPPORTING DOCUMENTATION

13.1 Supporting documentation to this Shareholder's Compact is to be found in the following supporting documents are attached hereto:

13.1.1 CSIR Strategic Plan as embodied in Annexure A attached hereto,

13.1.2 CSIR Annual Plan for the 2015/16 as embodied in Annexure B attached hereto,

13.1.3 Risk Management Plan as embodied in Annexure E attached hereto,

13.1.4 Fraud Prevention Plan, as embodied in Annexure F attached hereto,

13.1.5 Materiality Framework, as embodied in Annexure G attached hereto,

13.1.6 Financial Plan as embodied in Annexure H attached hereto.

14. PENALTIES AND REWARDS

14.1 The Accounting Authority, in terms of the provisions of Section 12 of the Scientific Research Council Act, shall determine the remuneration payable to employees of the CSIR, and, in addition, shall approve the payment of allowances, subsidies and benefits, including performance bonuses.

14.2 It is recorded by the Parties that the Executive Authority shall have the necessary discretion to remove any member of the Accounting Authority who has failed to honour

the undertakings embodied in this Shareholder's Compact, or who otherwise acted in breach of his/her fiduciary duties, or who has contravened the provisions of any applicable legislation, such as – but not limited to – the Public Finance Management Act.

15. GOVERNING LAW AND DISPUTE RESOLUTION

15.1 This Shareholder's Compact shall be governed by and construed in accordance with the laws of the Republic of South Africa.

15.2 In the event of any dispute arising from this Shareholder's Compact, the Parties shall make every effort to settle such dispute amicably.

15.3 Should the dispute remain unresolved for a period of 30 (thirty) days, the said dispute or difference shall be adjudicated upon by a competent third party agreed upon by the Parties, unless otherwise agreed between the Parties by means of Arbitration, Mediation or other agreement.

15.4 Should the parties not be able to agree upon a competent third party as contemplated in clause 15.3, the dispute will be adjudicated by a competent court with jurisdiction to hear the matter.

16. NOTICES

16.1 The Parties choose as their domicilium addresses for purposes of this Shareholder's Compact the following physical addresses:

16.1.1 The Accounting Authority: Care of the Office of the CEO of the CSIR Building 3 CSIR Campus Meiring Naudé Road BRUMMERIA Pretoria 0184

16.1.2 The Executive Authority: DST Building 53 CSIR Campus Meiring Naudé Road BRUMMERIA Pretoria 0184

16.2 Each Party shall be entitled from time to time, by written notice to the other, to vary its domicilium to any other address within the Republic of South Africa which is not a post office box or poste restante.

16.3 Any notice given by one party to the other ("the addressee") which:

16.3.1 is delivered by hand during the normal business hours of the addressee at the addressee's domicilium for the time being shall be presumed, until the contrary is proved, to have been received by the addressee at the time of delivery;

16.3.2 is posted by pre-paid registered post from an address within the Republic of South Africa to the addressee at the addressee's domicilium for the time being shall be presumed, until the contrary is proved, to have been received by the addressee on the 4th (fourth) day after the date of posting;

16.3.3 is transmitted by telefax or e-mail shall be deemed (in the absence of proof to the contrary) to have been received within 1 (one) hour of transmission where it is transmitted during normal business hours of the receiving instrument and within 2 (two) hours of the commencement of the following business day where it is transmitted outside those business hours.

17. **WHOLE AGREEMENT**

This document together with the annexures thereto constitutes the whole of the agreement between the Parties. No instructions, agreements, representations or warranties between the Parties, other than those set out herein, are binding on the Parties.

18. **VARIATIONS**

No variation or modification of any provision of this Shareholder's Compact or consent to deviate therefrom or waiver in terms thereof shall be valid, unless such variation or modification or waiver has been reduced to writing and has been signed by both Parties, and such variation, modification, consent or waiver shall be valid only for a specific case and only for the purpose for which and extent to which it was made or given.

THE CSIR SHAREHOLDER'S COMPACT

Agreed to and signed in _____ on _____ 2015.

Prof. Thokozani Majozi, the Chairperson of the Board, who duly represents the CSIR's Accounting Authority by virtue of being appointed Chairperson of the CSIR Board on 12 December 2014 by the Minister of Science and Technology hereby confirms that he will take a personal interest in the carrying out of the terms of this Shareholder's Compact and in cascading the spirit of the agreement reached thereby through the ranks at the CSIR.

Prof. Thokozani Majozi _____
On behalf of the CSIR's Accounting Authority

The Ministry of Science and Technology approves of this approach and looks forward to the successful implementation of the undertakings embodied in the Shareholder's Compact and its Annexures. The Ministry accepts that, although the detail of the Shareholder's Compact may change due to variations and changes in the market and in society, that the spirit thereof will remain unchanged.

Ms Naledi Pandor _____
As the CSIR's Executive Authority

A

CSIR Strategic Plan

Contents

A.1 Executive Summary

Will be included in next version of document.

A.2 Mandate

The CSIR was established on 5 October 1945 by an Act of Parliament. The Act under which the CSIR now operates, the Scientific Research Council Act 46 of 1988, stipulates the following mandate:

> The objects of the CSIR are, through directed and particularly multidisciplinary research and technological innovation, to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in co-operation with principals from the private or public sectors, and thereby to contribute to the improvement of the quality of life of the people of the Republic, and to perform any other functions that may be assigned to the CSIR by or under this Act.
> *Extract from Scientific Research Council Act 46 of 1988*

The existence of a vibrant economy and a capable state is a pre-requisite for any sustainable solution to South Africa's developmental priorities.

The work of the CSIR is therefore aimed both at supporting industrial development as well as enhancing the capabilities of government in the areas of service delivery, policy development and information management.

Scientific Research and Development (R&D) will play a critical role in supporting the short-, medium- and long-term growth of the economy. In the short-term we need to develop and deploy technologies that improve the efficiency, and hence competitiveness, of existing enterprises; in the medium to long-term we need to develop the industries and sectors (based for example on the use of new technologies or the beneficiation of local resources) that will grow the economy, as well as understanding and mitigating the risks to long-term growth due climate change and the mismanagement of our natural resources.

While sustained economic growth will almost certainly address the issues of unemployment and poverty, dealing with the threat of inequality will require a strong and capable state. The CSIR sees its role as providing the scientific and technological innovations that will improve the ability of the state to efficiently deliver basic services (such as health, education, social security, access to energy and shelter) to all South Africans, hence combating both material inequality as well as inequality of access to basic services.

> *"Science and Technology will play a special and irreplaceable role in a wide range of areas – in the development of the industries and services that provide the meaningful employment we so desperately need; and in identifying where our service delivery systems are failing and where innovation can provide the step change that will deliver increased value and free up valuable resources to tackle other problems."* Minister Pandor, Foreword to CSIR 2013/14 Annual Report

A.3 Situational Analysis

The CSIR is mandated to contribute to the improved quality of life of people in South Africa. Meeting this mandate requires that the CSIR responds to the triple challenge of unemployment, inequality and poverty that faces South Africa. The national government intends to address these challenges through a broad range of programmes, guided by the National Development Plan (NDP) and further articulated through Governments Programme of Action and sector-specific initiatives. The sections below will provide a summary of the NDP and the key policy frameworks that guide the national response, as well as identifying the key CSIR interventions in support of these actions.

A.3.1 National Development Plan – Vision 2030

The NDP offers a long-term perspective on South Africa's development by clearly articulating a desired destination and identifying the role different sectors of society need to play in reaching that goal.

As a long-term strategic plan, it serves four broad objectives:

- Provides a set of overarching goals that we need to achieve by 2030;
- Builds consensus on the key obstacles to achieving these goals, and what needs to be done to overcome those obstacles;
- Provides a shared long-term strategic framework within which more detailed planning can take place;
- Creates a basis for making choices about how best to use limited resources.

The NDP has identified 11 focus areas. Each of these focus areas is described in further detail below, together with particular CSIR responses in 8 of these areas (Economy and Employment, Economic Infrastructure, Building a Capable State, Transition to a Low-Carbon Economy, Transforming Human Settlements, Improving Health, and Building Safer Communities). The CSIR research agenda within each of these areas of intervention is also influenced by The DST National R&D Strategy and the DST Ten-Year Innovation Plan.

Economy and Employment

Achieving full employment, decent work and sustainable livelihoods is the only way to improve living standards and ensure a dignified existence for all South Africans. Rising employment, productivity and incomes are the surest long-term solution to reducing inequality. Similarly, active steps to broaden opportunities for people will make a significant impact on both the level of inequality and the efficiency of the economy. This will be achieved by expanding the economy to absorb labour and improving the ability of South Africa's people and institutions to respond to opportunities and challenges.

This programme is further informed by the dti's Industrial Policy Action Plan (IPAP).

The CSIR's responses range from the immediate (improving the efficiency of production processes, supporting local economic development through localisation programmes) to the medium-term (the development of automation solutions for industrial processes, technologies for the beneficiation of local mineral resources, nano-manufacturing and agro-processing technologies) as well as interventions that may only pay off in the longer-term (the development of large-scale engineering capabilities, industries based on bio-therapeutic manufacture and the development of enterprises using digital media technologies).

Capable State

If we are to address the twin challenges of poverty and inequality, a state is needed that is capable of playing a transformative and developmental role. This requires well run and effectively coordinated state institutions staffed by skilled public servants who are committed to the public good and capable of delivering consistently high-quality services for all South Africans, while prioritising the nation's developmental objectives. This will enable people from all sections of society to have confidence in the state, which in turn will reinforce the state's effectiveness.

The CSIR is supporting government departments and entities with the development of policies, and also developing the technologies and methods that will improve the states ability to collect, manage and effectively use data to improve decision-making processes. Skilled public servants delivering high-quality services will not only require reliable and relevant data but will also need the specialised analytical and modelling support to be able to use that data effectively.

Economic Infrastructure

To achieve sustainable and inclusive growth by 2030, South Africa needs to invest in a strong network of economic infrastructure designed to support the country's medium- and long-term objectives. Achieving this vision is possible if there is targeted development of transport, energy, water resources, and Information and Communication Technology (ICT) networks. The Presidential Infrastructure Coordinating Commission (PICC) has been established to co-ordinate the long-term delivery of infrastructure. The PICC currently manages a portfolio of approximately R 800 m and has established 18 Strategic Integrated Projects (SIPs) to support infrastructure delivery.

The CSIR is coordinating two of the SIPs ("Higher Education Infrastructure" and "Expanding access to Communication Technology") and is providing specialist support (including, for example, in the form of environmental impact assessments) to a number of other SIPs. The CSIR is also working to improve our ability to collect data about our economic infrastructure – and in particular our water resources, the built infrastructure serving our water needs, our logistics and energy infrastructure, and the ICT infrastructure.

Transition to a Low-Carbon Economy

By 2030, South Africa's transition to a low-carbon, resilient economy and just society is well under way. Having undertaken the difficult steps to adjust, all sectors of society are actively engaged in building a competitive, resource-efficient and inclusive future, and

the country is starting to reap the benefits of this transition. South Africa has reduced its dependency on carbon, natural resources and energy, while balancing this transition with its objectives of increasing employment and reducing inequality. Development initiatives, especially in rural communities, are increasingly resilient to the impact of climate change, with mutual benefits between sustainable development and low-carbon growth quickly identified and exploited. The state has significantly strengthened its capacity to manage the ongoing internalisation of environmental costs, and to respond to the increasingly severe impacts of climate change.

The CSIR is working on improving the measurement and management of our natural resources, improving our ability to understand the long-term effects of climate change and hence to assist government with the formulation of mitigation and adaptation strategies. The CSIR is also supporting the development of energy storage technologies and renewable energy sources (hydrogen, solar and biogas, for example) and the development of a green economy more generally.

Building Safer Communities

In 2030, people living in South Africa feel safe and have no fear of crime. They are safe at home, at school, at work and they enjoy an active community life free of fear. Women can walk freely in the streets and children can play safely outside. The police service is a well resourced professional institution staffed by highly skilled officers who value their work, serve the community, safeguard live s and property without discrimination, protect the peaceful against violence and respect the rights of all to equality and justice.

The CSIR interventions in this area focus on supporting the acquisition and integration of technology by our security forces, the development of systems for the effective sharing of information across different components of the security forces, the continuous improvement of South African Air Force air capability, the protection of air and naval assets against guided weapons, the support of specialised, highly mobile combat ready forces, the development of national surveillance capabilities, and protection against cyber-security threats.

Improving Health

The vision is that, in 2030, South Africa has a life expectancy rate of at least 70 years for men and women. The generation of under-20s is largely free of HIV. The quadruple burden of disease has been radically reduced compared to the two previous decades, with an infant mortality rate of less than 20 deaths per thousand live births and an under-five mortality rate of less than 30 per thousand. There has been a significant shift in equity, efficiency, effectiveness and quality of health care provision. Universal coverage is available. The risks posed by the social determinants of disease and adverse ecological factors have been reduced significantly.

The CSIR's work in support of health ranges from technical support to the National Health Insurance initiative (particularly with respect to the security, use and transfer of health-related data), the development of interconnected and inter-operable point-of-care devices (such as Cellnostics or Umbiflow), the use of technology in support of diagnostic functions, the development of vaccines using bio-therapeutic manufacturing methods, and the development of new methods to understand, manage and diagnose disease mechanisms at the cellular and molecular level.

Integrated and Inclusive Rural Economy

By 2030, South Africa's rural communities should have greater opportunities to participate fully in the economic, social and political life of the country. People should be able to access high-quality basic services that enable them to be well nourished, healthy and increasingly skilled. Rural economies will be supported by agriculture, and where possible by mining, tourism, agro-processing and fisheries.

The CSIR is supporting technology-based local economic development opportunities in rural areas, developing the technologies that will enable rural communities to access the modern communication infrastructure and supporting the management and sustainable exploitation of natural resources.

Transforming Human Settlements

By 2050, South Africa will no longer have: poverty traps in rural areas and urban townships; workers isolated on the periphery of cities; inner cities controlled by slumlords and crime; sterile suburbs with homes surrounded by high walls and electric fences; households spending 30 percent or more of their time, energy and money on daily commuting; decaying infrastructure with power blackouts, undrinkable water, potholes and blocked sewers; violent protests; gridlocked roads and unreliable public transport; new public housing in barren urban landscapes; new private investment creating exclusive enclaves for the rich; fear ful immigrant communities living in confined spaces; or rural communities dying as local production collapses.

The CSIR is supporting metropolitan areas and municipalities in a number of areas, including spatial planning, the management of infrastructure and the long-term transition to greener and smarter economies.

Improving Education, Training and Innovation

The NDP envisages schools that provide all learners with an excellent education, especially in literacy, mathematics and science. The education system needs to improve constantly. The post-school sector needs to meet the wide range of education and training needs of people over 18. Together with the higher education system it will play a significant role in producing the skills and knowledge the country needs to drive its economic and social development. It will also be an inclusive system that provides opportunities for social mobility, while strengthening equity, social justice and democracy.

Social Protection

By 2030, the majority of working age South Africans are employed. Everyone enjoys a high standard of living. There is a defined social floor and households who have not achieved the basic standard of living are assisted. Problems such as hunger, malnutrition and micronutrient deficiencies that affect physical growth and cognitive development, especially among children have all been addressed. Vulnerable groups such as poor women and people with disabilities enjoy the full protection provided under the Constitution. Social protection also serves to protect against short-term shocks and chronic vulnerabilities caused by labour market failures.

Promoting Accountability and Fighting Corruption

Our vision for 2030 is a South Africa which has zero tolerance for corruption, in which an empowered citizenry have the confidence and knowledge to hold public and private officials to account and in which leaders hold themselves to high ethical standards and act with integrity. This South Africa has a resilient anti-corruption system in which anti-corruption agencies have the resources, credibility and powers to investigate corruption, and their investigations are acted upon.

Transforming Society and Uniting the Country

In 2030, South Africans will be more conscious of the things they have in common than their differences. Their lived experiences will progressively undermine and cut across the divisions of race, gender and class. The nation will have and will be more accepting of multiple identities. This South Africa will include the following:

- A sense of inclusiveness that touches all South Africans, including the poor. This means tackling the factors that lead to unequal opportunity and taking extraordinary measures in education and skills development, especially of black people and the poor. To redress the past requires increasing the rate of economic growth, increasing the labour absorption of the economy, promoting entrepreneurialism and providing stimulating and rewarding career paths for all workers, including those at the bottom of the income spectrum. Increased interaction between South Africans from different social and racial groups.
- Broad-based knowledge and support for a set of values shared by all South Africans, and those embedded in the Constitution.
- A mobilised, active and responsible citizenry.

A.4 Strategic Research and Development (R&D) Objectives

In this section we will set out the framework through which the CSIR will fulfill its mandate and then deal with how our R&D programme is organised in order to meet the national objectives identified in Section A.3.

A.4.1 CSIR Strategic Framework

An overview of the **CSIR Strategic Framework** is provided in Figure A.1. The framework sets out the logical steps through which we take our inputs (people, processes and facilities) and undertake a set of activities (research and research management) to produce outputs (academic publications, reports and technologies). These outputs will then lead to a series of outcomes (scientific and technological development) that will ultimately result in an improved quality of life for all South Africans.

The key inputs are the skills (including scientific as well as managerial and support skills) of CSIR employees; the supporting environment consisting of research and other facilities; the financial resources provided by the State and other partners and clients; and the governance processes.

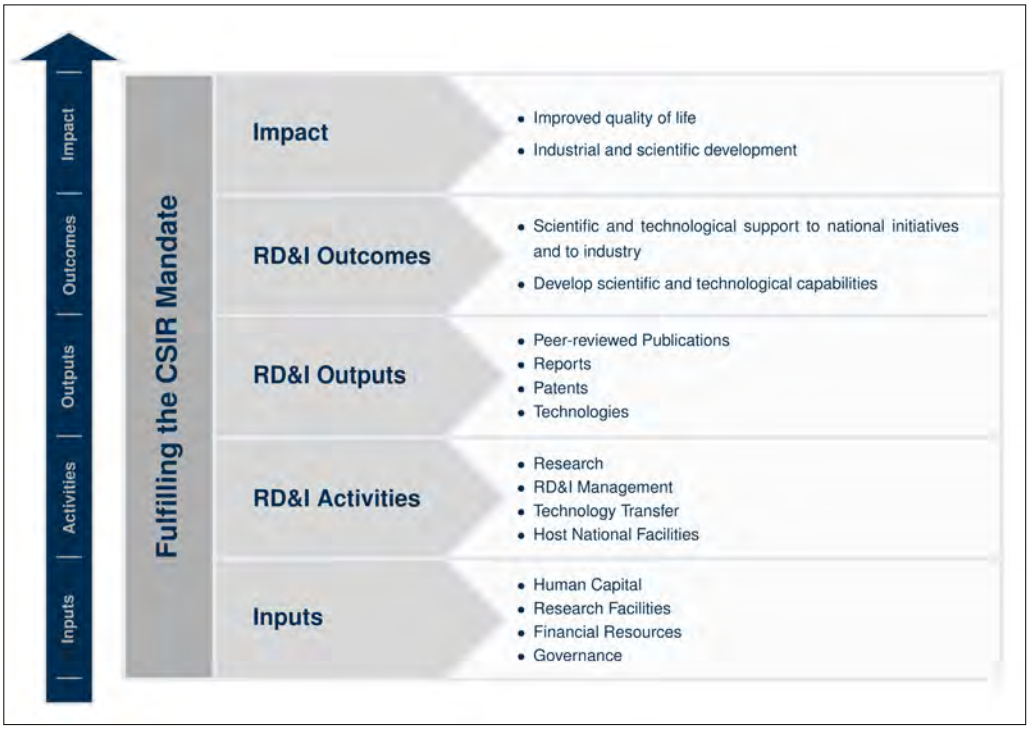

Figure A.1: CSIR Strategic Framework

Each of these inputs has a particular role to play:

- Human capital is essential for delivering science and technology solutions, and for delivering the support process required by a large and complex organisation.

- Access to research facilities (including laboratories, libraries and communications facilities) are essential for conducting scientific and technological research.
- Financial resources are required both to maintain our facilities, and to attract and retain the best scientific talent.
- A well-run organisation ensures that the focus can remain on the delivery of our scientific mission.

The activities are, of course, related to the *technological research and innovation* specified in the CSIR mandate. These include the actual research, development and innovation activities, the management of the research process, the transfer of technological solutions to implementing partners, and the hosting of national facilities.

Our RD&I outputs (which form a significant component of our KPIs) include academic outputs such as peer-reviewed articles, conference papers and books; technical reports and solutions for our clients; the demonstration of technologies and patents on the technologies we develop.

The RD&I outcomes are scientific and technological support to both industry and the State, and the development of scientific and technological capabilities that will underpin our longer-term economic development.

Finally, the impact of our work should be visible both in the improved quality of life of all South Africans as well as the level of scientific and industrial development of South Africa.

A.4.2 Research and Development (R&D) Programme

In order to contribute to the programme of national development the CSIR has organised its R&D activities around the concept of a **Research Impact Area (RIA)**. There are six RIAs – Health, Defence and Security, Built Environment, Natural Environment, Industry, and Energy, and these are supported by a set of **core technologies** (materials, sensors, photonics, robotics, ICT and modelling). The immediate impact of this R&D work is further sharpened by four cross-cutting **Flagship Programmes** (Water Sustainability, Health, Safety and Security, and Transnet Capability Development) and are derived from the R&D outputs generated over time from the RIAs and that focus on short-term interventions that transfer technological solutions to external stakeholders.

The six RIAs and four Flagship Programmes have been chosen in order to provide a coherent and organised response to key national development questions. In the following paragraphs we provide an overview of each of the RIAs and Flagship Programmes – a detailed enumeration of the long-term strategic objectives associated with each is given in Section A.6.

The **Defence and Security RIA** contributes to a safe future for South Africa by supporting the building of a capable state and developing technology solutions to ensure safer communities. The main focus areas of the RIA are:

1. Information Security: Through the development of key technologies and skills in the information security domain, promote the adoption and use of trusted technologies, and the development of systems that manage the information security of applications, networks and other infrastructure.

2. Tactical and strategic situation awareness: Through the development of niche solutions that enhance SA's ability to meet its Safety and Security needs and obligations, including community policing and protection through intelligent mobile platforms; naval underwater security and navigation for harbour and vessel protection, and support to the National Parks Board in combatting threats to wildlife.

3. Command control and coordination: By developing all-inclusive command, coordination, and control solutions for multi-agency operations such as border safeguarding, combatting rhino-poaching, disaster response and major-event security, and others.

4. Developing solutions for inter-operability and standardisation of systems across organs of state tasked with defence and security.

The **Natural Environment RIA** will support long-term economic growth and the transition to a low-carbon economy by:

1. Developing models to improve our understanding of the scale and impact of climate change, and improve our ability to take decisions that mitigate and adapt to these changes;

2. Developing and implementing interventions to facilitate the growth of the green economy, including the areas of sustainability planning, waste management and biorefinery technologies;

3. Developing and implementing the tools and methods that improve our ability to understand, measure and sustainably manage our natural resources, and in particular our water resources, marine and coastal environments and mining landscapes.

The **Industry RIA** supports long-term economic growth (and thereby helps to grow the economy, create jobs and improve quality of life) by developing and transferring manufacturing technologies that improve the competitiveness of existing South African industry, and by creating new manufacturing opportunities. The main focus areas are:

1. Beneficiation of South African minerals across the value-chain, focusing on Ti, Al, and South African clays;

2. Bio-manufacturing: Supporting bio- and agro-manufacturing product and process development to generate commercialisable products. This is done in close partnership with existing and new industry players, including SMMEs;

3. The development of Additive Manufacturing platforms to create new manufacturing processes for the aerospace and automotive industries, including the use of laser technologies;
4. Automation, focusing on mechatronics systems for manufacturing and mining applications;
5. Developing advanced materials and composites for industrial-scale manufacture;
6. Enhancing industrial competitiveness through the management of industry support programs for the aerospace, bio-manufacturing, and foundry-sectors, as well as technology localisation and the creation and incubation of technology-based enterprises in the SMME sector;
7. Improving industrial efficiency though fostering the optimal utilization of resources, thus reducing tangible and intangible costs;
8. Utilizing our IT technologies and infrastructure to create economic opportunities in wireless applications and the commercialisation of software technologies.

The **Energy RIA** promotes achievement of the national vision of an energy-secure and low-carbon national economy through the development and implementation of renewable and alternative energy technologies, focusing in particular on:

1. Energy storage;
2. The development and demonstration of renewable energy technologies;
3. Building an enabling energy environment;
4. Energy system integration;
5. Market design and policy-making.

The **Health RIA** contributes to improving the health of all South Africans. The main focus areas of the RIA are:

1. Combating the high burden of disease through the development of cost-effective biotherapeutic technologies and health infrastructure.
2. The development and utilisation of a seamless, secure and trustworthy health information system that operates across devices, spheres of government and business processes.
3. The development of medical devices, sensors and information systems to provide point-of-care assistance, including screening technologies for foetal health and cardiovascular diseases; biosensors; point-of-care blood screening system; medical visualisation and analytical tools; and national medical databases.

4. Unlock the value contained in South Africa's biodiversity and indigenous knowledge.
5. Improve access to agro- and food processing technologies to improve health and create agro-industries.
6. Contribute towards greater food security and combat malnutrition by exploiting indigenous and naturalised plants.

The **Built Environment RIA** will contribute to the development and maintenance of our economic infrastructure and the transformation of human settlements. The main focus areas of the RIA are:

1. The collection, analysis and integration of data in decision support systems for the planning, monitoring and maintenance of settlements
2. Improving the design, maintenance and efficiency of buildings by developing design guidelines for public buildings; developing new building materials and construction methodologies
3. The development of appropriate design methods and maintenance procedures for road, port and railway infrastructure;
4. Models and methods to support the development of a more efficient public and freight transport system;

The **Health Flagship**

The Health Flagship will demonstrate the implementation of a community-orientated antenatal care package at the primary health-care level. This solution will address the following key issues in antenatal care:

- Women not attending antenatal care early and reliably through active case finding;
- Poor health data and information availability and management for decision making at the point of care;
- Lack of appropriate technologies for foetal health assessment at the clinic;
- Lack of hematology data at the point of care.

The integrated package consists of several components:

- An interoperable, open source standards based ICT system for patient data and information management;
- Umbiflow, a Doppler ultrasound system for assessment of foetal health in the clinic environment;

- Cellnostics, a pathology data management system and haematology diagnostic device;
- Collaborator technologies and systems
  - Mezzanine mobile system for household data collection and management and active case finding;
  - DOH clinic management system(s) and health databases.

The **Safety and Security Flagship Program** will position the CSIR as a SET partner for key safety and security stakeholders such as the South African Police Service (SAPS) and SANParks by integrating the CSIR's cross-functional research and development capabilities with the objective of improving their crime-prevention capacities.

The Flagship will focus on the following areas:

- Smarter decision-making through the use of ICT;
- Multi-agency operational effectiveness;
- Real-time surveillance capabilities;
- Detection and prevention of cyber-crime;
- Analysis of criminal data.

The objective of the **Transnet capability development Flagship** is to identify, design and develop new CSIR capabilities that will improve the competitiveness of our Rail and Ports infrastructure.

The components of the flagship include:

- Trans-African Locomotive: The development/co-development of subsystems that will allow Transnet to produce and sell a South African owned locomotive that will be able to withstand the harsh and diverse African operational and environmental conditions
- Decision Support: Assist Transnet and the Transport sector with decisions in infrastructure and logistics
- Pipeline Technologies: Investigate the feasibility of the application of the Rail Fatigue Sensor Technology to detect fatigue and theft of pipelines
- Cable Theft technologies: Investigate possible interventions in cable theft monitoring and prevention.

The **Water Sustainability Flagship** will contribute to the equitable, efficient and sustainable use of water to ensure that South Africa attains its national social and economic growth and development aspirations.

A.5 Enabling Conditions and Processes

A.5.1 Knowledge Transfer

The CSIR Intellectual Property (IP) and technology transfer strategy focuses on facilitating increased impact by the CSIR in South Africa through strengthening and increasing the technology transfer activities in the organisation. This is enabled and underpinned by strong intellectual property management and human capital development activities as part of the CSIR's overall innovation drive.

The CSIR makes use of various mechanisms and impact pathways for transferring technology to achieve the above overall strategic objective (Figure 4). Partnerships with external agencies such as TIA and funding and implementing organisations in the public and private sector are established to ensure successful transfer of technologies for commercial and developmental purposes. Significant technology transfer also takes place through R&D contracts with public and private sectors. Within CSIR, CSIR Consulting and Analytical Services focuses on delivering technology-based services and CSIR Enterprise Creation for Development focuses on establishing small, developmental enterprises.

A.5.2 Strategic Partnerships

Strengthened stakeholder relationships is necessary to grow the impact of the CSIR's work. Our stakeholder engagement approach allows us to prioritise our stakeholders, partners and clients, and enables a longer-term strategic, rather than transactional, view of addressing national priorities and stakeholder needs with key partners. A business development framework has been developed to support CSIR strategic objectives, provides a structured approach to scanning the environment; identifying priority challenges, initiatives and the relevant partners to work with; developing the appropriate value propositions to execute effective programmes; and successfully communicating the impact of our work.

The CSIR's Parliamentary Office supports the CSIR in achieving its mandate by enabling and maintaining relationships and profiling the CSIR with key portfolios in Parliament and the National Executive.

The Parliamentary Office takes leadership in facilitating the CSIR's engagement with parliament for accountability purposes such as the presentation of operational plans and annual reports. In addition to these formal interactions with Parliament and the National Executive, ongoing stakeholder conversations and engagement opportunities receive priority attention. The office, along with the CSIR legal team, plays an important role in communicating legislative and policy developments. The Parliamentary Office positions the CSIR as a trusted advisor/partner on scientific and technical matters to Parliament and the National Executive, as appropriate, and facilitates the participation of CSIR experts who provide technical inputs into initiatives brought before Parliament.

Strategic partnerships between the CSIR and key stakeholders in the private and public sectors, including SoCs, develop structured RD&I initiatives that draw on the science and technology competences of multiple CSIR units and centres.

The CSIR approach to strategic partnerships harnesses the CSIR's multidisciplinary capabilities in supporting national imperatives and service delivery objectives of government departments. The CSIR is giving priority to strategic relationships with the departments of Health, Water Affairs, Environmental Affairs, Home Affairs, Performance Monitoring and Evaluation, among others.

State-owned Companies in South Africa play a critical role in industrial growth, infrastructure development and job creation. Large integrated projects predicated on the CSIR's multidisciplinary value proposition are under development for and in partnership with SoCs. In this regard, the CSIR is prioritising programmes with Transnet and Eskom. Notably, the CSIR is investing significantly in developing new R&D capabilities to support the collaboration with Transnet as well as other SoCs.

The CSIR has recognised that significant scope exists to improve its efforts in serving the private sector. In addition to the contribution reflected by income derived from the private sector, many government-funded initiatives, such as the Titanium Centre of Competence, are in direct support of the private sector and have potential for substantial impact.

In the funding domain, the CSIR has put in place strategic partnerships with the IDC and the Development Bank of South Africa to enhance CSIR support to the private sector. Specific areas of cooperation have been identified for each partnership, and strategic and technical engagements are aimed at scoping initiatives for joint collaboration and national impact.

In addressing national challenges, the CSIR aims to cooperate with and complement other players in the national system of innovation. The CSIR partners with RTOs and HEIs to undertake research and development that contributes to economic growth and addresses the development challenges of South Africa. Through collaboration, the CSIR builds networks that contribute to the strengthening of its own science and technology base, as well as that of South Africa.

The partnerships reflect the CSIR's mandate, which provides for research and technological innovation in collaboration with partners, and are guided by the organisation's research priorities.

The CSIR's current relationships with HEIs and RTOs are being reviewed to reflect evolving strategic priorities and to improve their effectiveness. The recommendations of the review will enable more effective implementation of joint activities and mutual access to complementary research infrastructure.

A.5.3 Communication

Targeted and relevant communication and marketing is critical to correctly position the CSIR with its diverse stakeholders. Stakeholders are segmented into public and private sectors, parliament; national, provincial and local government; RTOs; HEIs; funding agencies; non-government and community-based organisations; the youth; the public; and the media (the latter is both a stakeholder and a channel for communication). The integrated marketing and communication approach provides a roadmap to elevate the visibility of the organisation – its work and influence to enhance further growth and impact – externally, while facilitating a shared vision of who we are and what we stand for internally.

The CSIR differentiates between internal and external audiences and aims to segment these. The framework for communication considers a range of stakeholders across the RD&I value chain, each with a particular motive for making contact or doing business with the CSIR. A range of messages (typically value propositions) will be incorporated into communication and marketing interventions.

While marketing follows a targeted stakeholder approach, it also makes provision for a mass media campaign to be implemented during 2014/15. This campaign aims to respond to the concerns raised by many CSIR stakeholders regarding the organisation's lack of public visibility.

A significant focus of the CSIR's communication and marketing efforts is to enable and encourage dialogue between and among internal and external stakeholders. Creating platforms for face-to-face dialogue remains a priority.

A.5.4 Good Governance

The main areas that will continue to be addressed to sustain and enhance the CSIR's corporate citizenship are:

- Contributions to Broad-Based Black Economic Empowerment (B-BBEE) based on the dti codes of good practice;
- Reduction of energy consumption by 12% over a 10 year period in line with the 2007 directive received from the Department of Energy;
- Maintenance and enhancement of environment, health and safety performance;
- Continued implementation of the organisation's Employee Wellness Programme.

The CSIR has achieved a Level 2 B-BBEE status and will endeavour to achieve the same level under the new set of codes as gazetted in October 2013. Although good performance has been achieved in the past five years, there will be greater focus on transformation and creating an environment that attracts people with disability to the organisation. The focus in 2015/16

will be on continuing the CSIR transformation strategy that addresses identified gaps in this area. A strategy is in place to promote greater participation of small enterprises with credible B-BBEE credentials in the CSIR procurement supply chain. The CSIR has incorporated B-BBEE requirements in its IP and Technology Transfer Strategy, including providing greater access to B-BBEE players to its technologies and innovations. The CSIR has already achieved a preferential procurement spend of 70%, but will continue on this road to achieve the required 80% preferential procurement spend as stipulated in the new set of codes as published on 11 October 2013.

The CSIR has achieved a good safety and health record, and will continue to manage its occupational safety and health risks, and to maintain OHSAS 18001 certification. As part of continuous improvement, there will be more focus on enhancing a safety culture throughout the organisation by incorporating safety issues in CSIR's good laboratory practice guidelines and benchmarking the organisation's performance against similar organisations.

The CSIR endeavours to create an environment where its employees can attain their full potential. This commitment, including a commitment to employee well-being, has led to the establishment of the CSIR Employee Well-being Programme, which provides a range of support mechanisms to encourage well-being. In developing a comprehensive and holistic approach, the CSIR Employee Well-being Programme will further develop its response to needs in a variety of areas including physical, emotional, social, financial and professional.

The CSIR HIV/Acquired Immunodeficiency Syndrome (AIDS) strategy is now supported by a CSIR HIV/AIDS Committee to ensure ongoing enhancement of awareness and support to people living with HIV or AIDS.

To ensure the appropriate corporate governance for the CSIR, ICT occupies itself with activities that:

- Align ICT investment with business requirements;
- Entrench governance and IT service management disciplines; and
- Optimise ICT services to improve staff productivity.

The above, amongst other things, enable us to avail significant value add to the business, and in so doing ensure that the expected return on ICT investment is realised.

A.5.5 Risk Management

The CSIR's risk management plan is provided in Annexure E. The CSIR takes a broad view of risk management, and the risk management plan addresses risks in the areas of:

- Research: Shortage of skilled staff in the market; falsifying and poor research output; obsolete research equipment;

- Business: Decrease in public sector funding; contracting risks; exposure to global market and foreign exchange;
- Operational: Loss of institutional memory; business interruption due to power failures;
- Fraud: Financial fraud/misappropriation of assets and inappropriate contracting; and
- Environment, health and safety: Compliance to relevant regulations.

A consolidated risk register has been prepared and is available for review.

The organisation's Fraud Prevention Plan presented in Annexure F is key to the mitigation of risk. In addition, the Materiality Framework (Annexure G) identifies significant risks that need to be addressed through appropriate controls. The major risks that may have significant bearing on the organisation and the execution of its plan as well as key and high level controls to mitigate these are monitored on an ongoing basis. Discussions on these are held by the Executive committee and reported to the Audit and Risk committee.

A.6 Detailed Strategic Objectives

A.6.1 Health

Focus Area	Long-Term Objectives
Health Information	Support the development a health information system that is seamless, secure and trustworthy, and that operated across devices and business processes
Health Technology	Develop a portfolio of medical devices, sensors and information systems to provide Point-of-Care assistance for foetal health, cardiovascular diseases, blood screening, and medical visualisation and analysis
Biopharmaceutical Manufacturing	Develop and demonstrate cost effective technologies for bio-therapeutic manufacturing in South Africa
Burden of Disease	Develop novel approaches to understand, diagnose and manage disease mechanisms at cellular and molecular level
Natural Product Technologies	Unlock the value contained in South Africa's biodiversity and indigenous knowledge
Agro-Processing	– Support rural communities with access to agro- and food processing technologies to improve their well-being and create agro-industries – Contribute towards greater food security and combat malnutrition by exploiting indigenous and naturalised plants

Table A.1: Health RIA: Long-Term Objectives

A.6.2 Defence and Security

Focus Area	Long-Term Objectives
Holistic and integrated approach to national security	Create a shared understanding and analysis of the safety and security problem, and develop an integrated national level operating concept across different government departments
Security sector capability development	Assist national institutions in the safety and security sector with technology and engineering systems support in order to deliver on their strategic objectives
Multi-agency command, coordination, and control	Support the development of an all-inclusive command, coordination and control solution for multi- agency operation, including the interoperability of systems and data, business processes and systems

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Focus Area	Long-Term Objectives
SANDF Air Operations capability	Support the continuous improvement of the mission effectiveness and efficiency of SAAF Air capability. This requires integration of complex systems such as aircraft, weapons, surveillance sensors and pods into a capability with high integrity, safety, and performance, and with low life cycle cost
SANDF Landwards Capability	Support the SANDF by developing technologies for supporting a specialised, highly mobile combat capability, including providing high levels of protection against threats such as road side bombs, explosively formed projectiles and improvised explosive devices without reducing mobility
SANDF Platform Protection	Increase the survivability of SA Air Force and SA Navy platforms against optical- (including infra-red) and radar-guided weapons
National Surveillance and Situational Awareness	Identify technology solutions to address potential deficiencies in the national surveillance capability, including maritime environment surveillance, environmental asset protection, peace support operations and border safeguarding
National Cyber Security Capability	Contribute to the implementation of the national cybersecurity policy by developing a national capability to respond to large-scale cyber threat incidents
Unmanned Defence Systems	Support the strategic, operational and tactical potential of unmanned systems
National Large Scale Engineering Capability	Support the development of a large-scale engineering capabilities required for participating in complex industries such as airliner design and manufacture, electricity power plant design and building, large ship design and building and telecommunication satellite design and manufacture

Table A.2: Defence and Security RIA: Long Term Objectives

A.6.3 Built Environment

Focus Area	Long-Term Objectives
Optimum performance of buildings	Improve the design, maintenance and efficiency of buildings by developing design guidelines for public buildings; developing new building materials and construction methodologies

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Focus Area	Long-Term Objectives
Enhanced performance of marine infrastructure	The development of methods and guidelines for the optimum design of ports and coastal structures, as well as for the planning and operations of ports.
Improved performance of the transport system	– Improve the quality of road engineering by developing better materials; design and construction methods; and maintenance and performance monitoring standards – Develop a transport modelling, costing and design platform that will improve decision-support for transport planning – Establish a rail infrastructure engineering capability – Develop systems for electro-optical power line inspection, railway line break and defect detection and road management and maintenance
Spatial Planning	– Develop solutions to improve the planning of settlements and the design and maintenance of the supporting built infrastructure – Support smarter decision-making in urban environments through the development of modular, scalable smart platforms for specific domains (e.g. water or logistics) as well the integrated modelling and decision support across domains

Table A.3: Built Environment RIA: Long Term Objectives

A.6.4 Natural Environment

Focus Area	Long-Term Objectives
Adapting to and mitigating global change	An earth systems model for predicting climate futures which is operable at various levels of resolution, and associated applications which define the impact of climate change in selected sectors.
Securing water resources quality and quantity	A comprehensive and coherent water resource decision-making framework
Ecosystem Services	Development of a new generation of models, tools, maps and frameworks to improve the understanding and to enhance the design and management of multifunctional landscapes

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Focus Area	Long-Term Objectives
Green economy solutions	The development of fiscal and social instruments for effective sustainability planning and monitoring. This will facilitate the unlocking green economy growth in key sectors such as waste and biomass, and and in rural and post mining landscapes.

Table A.4: Natural Environment RIA: Long-Term Objectives

A.6.5 Industry

Focus Area	Long-Term Objectives
Mechatronics	Support industry competitiveness through instrumentation and automation solutions
Aluminium	Support the existing SA Aluminium industry to be more competitive
Titanium	Play a leading technology role in the establishment of a SA Titanium metal industry
Polymers and Nanocomposites	Establish local production of nanoclays and polymer nanocomposites
Biomanufacturing	Increase the conversion of bioscience R&D into commercialised products and technologies
Novel Lasers	Development and production of novel lasers and laser systems to provide technical solutions in existing markets, to establish new enterprises with unique capabilities, and provide opportunities for industrial development
Additive Manufacturing	Development of additive manufacturing (AM) platforms to create new manufacturing processes for the aerospace and other sectors
Laser-based Engineering	Development and transfer of laser-based surface engineering and refurbishment applications that will support the refurbishment and maintenance of existing equipment, plant, and infrastructure requirements of the South African industry.

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Focus Area	Long-Term Objectives
Industrial Competitiveness	– Support of the long-term industrialisation and industrial diversification of the economy in prioritised industrial sectors through technology localisation, the Aerospace Industry Support Initiative (AISI), the Bio-composites Centre of Competence (BCC) and the National Foundry Technology Network (NFTN) – Increase the adoption and implementation of resource efficiency and cleaner production cost-saving opportunities by industry participants
ICT and Broadband	– Commercial ready Cloud-based Radio Spectrum database that can enable start-ups to offer TV White spaces database administrator services – Develop a software platform with products capable of operating over rural mobile internet networks, ready for commercial transfer

Table A.5: Industry RIA: Long Term Objectives

A.6.6 Energy

Focus Area	Long-Term Objectives
Energy Efficiency	Technologies, processes and policies to improve energy efficiency by reducing the cost in kWh/R
Renewables	Technologies and processes to increase the share of renewable energies in South Africa's overall energy consumption
Enabling Fuels / Markets / Technologies	– Natural gas – Energy technologies, processes and policies centred on natural gas as an energy source, including gas markets, gas storage and gas power generation – Smarter Grids – Technologies and processes for efficient markets for bidirectional power flows – Energy Storage – Energy storage technologies, including batteries, thermal storage and power-to-gas processes – Mobility – Technologies for applying renewables in electric and gas-driven vehicles and trains
Energy System Integration	Technical solutions for integration of different combinations of energy processes and systems

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Focus Area	Long-Term Objectives
Market Design and Policy-making	Develop in-house capabilities for driving market designs and policy-making

Table A.6: Energy RIA: Long-term Objectives

A.6.7 Water Flagship

Focus Area	Long-term Objectives
Water Sustainability	– Integrated solutions for waste water treatment (WWT) works: – Real-time monitoring and response systems developed and replicated in 200 nodes – More effective use of water resources – Sustainable livelihoods and communities neighbouring WWTs

Table A.7: Water Flagship: Long-term Objectives

A.6.8 Health Flagship

Focus Area	Long-Term Objectives
Health ICT integration platform	Development of an interoperable, open source standards-based ICT system for patient data and information management
Umbiflow	Commercialisation and implementation of the Umbiflow system
Cellnostics	Implementation of Cellnostics pathology data management and diagnostic services

Table A.8: Health Flagship: Long-term Objectives

A.6.9 Safety and Security Flagship

Focus Area	Long-term Objectives
Decision Support	Smarter decision-making through the use of ICT
Interoperability	Multi-agency operational effectiveness
Surveillance	Real-time surveillance capabilities
Cyber-crime	Detection and prevention of cyber-crime
Data analysis	Analysis of criminal data

Table A.9: Safety and Security Flagship: Long-term Objectives

A.6.10 Transnet Flagship

Focus Area	Long-term Objectives
TRANSNET Capability Development	– Competitive and responsive economic infrastructure network – Established capabilities in rail and ports research and development – Capabilities and learning harnessed to support other state-owned companies – Increased competitiveness of the CSIR and greater impact of CSIR developed technologies in the Rail and Ports environment

Table A.10: Transnet Flagship: Long-term Objectives

A.7 KPI Targets

KPI	Target for 2014/15	Forecast for 2014/15	Target for 2015/16	Target for 2019/20
Publication Equivalents	–	470	490	550
Journal articles published	275	290	300	340
New Technology Demonstrators	25	30	$\geq$ 30	$\geq$ 40
New Patents	15	15	$\geq$ 15	$\geq$ 15
Contract R&D (Rm)	1630	1630	1780	2200
Royalty & License Income (Rm)	5.8	6.0	7.4	11.0
Total size of SET base	1753	1810	1850	1950
Number of SET Base who are Black	912	990	1000	1100
Percentage of SET Base who are Black	52%	53%	54%	56%
Number of SET Base who are Female	561	600	630	670
Percentage of SET Base who are Female	32%	33%	34%	35%
Number of SET Base with a PhD	320	320	330	400
Percentage of SET Base with a PhD	18%	18%	18%	21%
Total Income (Rm)	2360	2360	2540	3200
PPE Investment	96	150	113	150
Net Profit	49	49	54	65
BBBEE Rating	Level 2	Level 2	Level 2	Level 2
DIFR	$\leq$ 0.3	$\leq$ 0.3	$\leq$ 0.3	$\leq$ 0.3

Table A.11: CSIR Key Performance Indicators: 2015/16 and 2019/20

A.8 KPI Descriptions

KPIs provide an understanding of performance in terms of inputs, outputs, efficiencies, and to some extent provide lead indicators of the outcomes and impact that are required for the CSIR to fulfil its mandate. The question of whether the CSIR is achieving its strategic objectives related to achieving outcomes and impact cannot be achieved by KPI assessment, and requires a process of programme evaluation as described in the National Evaluation Policy Framework1. The strategic objectives provided in the CSIR strategic plan make specific statements on planned outcomes that will serve as the basis for future evaluation of performance in this regard.

CSIR KPIs provide a basket of measures that reflect various aspects of organisational performance. There are some inherent trade-offs and relationships between the KPIs; the recent emphasis on achieving impact has resulted in better-than-expected performance in the output of technology demonstrators and a decline in publication outputs. The financial indicators are all somewhat related and a harsh economic climate could lead to missed targets in total income, contract R&D income, private sector and international income, net profit and investment in property plant and equipment.

Journal Articles

Indicator Title	Journal Articles
Definition	Article published in an accredited journal
Purpose	The quantity and quality of peer-reviewed research publications is a measure of the CSIRs research quality, capabilities and outputs. The impact of research publications is a contribution to the knowledge base.
Desired performance	The current CSIR output will be at least maintained in the medium term.
Performance assessment	The CSIR considers a performance above 95% of the target as acceptable. Performance in excess of the target is a positive result. Journal articles are part of a portfolio of scientific and technological outputs. Recent experience indicates that an increased focus on technology transfer and impact may reduce the publication output. The CSIR may therefore reduce the desired output rate to align with the strategy of increasing impact. Organisational performance should be judged across the portfolio of outputs.
Data source	Data is entered into the CSIR Technical Outputs Database (TOdB) which provides the information for reporting
Data responsibility	CSIR Information Services
Method of calculation	Count of publications published in the calendar year ending in the financial year.
Data limitations	Authors submit publications in accredited journals for inclusion in TOdB via WorkFlow. There may be under-reporting. The CSIR approach is documented in *"CSIR guideline on the allocation of publication equivalents and accreditation of journals"* (GWDMS Pta General 185556).

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Indicator Title	Journal Articles
Type of indicator	Output

Publication Equivalents

Indicator Title	Publication Equivalents
Definition	Publication equivalents consists of peer-reviewed journal articles, peer-reviewed conference papers, peer-reviewed book chapters and books.
Purpose	The quantity and quality of peer-reviewed research publications is a measure of the CSIRs research quality, capabilities and outputs. The impact of research publications is a contribution to the knowledge base.
Desired performance	The current CSIR output will be at least maintained in the medium term.
Performance assessment	The CSIR considers a performance above 95% of the target as acceptable. Performance in excess of the target is a positive result. Publication equivalents are part of a portfolio of scientific and technological outputs. Recent experience has indicated that increased focus on technology transfer and impact reduces the publication output and the CSIR may therefore reduce the desired output rate to align with the strategy of increasing impact. Organisational performance should be judged in across the portfolio of outputs.
Data source	Data is entered into the CSIR TOdB which provides the information for reporting
Data responsibility	CSIR Information Services
Method of calculation	The number of publication equivalents is calculated by assigning a value of one to each peer-reviewed article, a value of 0.5 to each conference paper or book chapter, and a value of n to each book (where n is the maximum of 1 and the integer part of the length of the book divided by 60).
Data limitations	Authors submit publications for inclusion in TOdB via WorkFlow. There may be under-reporting. The CSIR approach is documented in "CSIR guideline on the allocation of publication equivalents and accreditation of journals" (GWDMS Pta General 185556)
Type of indicator	Output

Technology Demonstrators

Indicator Title	Technology Demonstrators
Definition	A technology demonstrator is: • An intermediate output of a research and development project or an intermediate output derived from existing knowledge gained from research and/or practical experience; • An intermediate output with the potential to be developed further into technology packages that can be transferred to various markets for socio-economic impacts; • An output at a Technology Readiness Level (TRL) maturity level 6 or beyond, indicating that it has at least been tested in a relevant environment; and • An output that performs and compares favourably to existing technologies / products / processes.
Purpose	Technology demonstrators provide a lead indicator of potential outcomes and impact that will be achieved through technology transfer by deploying the technology or commercialisation through licensing or spin-out of the technology.
Desired performance	The CSIR considers a performance above 85% of the target as acceptable. Performance in excess of the target is a positive result. The CSIR has been improving the definition of this indicator and the process of evaluation to ensure that it provides a meaningful indicator of potential technology transfer. The definition has been made more stringent in than in 2013 through elevating the minimum TRL to level 6. Increased stringency in criteria puts downward pressure on output. The CSIR sets a target of 24 technology demonstrators per year. This target will be re-assessed when the definition and process are stabilised.
Performance assessment	Technology demonstrators are part of a portfolio of scientific and technological outputs that are produced from the same capacity platform. Organisational performance should be judged in respect of the performance across the portfolio of outputs.
Data source	Technology demonstrators are submitted by units for adjudication by the Technology Demonstrator Evaluation Panel. The panel uses the CSIR Technology Demonstrator Evaluation Framework as the guideline for evaluating submissions. This framework is based on international standards/trends in the field of technology demonstrator evaluation and assessment of the maturity of technologies. The framework provides: • Technology Demonstrator Evaluation criteria; • Guidelines for submissions; • Guidelines for appointment of the panel; • Guidelines for appealing the decision of the panel and • Guidelines for management of Technology Demonstrator evaluation activities.
Data responsibility	CSIR R&D Office
Method of calculation	Count of technology demonstrators approved by the Technology Demonstrator Evaluation Panel using the Technology Evaluation Framework.
Data limitations	The revision of the definition and evaluation process precludes meaningful trend analysis and establishment of a baseline from which to project future performance targets.
Type of indicator	Output

Patents

Indicator Title	Patents
Definition	Patents granted by a national authority in countries with an examining office.
Purpose	Patents provide a lead indicator of impact through commercialisation. The patents granted in multiple countries reflect the potential market size for and value of the technology.
Desired performance	Patent prosecution and maintenance are very costly. The decisions of whether to patent, where to patent and in how many countries to file applications are driven by the requirements of a carefully considered commercialisation plan in each instance, including factors such as competition, market size and strength of the intellectual property. The CSIR regards a patent application for the purposes of achieving a KPI target, rather than to support a commercialisation plan, as an inappropriate response to a performance measure. The CSIR target is to achieve at least 15 granted patents annually, recognising that this target may be exceeded substantially in some years owing to awards in multiple countries.
Performance assessment	The CSIR considers a performance above 80% of the target as acceptable. Performance in excess of the target is a positive result and patents granted in multiple countries may lead to a result substantially greater than the target. The time taken for a patent to be granted after filing is unpredictable and can range from one to eight or even more years. The unpredictability arises from the processes within the examining offices and the possibility of one or more office actions, each of which leads to further correspondence with the relevant patent office and consequently delays in obtaining grant. Different patent offices also have different processing times, and processing time depends on factors such as how many pending applications they have at any point in time. Therefore, the number of pending CSIR patent applications in any given year does not provide a reasonable baseline for establishing a precise target for subsequent years. Patents are part of a portfolio of scientific and technological outputs that are produced from the same capacity platform. Organisational performance should be judged in respect of the performance across the portfolio of outputs.
Data source	Correspondence from the patent attorneys and supporting documentation from the relevant patent offices.
Data responsibility	CSIR Licensing and Ventures Office
Method of calculation	Count of patents where there is proof in writing from a patent attorney and/or patent office that the patents concerned have been granted in the financial year. For patents granted in multiple countries, each country filing counts as a separate patent. Only co-owned patents or patents in the name of the CSIR are counted.
Data limitations	South Africa and many African countries do not have patent examining offices. Therefore patents filed in these countries are not counted for this KPI. However, technologies with specific South African and African application may be patented in the relevant countries. There is a possibility of occasional under-reporting arising from receipt of correspondence from patent offices after the annual performance figures have been audited and finalised.
Type of indicator	Output

Contract R&D Income

Indicator Title	Contract R&D Income
Definition	Contract R&D income is income earned and recognised on contracts with external parties and includes ring-fenced allocations from DST for specific initiatives managed through memorandums of agreement.
Purpose	Contract R&D income indicates the value placed by stakeholders, customers and funding agencies on the research and development and services provided by the CSIR. Growth in contract R&D income reflects growth in the outcomes and impact achieved by the CSIR.
Desired performance	The CSIR annual target is the figure for contact R&D in the annual budget. The CSIR aims to achieve or exceed the target.
Performance assessment	Performance on financial KPIs needs to be assessed in the context of the prevailing economic climate. The CSIR considers a performance above 95% of the target as acceptable. Exceeding the budget target is a successful result and is not the consequence of an inappropriate target.
Data source	The information for the financial KPIs is obtained from the CSIR financial systems.
Data responsibility	CSIR Finances
Method of calculation	The CSIR annual trial balance from the financial system is updated for audit adjustments and the final figures are incorporated in the CSIR annual financial statements. The annual financial statements are audited and the KPI results are derived from these audited annual financial statements.
Data limitations	Income is declared by the project leaders based on the progress against the contractual deliverables and cost to completion. There are processes in place to ensure that project leaders are accountable for declaration of income.
Type of indicator	Output

Royalty and Licence Income

Indicator Title	Royalty and Licence Income
Definition	Royalties and licence income are derived from the licensing of formally-protected intellectual property (IP).
Purpose	Royalty and licence income is an indicator of successful technology transfer and commercialisation.
Desired performance	The CSIR annual target is the figure for royalty and licence income in the annual budget, which the CSIR aims to achieve or exceed. The CSIR medium to long term target is to earn royalty and licence income equivalent to 1% of total income.

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Indicator Title	Royalty and Licence Income
Performance assessment	Performance on financial KPIs needs to be assessed in the context of the prevailing economic climate. The CSIR considers a performance above 90% of the target as acceptable. Exceeding the budget target is a successful result and is not the consequence of an inappropriate target.
Data source	Royalty and licence income is invoiced using a specific account, which reflects the income appropriately on unit and CSIR income statements. The information for the financial KPIs is obtained from the CSIR financial systems.
Data responsibility	CSIR Finances
Method of calculation	The CSIR annual trial balance from the financial system is updated for audit adjustments and the final figures are incorporated in the CSIR annual financial statements. The annual financial statements are audited and the KPI results are derived from these audited annual financial statements.
Data limitations	Income is declared when the CSIR is entitled to receive the royalty and / or licence income
Type of indicator	Output

SET base: Total SET staff

Indicator Title	SET base: Total SET staff
Definition	SET staff include staff on Researcher, Research and Development, Technical and Project Management career ladders, research managers, post-docs, studentships, interns and staff in fixed positions who primarily work on RD&I projects. Bursars and vacation workers are excluded. Counts include all nationalities, not only South Africans.
Purpose	SET staff is a measure of the CSIR capacity to deliver on RD&I projects.
Desired performance	Targets for SET staff are set to ensure the capacity is in place to deliver on the CSIR strategic objectives, assuming that commensurate funding is secured.
Performance assessment	Performance in terms of the number of SET staff is influenced by financial considerations and should be assessed in the context of financial performance. The CSIR considers a performance above 95% of the target as acceptable. Exceeding the target is a successful result and is not the result of an inappropriate target.
Data source	KPI information is extracted from PeopleSoft through an automated process.
Data responsibility	CSIR Human Resources
Method of calculation	Head count of SET staff at the end of the financial year.
Data limitations	Human Resources ensures the correct classification of staff in PeopleSoft
Type of indicator	Output / Efficiency

Percentage of the SET base who are black, and Percentage of the SET base who are female

Indicator Title	Percentage of the SET base who are black, and Percentage of the SET base who are female
Definition	Proportion of black and female South African citizens in the SET base. Black includes Asian, Coloured, and African.
Purpose	These measures indicate the degree of demographic transformation within the RD&I capacity of the organisation.
Desired performance	Targets are set based on projections of transformation planned in all units. The long term objective is to mirror national demographics. The CSIR aims to achieve or exceed the annual targets.
Performance assessment	Performance is influenced by the growth in SET staff numbers and may be negatively affected if the target number of SET staff is not achieved. The CSIR considers a performance within 2 percentage points of the target as acceptable. Exceeding the target is a successful result and is not the result of an inappropriate target
Data source	KPI information is extracted from PeopleSoft through an automated process.
Data responsibility	CSIR Human Resources
Method of calculation	Percentages of black staff and female staff of total SET staff at the end of the financial year.
Data limitations	Human Resources ensures the correct classification of staff in PeopleSoft
Type of indicator	Equity

Number of staff with doctorates

Indicator Title	Number of staff with doctorates
Definition	Number of staff in the SET base who have a doctoral level qualification, also expressed as a percentage of SET staff.
Purpose	The qualification profile is an indicator of the quality of SET capacity
Desired performance	Targets are set based on the projected growth of the SET base, CSIR unit projections and the organisational desire to grow the proportion of doctoral level staff in the SET base to exceed 20% in the medium term. The CSIR aims to achieve or exceed the annual targets.
Performance assessment	Performance is influenced by the growth in SET staff numbers and may be negatively affected if the target number of SET staff is not achieved. The CSIR considers a performance above 95% of the target as acceptable. Exceeding the target is a successful result and is not the result of an inappropriate target
Data source	KPI information is extracted from PeopleSoft through an automated process.
Data responsibility	CSIR Human Resources
Method of calculation	Count of the number of SET staff with doctoral level qualifications at the end of the financial year.

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Indicator Title	Number of staff with doctorates
Data limitations	Human Resources ensures the validity of data in PeopleSoft and that evidence of the qualification is on file
Type of indicator	Input

Investment in property, plant and equipment

Indicator Title	Investment in property, plant and equipment
Definition	The amount invested in CSIR and government grant funded property, plant and equipment for a financial year.
Purpose	The CSIR needs to develop and maintain world-class facilities and equipment to provide the quality of RD&I that is expected of it. This indicator provides a measure of the CSIR investment in research infrastructure.
Desired performance	The CSIR annual target is based on 4% of total income, which the CSIR aims to achieve or exceed
Performance assessment	Performance on financial KPIs needs to be assessed in the context of the prevailing economic climate. Investment in property, plant and equipment will be deliberately curtailed if total income and margin targets are perceived to be at risk. The CSIR considers a performance above 95% of the target as acceptable. The budget target may be exceeded substantially, arising from additional grant funding. This is a successful result and is not the consequence of an inappropriate target.
Data source	The information for the financial KPIs is obtained from the CSIR financial systems.
Data responsibility	CSIR Finances
Method of calculation	Value of investment in property, plant and equipment is the amount of CSIR and grant additions for the year. This information is obtained from reports in the fixed assets system as well as the CSIR trial balance. Reconciliation is done to analyse the movement in the property, plant and equipment balance and to break this down between additions, disposals and depreciation. This breakdown is also disclosed in the year-end annual financial statements.
Data limitations	Nil
Type of indicator	Input

Total income

Indicator Title	Total income
Definition	Total income is the income earned for a financial year and includes revenue declared on R&D contracts (contract R&D income) and Parliamentary Grant received through the Science Vote.
Purpose	Total income reflects the ability of the CSIR to ensure financial sustainability. Growth in total income indicates growth in the outcomes and impact achieved by the CSIR
Desired performance	The CSIR annual target is the figure for total income in the annual budget, which the CSIR aims to achieve or exceed. Future targets are set to ensure growth in excess of inflation.
Performance assessment	Performance on financial KPIs needs to be assessed in the context of the prevailing economic climate. The CSIR considers a performance above 95% of the target as acceptable. Exceeding the budget target is a successful result and is not the consequence of an inappropriate target.
Data source	The information for the financial KPIs is obtained from the CSIR financial systems.
Data responsibility	CSIR Finances
Method of calculation	The CSIR annual trial balance from the financial system is updated for audit adjustments and the final figures are incorporated in the CSIR annual financial statements. The annual financial statements are audited and the KPI results are derived from these audited annual financial statements.
Data limitations	Nil
Type of indicator	Output

Net Profit

Indicator Title	Net Profit
Definition	Profit for a financial year which is calculated as Total operating income; less total operating expenditure (including the performance bonus accrual); plus net finance income
Purpose	Net profit is a key indicator of financial sustainability and the ability of the organisation to manage its expenses according to the affordability determined by income levels.
Desired performance	The CSIR annual target is the figure for net profit in the annual budget, based on 3% of the sum of contract R&D income and royalty and licence income. The CSIR aims to achieve or exceed the net profit target.
Performance assessment	Performance on financial KPIs needs to be assessed in the context of the prevailing economic climate. The CSIR considers a performance above 95% of the target as acceptable. Exceeding the budget target is a successful result and is not the consequence of an inappropriate target.
Data source	The information for the financial KPIs is obtained from the CSIR financial systems.
Data responsibility	CSIR Finances

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Indicator Title	Net Profit
Method of calculation	The CSIR annual trial balance from the financial system is updated for audit adjustments and the final figures are incorporated in the CSIR annual financial statements. The annual financial statements are audited and the KPI results are derived from these audited annual financial statements.
Data limitations	Nil
Type of indicator	Output

Broad-based black economic empowerment (B-BBEE) rating

Indicator Title	Broad-based black economic empowerment (B-BBEE) rating
Definition	The CSIR's assessment of its B-BBEE status is based on the Broad-Based Black Economic Empowerment Act (Act 53 of 2003). All targets and definitions are derived from the Codes of Good Practice as published by the Department of Trade and Industry.
Purpose	The CSIR B-BBEE policy seeks to support socio-economic transformation of society, within and outside the CSIR, by changing the demographic profile of meaningful and productive participation in the countrys economic activity.
Desired performance	The CSIR current and medium target is to achieve or improve on level 2 contributor status. This target will be re-considered as the Codes of Good Practice are amended.
Performance assessment	The CSIR would not consider failure to reach a target owing to amended Codes of Good Practice targets as a negative result. Improving on the target is a successful result.
Data source	There are multiple sources of information from which the CSIR assessment is compiled and verified by external audit.
Data responsibility	CSIR Management Services
Method of calculation	B-BBEE rating is based on a certificate that is issued after an external auditing process. The B-BBEE certificate indicates the CSIRs status with regards to a number of measurements as indicated in the B-BBEE Codes of Good Practice.
Data limitations	The external audit ensures there is no subjectivity in the B-BBEE assessment.
Type of indicator	Equity

Disabling injury frequency rate (DIFR)

Indicator Title	Disabling injury frequency rate (DIFR)
Definition	A disabling injury is defined as an injury, including occupational illnesses, arising out of and during the course of employment which results in the loss of one or more working days other than the date of accident.
Purpose	Health and safety management in the organization
Desired performance	The CSIR aims to have zero disabling injuries, with a DIFR of less than 0.3
Performance assessment	DIFR less than 0.3 is a positive achievement.
Data source	Monthly Headcount figures are obtained from the Human Resources Business Information System. Disabling injury figures are obtained from the Medical Centre after being certified by the Risk Management Office as work related.
Data responsibility	CSIR Management Services
Method of calculation	DIFR is defined as the number of disabling injuries per employee hours worked, multiplied by a factor of 200,000
Data limitations	Nil
Type of indicator	Output

B

CSIR Annual Plan 2015/16

Contents

The CSIR Annual Plan is structured around the RIA and Flagship programmes, and the enabling processes and conditions that underpin CSIR operations.

In the sections below we will, for each of these interventions, include the detailed 2015/16 objectives linked to the strategic objectives identified in Appendix A, Section A.6.

B.1 R&D Objectives: 2015/16

B.1.1 Health

Long-term Objective	2015/16 Objectives
Health Information	
Support the development a health information system that is seamless, secure and trustworthy, and that operated across devices and business processes	– Functional, compliance and cost assessment of Primary Healthcare Patient Information Systems and Hospital Information Systems – Ongoing development of eHealth infostructure reference architecture – mHealth Standards Framework
Health Technology	
Develop a portfolio of medical devices, sensors and information systems to provide Point-of-Care assistance for foetal health, cardiovascular diseases, blood screening, and medical visualisation and analysis	– Field trials and CE certification of Cellnostics – Field studies and CE certification of placental competence assessment system (Umbiflow) – Roll-out of e-Haematology training tool and connectivity hub in National Health Laboratory Service – Strengthen existing biosensor development by adding manufacturing and product development technologies, with a focus on printing bio- and nano- materials on paper – Optimise synthesis of mycolic acid for use on the TB diagnostic device – Prototype development of nano gas sensor – Finalisation of clinical study on carotid Doppler ultrasound of patients with cardiovascular disease
Biopharmaceutical Manufacturing	
Develop and demonstrate cost effective technologies for bio-therapeutic manufacturing in South Africa	– Transfer production process for influenza antigens, and confirm conjugation scalability – Demonstrate CRM197 vaccine carrier protein production process at Technology Readiness Level 6, and non-clinical grade CRM197 produced for Biovac – Express in tobacco and characterise a limited set CAP256.VRC26 anti-HIV antibodies – Develop plan for implementation of cGMP pilot scale facility

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Long-term Objective	2015/16 Objectives
Burden of Disease	
Develop novel approaches to understand, diagnose and manage disease mechanisms at cellular and molecular level	– Use optimised TALEN-based microscopy assay to validate long range chromatin interactions identified as being necessary for HIV infection – Bio-informatically assess and experimentally validate small molecule inhibitors of 12 miRNA candidates – Methods optimised for biomarker identification, assay screening, and compound printing – Assemble the first aptamer-based point-of-care TB and Type 2 Diabetes diagnostic prototype kits
Natural Product Technologies	
Unlock the value contained in South Africa's biodiversity and indigenous knowledge	– Establish a library of extracts from South African plant biodiversity using modern extraction, identification and purification technologies – A South African database of natural and semi- synthetic compounds with all available data available for extraction by the NSI in development – Identify and develop natural ingredients (plant extracts or compounds) from SAs biodiversity and IK as complementary remedies, food or cosmetics with medicinal properties – Micro-algal extracts screened for targeted applications – Start evaluation of micro-algal library for targeted animal health nutrition applications and develop proof of concept on selected extracts
Agro-Processing	
Support rural communities with access to agro- and food processing technologies to improve their well-being and create agro-industries	– Establish operating model for Eastern Cape Agri-parks facility – Obtain HACCP accreditation for Agri-park processing facility – Ongoing research into improved agro- and food processing technologies
Contribute towards greater food security and combat malnutrition by exploiting indigenous and naturalised plants	– Identify additional natural food ingredients to prevent nutrition-related diseases – Conduct intervention studies, efficacy testing and bio-availability studies on selected ingredients – Nutrigenomics concept developed in a collaborative research programme with industry

Table B.1: Health RIA: Annual Objectives

B.1.2 Defence and Security

Long-term Objective	2015/16 Objectives
Holistic and integrated approach to national security	
Create a shared understanding and analysis of the safety and security problem, and develop an integrated national level operating concept across different government departments	– Establish a Safety and Security scenario development and foresighting capability – Develop modelling approaches that will support safety and security scenario development and foresighting – Produce assessment of national safety and security risks
Security sector capability development	
Assist national institutions in the safety and security sector with technology and engineering systems support in order to deliver on their strategic objectives	– Develop draft architecture framework supporting the modelling of capability management problems – Enterprise Engineering, Architecting and Capability Development and Management practise established
Multi-agency command, coordination, and control	
Support the development of an all-inclusive command, coordination and control solution for multi- agency operation, including the interoperability of systems and data, business processes and systems	– Conduct command, coordination and control ontology literature survey – Evaluate alternative ontologies – Evaluation of Cmore lessons learned in Safety and Security Flagship
SANDF Air Operations capability	
Support the continuous improvement of the mission effectiveness and efficiency of SAAF Air capability. This requires integration of complex systems such as aircraft, weapons, surveillance sensors and pods into a capability with high integrity, safety, and performance, and with low life cycle cost.	– Study and specification of a threat scenario which requires beyond visual range (BVR) deployment – Specification of the simulation environment to cater for the inclusion of a maneuvering BVR missile – Ongoing development of a flight model for performance, carriage and release purposes for the HAWK 250 – Ongoing development of the flight control software version updates on the Gripen – Ongoing development of key technologies to address the needs of operating gas turbines for the key platforms of the SAAF – Continue investigation into advanced propulsion units for weapons systems, UAVs and target drones – Evaluation of Infrared thermography of metals – A review of the efficacy of NDT techniques and procedures in the C 130 fleet

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Long-term Objective	2015/16 Objectives
SANDF Landwards Capability	
Support the SANDF by developing technologies for supporting a specialised, highly mobile combat capability, including providing high levels of protection against threats such as road side bombs, explosively formed projectiles and improvised explosive devices without reducing mobility	– Landward simulator for technology, fore-sighting, effectiveness analysis and trade-off studies – Integrated Landward technology roadmap – Develop modelling and simulation tools and processes for unconventional threat protection – Digital evaluation of camouflage patterns – Evolution of IED protection package – Model of injury mechanisms for spine and head – Establishment of an IED threat baseline assessment – Effectiveness models for current non-lethal weapons – Early warning using MEMS sensors and wireless networks – Body armour technology demonstrator
SANDF Platform Protection	
Increase the survivability of SA Air Force and SA Navy platforms against optical- (including infrared) and radar-guided weapons	– Continue to characterise new IR threats – Continue to gather information on radar-guided on threats, update threat models, and advise on countermeasure system updates – Continue to characterise the IR and Radar signature of aircraft and advise on the optimal placement of countermeasures – Determine the role of atmospheric effects in counter measure performance and develop mitigation strategies. – Identify the latest technologies in the counter-measure environment – Continuous development and update on operating procedures to improve survivability

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Long-term Objective	2015/16 Objectives
National Surveillance and Situational Awareness	
Identify technology solutions to address potential deficiencies in the national surveillance capability, including maritime environment surveillance, environmental asset protection, peace support operations and border safeguarding	– Design, develop and test sensor networks for specific applications – Design, develop and test target detection, recognition and tracking algorithms – Mount and integrate lightweight sensors on elevated platforms for better situational awareness – Evaluate existing doctrine and procedures for deploying sensor networks, and advise on optimal strategies – Develop technology for effective management of data from various sensors – Develop technology for processing of multispectral and hyperspectral data from UAVs and satellite sensors – Further development of the intelligent mobile surveillance systems to improve performance and reduce size, including additional sensors and local processing capabilities
National Cyber Security Capability	
Contribute to the implementation of the national cyber-security policy by developing a national capability to respond to large-scale cyber threat incidents	– Establish cybersecurity evaluation laboratory for cyber product testing, cyber exercises, cyber defence concept development and analysis – Assess the social awareness of cyber threats and its impact on safe use of cyber systems
Unmanned Defence Systems	
Support the strategic, operational and tactical potential of unmanned systems	– Develop tools for the development of operating concepts and user needs for future system acquisitions –
National Large Scale Engineering Capability	
Support the development of a large-scale engineering capabilities required for participating in complex industries such as airliner design and manufacture, electricity power plant design and building, large ship design and building and telecommunication satellite design and manufacture	– Define the requirements to be satisfied by the Project Life-Cycle Management (PLM) software suite – Evaluate and compare current PLM software suites.

Table B.2: Defence and Security RIA: Annual Objectives

B.1.3 Built Environment

Long-term Objective	2015/16 Objectives
Optimum Performance of Buildings	
Improve the design, maintenance and efficiency of buildings by developing design guidelines for public buildings; developing new building materials and construction methodologies	– Ongoing development of building performance platform and launch of the "Briefing assistant Toolkit" – Ongoing work on fibre composite panels, high-strength cement blends and geo-polymer products, resulting in one advanced, cement-based insulation material proto-type – A platform for the evaluation and development of innovative building technologies (IBTs) and construction methods – An IBT procurement guideline
Enhanced performance of marine infrastructure	
The development of methods and guidelines for the optimum design of ports and coastal structures, as well as for the planning and operations of ports.	– Ongoing development of accurate methods for port and coastal structure performance modelling and simulation, resulting in a CoastCAM technology demonstrator – Further development of the underwater 3D imaging technology demonstrator
Improved performance of the transport system	
Improve the quality of road engineering by developing better materials; design and construction methods; and maintenance and performance monitoring standards	– Establish a "Road Research Centre" in Mozambique – A software toolkit for the design of low-volume roads – Pilot project in Gauteng for the use of roller-compacted concrete for the upgrading of unpaved roads – Pilot project in the Eastern Cape for the use of ultra-thin reinforced concrete in rural communities – Development of a guideline for block paving systems – Development of guidelines for the novel components of "Smart Roads" – Three national guidelines for the use of bituminous materials and one guideline for the structural design of ultra-thing reinforced concrete – Development of blueprints for HVS Mk VII – A technology demonstrator of microfiller as a bitumen extender – Pothole scanner licensed to Jetpatcher and further development of system – Field testing of road management system

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Long-term Objective	2015/16 Objectives
Develop a transport modelling, costing and design platform that will improve decision-support for transport planning	– A new transport cost model with specific emphasis on reducing household transport costs as well as freight logistics costs – A guideline for smart truck development, including performance-based standards and self-regulation for heavy vehicles; and systems for the improvement of traffic safety
Establish a rail infrastructure engineering capability	– Initiate research on heat transfer and mitigation measures to counteract thermal movements – Develop capacity in dynamic loading of trains – Laboratory test set up for model tests and interim discrete element method analysis model
Develop systems for electro-optical power line inspection, railway line break and defect detection and road management and maintenance	– Develop multi-spectral inspection system to provide high definition visual channel capability – Integration of radiometric UV functionality – Development of experimental SF6 gas detection system and field trials conducted – Specification of requirements for guided wave ultrasound research platform and development of prototype rail defect monitoring system – Prototype system for locomotive diagnostic and conditioned based monitoring system
Spatial Planning	
Develop solutions to improve the planning of settlements and the design and maintenance of the supporting built infrastructure	– Advanced UrbanSim platform designed and capacity in Cellular Automata models developed – Enhanced spatio-temporal modelling capability – First drafts of planning and design tools / guidelines completed as part of urban innovation hub – A crime science platform in place
Support smarter decision-making in urban environments through the development of modular, scalable smart platforms for specific domains (e.g. water or logistics) as well the integrated modelling and decision support across domains	– First generation of the modular platform with initial modules related to analytics and visualisation – Continuation of the DBSA Smart and Green Platform project – Demonstrate the utility of smarter eco- system approach (smart and green)

Table B.3: Built Environment RIA: Annual Objectives

B.1.4 Natural Environment

Long-term Objective	2015/16 Objectives
Adapting to and mitigating global change	
An earth systems model for predicting climate futures which is operable at various levels of resolution, and associated applications which define the impact of climate change in selected sectors.	– Validate the CABLE (terrestrial) and NEMO-PISCES (ocean) outputs at a local spatial scale – Validation of the Integrated Assessment Model – Development of Air Flow, Stream Flow, Dam Level and Agricultural models
Securing water resources quality and quantity	
A comprehensive and coherent water resource decision-making framework	– A plan to identify and address the gaps in the current hydrogeogical modelling and integrated water assessment framework – Develop a full scheme of scientific methods for the setting of appropriate resource-directed water risk assessments – A pilot demonstration of the phycoremediation technology at a municipal site – The development of a framework for integrated water reporting
The development of a portfolio of solutions for water purification, detection of contaminants as well as information systems to provide solution for effective water management.	– Optimize the pilot-scale manufacturing of cheap adsorbents for water purification – Optimize the synthesis of bio-conjugated nanoparticles for rapid pathogen detection – Solution on Green Drop water quality monitoring system formalised, and rolled out to pilot Wastewater Treatment plant sites. – Testing and validation of Rapid pathogen detection prototype in real environment
Development of water services infrastructure	– Commercialise at least two new water services products with private sector – Support six municipalities with "green-drop and blue-drop" certification

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Long-term Objective	2015/16 Objectives
Ecosystem Services	
Development of a new generation of models, tools, maps and frameworks to improve the understanding and to enhance the design and management of multifunctional landscapes	– Assessments of vegetation woody cover and biomass from Sentinel-1 satellite used to model biomass as a contribution to downscaling of the coupled CCAM-CABLE regional model – Development of a physically based, preferably a dual-source evapotranspiration model using the existing Leaf-Area-Index products for one flux tower – Develop maps of human well-being, livelihoods, inequality and poverty from empirical data sets and from participatory mapping techniques – A report exploring the link between supply of ecosystem services to demand completed – Initial testing of a model for informing potential development scenarios that focus on maintaining the Blue Flag status of South Africa beaches and shoreline fishing communities
Improved earth observation by increasing the efficiency in monitoring, evaluating, reporting and predicting over very wide areas of SA's land and oceans	– An assessment of the accuracy of landcover maps – Monthly reports on deformation detections delivered to pilot sites – Report on urban deformation monitoring algorithms – Version 1 of the multi-hazard software package – Technology demonstrator on Oceans and Coasts Information System
Green economy solutions	
The development of fiscal and social instruments for effective sustainability planning and monitoring. This will facilitate the unlocking green economy growth in key sectors such as waste and biomass, and and in rural and post mining landscapes.	– Development of the National Waste Pricing Strategy – an analysis of national incentive instruments and models focused on domestic waste reduction, recycling and reuse – Publication on best practice valuation methodology – Publication showcasing state-of-the-art sustainability assessment methodology – Public and Private sector partnerships developing sustainability planning, reporting and monitoring tools – Guideline on rural green economy growth opportunities through agriculture in South Africa – Pilot technical report for assessing the feasibility of crop based green economy development on previously mined land

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Long-term Objective	2015/16 Objectives
	– New partnerships for piloting green economy development on post mining landscapes – An analysis on cooperatives as effective model for recycling programmes – Refined national domestic waste data informing waste recycling, re-use and minimisation opportunities – Upgrading of facilities and equipment to establish a state of art biorefinery R&D facility

Table B.4: Natural Environment RIA: Annual Objectives

B.1.5 Industry

Long-term Objective	2015/16 Objectives
Mechatronics	
Support industry competitiveness through instrumentation and automation solutions	– Development and building of modular wheel changing prototype – Further development of pedestrian detection technologies for mines – Concept development for a robotic changer for conveyor belt idlers – Prototype development of concrete grinding machine platform
Aluminium	
Support the existing SA Aluminium industry to be more competitive	– Permanent mould casting: demonstrate tilt casting technology on industrial component – Establish infrastructure for investment casting and demonstrate on industrial component – Demonstrate the capability to produce batches of 5 kg of Al metal matrix nano-composites and develop concept for the manufacture of tubes from continuous fibre AlMMC – Conduct literature study and preliminary trials for alloying capability for Al-Li and Al-Sc alloys

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Long-term Objective	2015/16 Objectives
Titanium	
Play a leading technology role in the establishment of a SA Titanium metal industry	– Complete 5 Ti pilot plant test campaigns – Deliver a Technology Package for the design of a semi-commercial Ti plant – Complete conceptual design of commercial Ti plant for techno-economic studies
Polymers and Nanocomposites	
Establish local production of nanoclays and polymer nanocomposites	– First trial in India of PP based nanocomposite developed with SA clay – Scale-up plants for polymer processing and clay production complete and started production – Nanocomposite emulsions produced commercially by AMKA – Field trials of the thermal and sound insulation product and license discussion with identified commercialization partner – Field trials for essential oil packaging product in collaboration with industry partner
Biomanufacturing	
Increase the conversion of bioscience R&D into commercialised products and technologies	– Develop commercialised technologies/products for at least 4 companies – Complete at least 2 technologies and products and test in the market – Develop 1 new start-up opportunity – Develop model and source pipeline from universities – Demonstrate fusion based adjuvant technology

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Long-term Objective	2015/16 Objectives
Novel Lasers	
Development and production of novel lasers and laser systems to provide technical solutions in existing markets, to establish new enterprises with unique capabilities, and provide opportunities for industrial development	– Further development of the digital laser and testing of applications – Commercialisation of Digilaze – Appoint internationally trained post-doctoral fellows in the field of fibre lasers – Expand early research capabilities in mid-IR – Build beam delivery systems and, in collaboration with the US company Pivotal Development, demonstrate technologies for transfer to the processing polymer market – Develop novel systems which incorporate beam manipulation technologies such as scanning, switching and sensing – Photonics prototyping facility commissioned
Additive Manufacturing	
Development of additive manufacturing (AM) platforms to create new manufacturing processes for the aerospace and other sectors	– Complete the development of a functional prototype large bed AM platform – Undertake a techno-economic feasibility analysis of potential novel AM materials and applications
Laser-based Engineering	
Development and transfer of laser-based surface engineering and refurbishment applications that will support the refurbishment and maintenance of existing equipment, plant, and infrastructure requirements of the South African industry.	– Development of refurbishment technology packages for Transnet Engineering to effect life extension of high value components – Development of qualified laser refurbishment procedures for high value components for Eskom – Feasibility study into the use of differently shaped laser beams for surface engineering applications in order to improve process efficiency – Development of laser-shock peening (LSP) for industrial applications
Industrial Competitiveness	
Support of the long-term industrialisation and industrial diversification of the economy in prioritised industrial sectors through technology localisation, the Aerospace Industry Support Initiative (AISI), the Bio-composites Centre of Competence (BCC) and the National Foundry Technology Network (NFTN)	– Ongoing implementation of specific programme business plans as per agreements with the funders/stakeholders – 150 capability assessments conducted – 30 technology transfers managed

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Long-term Objective	2015/16 Objectives
Through an effective communications and awareness raising strategy, increase the adoption and implementation of resource efficiency and cleaner production cost-saving opportunities by industry participants	– 150 company assessments by National Cleaner Production Centre – 10 technology transfer facilitated – 3 sector guidelines developed

Table B.5: Industry RIA: Annual Objectives

B.1.6 Energy

Long-term Objective	2015/16 Objectives
Energy Storage	
Develop hydrogen fuel cells, advanced batteries and super-capacitors, and coal technology	– Synthesis and characterization of Pd-based catalysts for alkaline fuel cells – Alkaline anion-exchange membrane development – Preparation of catalysts using electrochemical atomic layer deposition – Synthesis and characterization of porous materials including metal-organic frameworks (MOFs) and templated carbon materials – Modifications and/or functionalization of MOFs and carbon materials to improve properties – Synthesis and characterization of high-capacity electrode materials for lithium ion batteries – Commissioning of the mini-pilot-scale equipment for the microwave-assisted co-precipitation production of electrode materials – Large-scale (up to 10 kg) microwave-assisted production of electrode materials – Microwave-assisted solid-state production of electrode materials – Preparation and characterisation of Mn-based supercapacitor materials – Techno-economic assessment of waste management and Waste-to-Energy (WtE) technologies – TGA and pilot scale oxy-fuel combustion trials on SA coals and wastes (in collaboration with Eskom) – Design a lab-scale (50-100 kW) CLC test plant for high-ash coals (cold and hot models)

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Long-term Objective	2015/16 Objectives
Renewables	
Technologies and processes to increase the share of renewable energies in South Africas overall energy consumption	– Scope high-renewable simulations study – Assess technical feasibility, renewables mix, cost and socio-economic implaications of 60/80/100% renewables in SA – Determine energy-efficiency and demand-side management potential of CSIR campus and generate a concept design for campus internal dispatch – Determine high-level optimal mix of different market generators and energy- storage solutions on CSIR campus – Commision ground-mounted and roof-top PV installations, and set up internet-based platform for open information sharing – Commision and conduct EIA for a 4-5 Mwel biogas plant to supply CSIR campus grid, identify potential feadstocks and suppliers, and prepare concept designs for integration of CO2 end-uses into biogas plant – Integrated electric vehicles in to CSIR car-pool, and install charging stations across campus – Commision study to scope PV-testing facility, and establish partneships for testing in different climates – Establish joint research collaboration with Energy Centre of e Thekwini

Table B.6: Energy RIA: Annual Objectives

B.1.7 Health Flagship

Long-term Objective	2015/16 Objectives
Health ICT integration platform	
Development of an interoperable, open source standards-based ICT system for patient data and information management	– Integration platform deployed in Tshwane: Health Patient Registration System and MomConnect integrated into platform and integrated solution deployed – Implementation of relevant Integrated Healthcare Enterprise integration profiles approved by NDOH in Tshwane – Implementation of procedures for security and privacy

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Long-term Objective	2015/16 Objectives
Umbiflow	
Commercialisation and implementation of the Umbiflow system	– Secure link between the Umbiflow system and the Cellnostics backend database – ISO 13485 Certification (Stage 2 Audit: Contingency for unsuccessful first audit), CE Marking and Acoustic Testing completed – Ongoing software and hardware updates – Acoustic characterization testing facility development for medical devices
Cellnostics	
Implementation of Cellnostics pathology data management and diagnostic services	– Roll out of e-Haematology tool at NHLS – Roll out of National Haematology database – Connectivity hub deployed in Tshwane trial clinics – Bi-directional capability validated in the field Beta-release of e-Pathology tool – Manufacture and quality assurance of microfluidic cartridge

Table B.7: Health Flagship: Annual Objectives

B.1.8 Safety and Security Flagship

Long-term Objective	2015/16 Objectives
Decision Support	
Smarter decision-making through the use of ICT	– CSIR language/speech algorithms for integration within situational awareness systems – AFIS (Automatic Fire warning) system to be integrated within the SANParks situational awareness system – Real-time sensor integration on Internet-of-Things platform
Interoperability	

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Long-term Objective	2015/16 Objectives
Multi-agency operational effectiveness	– Situational analysis algorithm integration within CMORE Situational Awareness platform – Cyber Security robustness verification of open source CMORE platform – Aerostat platform integration for SANParks implementation – Crowd-Control capability development and integration for SAPS
Surveillance	
Real-time surveillance capabilities	– Intelligent sensor integration on CMORE platform for SANParks and SAPS – Rhino-horn protection vault measures for Skukuza
Cyber-crime	
Detection and prevention of cyber-crime	– SAPS police-station automation study and implementation – Independent CMORE cyber penetration testing
Data analysis	
Analysis of criminal data	– Crime trends analysis methodology development and support – Cell-phone forensics analysis support and CMORE integration – GIS-based crime implementation support

Table B.8: Safety and Security Flagship: Annual Objectives

B.1.9 Transnet Flagship

Long-term Objective	2015/16 Objectives
Trans-African Locomotive	
The development/co-development of subsystems that will allow Transnet to produce and sell a South African owned locomotive that will be able to withstand the harsh and diverse African operational and environmental conditions	– Develop a business case for multi- sector Traction motor production – Locomotive off-board big data engine to extract information display dashboards – New generation locomotive data bus and communication system – Communications networks and signalling analysis to provide next generation services in Africa – Design and development of production baseline locomotive control system – Hydrogen locomotive prototype concept design. – Technology support to regenerate energy back into the Eskom grid
Decision Support	
Assist Transnet and the Transport sector with decisions in infrastructure and logistics	– Develop simulator for rail and energy systems – Design port simulator – Continue with Pit-to-Port model development and develop a foresight model

Table B.9: Transnet Flagship: Annual Objectives

B.2 Financial Sustainability

The financial budget indicates that the CSIR will remain financially sustainable and continue as a going concern. All financial resources are invested in line with the CSIRs mandate.

Conservative balance sheet practices, including working capital and cashflow management, will continue to allow CSIR to leverage its investment in scientific equipment and infrastructure. The continued growth of income streams and securing of strategic business partnerships with key clients remain important in the forthcoming financial year. The growth in international income is important to retain the Rand hedge this affords the CSIR.

With the withdrawal of SA Generally Accepted Accounting Practice Reporting Framework (GAAP), the Accounting Standards Board (ASB) is currently assessing which is the most appropriate financial Reporting Framework for 3b public entities. In anticipation of a potential move to International Financial Reporting Standards (IFRS) the CSIR has prepared IFRS compliant Annual Financial Statements in addition to the published SA GAAP financial statements for the financial year ended March 2014. The ASB has prescribed the use of the SA GAAP for the 2014/15 financial year. We await the announcement by the ASB with regards to future periods. There are no material adjustments for the CSIR between the SA GAAP and IFRS financial results.

B.2.1 Growth

The CSIR has budgeted for an increase in total operating revenue of 9.8% (see Table B.10). Contract R&D income and baseline grant funding increase on a comparative basis by 8% and 14.4% respectively.

Income from the South African public sector, South African private sector and international contract income is budgeted to increase by 10.8%, 10.9% and 10.7% respectively.

Included in contract R&D income from the South African public sector are the ring fenced allocations for the South African National Research Network (SANReN) and the Centre for High Performance Computing (CHPC). These contracts have historically being reflected as such and are included as part of public sector income for comparative purposes.

B.2.2 Expenditure

Total expenditure is budgeted to increase by 9.4%, with employee remuneration costs, operating expenses and depreciation budgeted to increase by 12.9%, 5.3% and 3.5% respectively. The increase in employee related costs is due to the inflationary related annual increase as well as planning for increased capacity in the Integrated Energy Research Centre. The operating expenditure is budgeted to increase slightly less than inflation due to a reduction in professional service costs by bringing more skills in-house, reduced electricity costs with the

roll-out of the energy autonomous campus project and ongoing cost containment measures.

B.2.3 Royalty income and other income

Royalty income is budgeted at R 7.4 million. Royalties for the CSIR group of companies is expected to amount to R 17.9 million. Included in the 2014/15 forecast is other income of R 9.4 million, this relates to net foreign exchange gains due to the recent depreciation of the Rand against major currencies. CSIR takes a neutral view on the currency movements going forward and as such has not budgeted for a foreign exchange gain or loss.

The CSIR Board has approved the sale of the CSIR Port Elizabeth site to the Nelson Mandela Metropolitan University (NMMU). As the finalisation of any sale is still subject to negotiations with NMMU on a number of issues and the timing thereof remains uncertain, CSIR has not included a potential gain on the disposal of the site in the budget at this stage.

B.2.4 Financial sustainability

The 2015/16 budget indicates a net profit of R 53.7 million, an increase of 7.6% aligned to the increase in R&D contract income. Investment income is expected to amount to R 43.6 million.

Table B.10 provides the high-level CSIR statement of comprehensive income reflecting the forecast for 2014/15 and the budget for 2015/16. A statement of comprehensive income for the Medium Term Expenditure Framework (MTEF) period is provided in Appendix H.1.

B.2.5 Statement of financial position

A CSIR statement of the financial position for the MTEF period is provided in Appendix H.2. Table B.12 provides a summary projected balance sheet.

One needs to consider the budgeted cash balance of R 895 million in conjunction with the current liabilities of R 1.1 billion. The current ratio (current assets/current liabilities) is expected to remain slightly greater than 1.1. No significant investment in subsidiary companies is anticipated.

B.2.6 Investment in property, plant and equipment

The level of investment in property, plant and equipment for the 2015/16 financial year is budgeted to be R 112.9 million.

Notwithstanding the fact that an item is included in property, plant and equipment budget, the investment remains subject to approval as per the Approval Framework of the CSIR and additional considerations such as strategic alignment, return on investment and available cashflow.

	Forecast 2014/15 (R'000)	Budget 2015/16 (R'000)
Total Operating Revenue	**2 319 663**	**2 546 035**
Contract R&D Income	**1 653 419**	**1 786 267**
Public – South Africa*	1 180 148	1 307 625
Private – South Africa	149 180	165 476
International	219 859	243 392
Parliamentary Grant – Ring-fenced*	104 233	69 774
Parliamentary Grant	**657 819**	**752 416**
Royalty income	8 425	7 352
Other income / (expenditure)	9 400	–
Total Expenditure	**2 263 620**	**2 476 067**
Employees' remuneration	1 243 121	1 403 398
Operating expenses	928 000	976 957
Depreciation	92 499	95 712
Operating Profit before Investment Income	**65 444**	**69 968**
Investment Income	43 350	43 585
Net profit before non-guaranteed employees' remuneration (Performance bonus)	**108 794**	**113 553**
Non-guaranteed employees remuneration (Performance bonus)	58 938	59 895
Net profit	**49 855**	**53 659**

*Included in contract R&D income from the South African Public sector are the ring fenced allocations for the South African National Research Network (SANReN) and the Centre for High Performance Computing (CHPC)

Table B.10: Statement of Comprehensive Income – 2015/16

Category	2015/16 funding R'000	2016/17 funding R'000	2017/18 funding R'000
Baseline Parliamentary Grant	**726 056**	**764 950**	**803 197**
Ring fenced allocation	**283 414**	**284 832**	**299 926**
National Laser Centre	26 360	26 491	27 895
Laser Loan Programme	7 739	7 777	8 189
African Laser Centre	4 228	4 249	4 474
Implementation: ICT R&D Strategy	57 807	58 096	61 175
SANReN	99 386	99 883	105 177
CHPC	87 895	88 334	93 016
Total	**1 009 470**	**1 049 782**	**1 103 124**

Table B.11: Medium Term Expenditure Framework allocation to the CSIR (excl VAT)

B.2.7 CSIR subsidiaries

Details of CSIR subsidiaries and associates are provided in Appendix H. The subsidiaries account for a marginal portion of the total Group's budget. The 2015/16 budget for the CSIR Group reflects a contribution of R 30.1 million to revenue with a net profit of R 9.5 million.

	Forecast 2014/15 (R'000)	Budget 2015/16 (R'000)
ASSETS		
Non-Current assets	**626 019**	**674 249**
Property, plant and equipment	598 635	645 574
Interest in Joint Ventures and Associates	1 315	1 315
Interest in subsidiaries	20 661	20 661
Investment	5 408	6 699
Current Assets	**1 228 214**	**1 247 116**
Trade and other receivables	245 863	247 895
Inventory and contracts in progress	94 569	103 589
Cash and cash equivalents	887 782	895 632
TOTAL ASSETS	**1 854 233**	**1 921 365**
EQUITY AND LIABILITIES		
Reserves	**728 166**	**781 825**
Retained earnings	728 166	781 825
Non-current liabilities	**10 651**	11 610
Post-retirement medical benefits	10 651	11 610
Current liabilities	**1 115 416**	**1 107 930**
Advanced received	669 718	674 272
Trade and other payables	445 698	453 658
TOTAL EQUITY AND LIABILITIES	**1 854 233**	**1 921 365**

Table B.12: Projected CSIR statement of financial position

A portion of the consolidated profits is due to equity accounting for the Technovent (Pty) Ltd's minority shareholding in Uvirco (Pty) Ltd. The CSIR, through Technovent (Pty) Ltd, is looking to exit this shareholding to a BBBEE investor. The anticipated timing of this transaction is within the next 12 months.

The CSIR and the University of Pretoria (UP) have agreed to wind-up the Sera group structure and the surplus cash will be repaid to CSIR and UP.

A number of patents held within the Technifin (Pty) Ltd patent portfolio will be expiring in the near future. Technifin is budgeting to receive payments from Carghill on the Monatin licensed technology in 2015/16.

The CSIR and its subsidiaries do not pay dividends and accordingly have a zero dividend policy.

The three year borrowing plan is provided in Appendix H.3.

B.3 KPI Annual and Quarterly Targets

B.3.1 Annual Targets 2015/16 and 2017/18

KPI	Target for 2014/15	Forecast for 2014/15	Target for 2015/16	Target for 2017/18
Publication Equivalents	–	470	490	520
Journal articles published	275	290	300	330
New Technology Demonstrators	25	30	$\geq$ 30	$\geq$35
New Patents	15	15	$\geq$ 15	$\geq$15
Contract R&D (Rm)	1630	1630	1780	2000
Royalty & License Income (Rm)	5.8	6.0	7.4	9.0
Total size of SET base	1753	1810	1850	1900
Number of SET Base who are Black	912	990	1000	1040
Percentage of SET Base who are Black	52%	53%	54%	55%
Number of SET Base who are Female	561	600	630	650
Percentage of SET Base who are Female	32%	33%	34%	34%
Number of SET Base with a PhD	320	320	330	360
Percentage of SET Base with a PhD	18%	18%	18%	18.4%
Total Income (Rm)	2360	2360	2540	2800
PPE Investment	96	150	113	130
Net Profit	49	49	54	60
BBBEE Rating	Level 2	Level 2	Level 2	Level 2
DIFR	$\leq$ 0.3	$\leq$ 0.3	$\leq$0.3	$\leq$0.3

Table B.13: CSIR Annual Targets: 2015/16 & 2017/18

B.3.2 Quarterly Targets 2015/16

KPI	Target for 2015/16	Q1 Target	Q2 Target	Q3 Target
Publication Equivalents	490	110	220	360
Journal articles published	300	70	140	280
New Technology Demonstrators	$\geq$ 30	0	0	0
New Patents	$\geq$ 15	3	7	11
Contract R&D (Rm)	1780	350	800	1200
Royalty & License Income (Rm)	7.4	1	3	4.5
Total size of SET base	1850	1810	1830	1850
Number of SET Base who are Black	1000	950	970	990
Percentage of SET Base who are Black	54%	53%	54%	54%
Number of SET Base who are Female	630	600	610	620
Percentage of SET Base who are Female	34%	33%	33%	34%
Number of SET Base with a PhD	330	320	325	330
Percentage of SET Base with a PhD	18%	18%	18%	18%
Total Income (Rm)	2540	500	1100	1700
PPE Investment	113	30	80	120
Net Profit	54	(5)	0	25
BBBEE Rating	Level 2	Level 2	Level 2	Level 2
DIFR	$\leq$ 0.3	$\leq$ 0.3	$\leq$0.3	$\leq$0.3

Table B.14: CSIR Quarterly Targets: 2015/16

C

Governance Structure 2015/16

The document reflecting the new Board and Executive structure is under construction.

D

CSIR Board Terms of Reference

Contents

D.1 Introduction

The CSIR Board Terms of Reference sets out the functions and responsibilities of the Board, along with certain matters relevant to the operations of the Board. These include the provisions of the Scientific Research Council Act No 46 of 1988, the Public Finance Management Act (PFMA), Act No 1 of 1999 and King III report on Corporate Governance.

In accordance with the provisions of section 7 (1) of the Scientific Research Council Act, *"the affairs of the CSIR shall be managed by a board, which shall determine the policy and objectives of the CSIR and shall exercise control generally over the performance of its functions, the exercise of its powers and the execution of its duties by the CSIR."*

The Board operates in accordance with a set of corporate governance policies which take into account relevant best practice recommendations, including the King III Code.

D.2 Status of the Board

The Board is appointed in terms of the Scientific Research Council Act and comprises of independent non executive members and the Chief Executive Officer of the CSIR. The overall purpose of independence is to ensure that members do not have a relationship where there are, or are perceived to be, matters which could interfere with a member.

D.3 Composition of the Board

D.3.1 Membership of the Board

Members of the Board, including the Chairperson shall be persons who have achieved distinctions in science or industry or who have special knowledge or experience in relation to some aspect of the CSIR's functions.

The Chairperson must have the ability to preside over meetings and to direct the discussion constructively. The need for independence applies particularly to the Chairperson.

The members of the Board shall be appointed by the Minister and shall consist of:

- A Chairperson, appointed by the Minister in consultation with the Board;
- Not fewer than five, but not more than nine other members; and
- The CSIR CEO, who shall serve on the Board by virtue of his office.

If the Chairperson is absent from a specific meeting, the members present shall elect a Chairperson from the members present to act as Chairperson of that meeting.

A member of the Board, excluding the CSIR CEO, shall hold office for a period not exceeding four years from the date of appointment, but shall be eligible for reappointment subject to a maximum of two consecutive terms.

D.3.2 Board Secretariat

The CSIR's Executive Management Board is responsible for making available the services of a Board Secretary.

D.4 Responsibilities and duties of the Board

D.4.1 Responsibilities of the Board

Key responsibilities of the Board include:

- Setting the CSIR's values and standards of conduct and ensuring that these are adhered to, in the interest of stakeholders, employees, customers, suppliers and communities in which it operates and generally, safe guarding the reputation of the CSIR;
- Providing leadership of the CSIR within a framework of prudent and effective controls which enable risk to be assessed and managed;
- Setting the CSIR's directions, strategies and financial objectives and ensuring that the necessary resources are in place for the CSIR to meet its objectives;
- Always acting in the best interests of the CSIR and treating confidential matters as such;
- Ensuring that the performance of CSIR Executive Management and the Board itself (and Committees) is assessed and monitored annually;
- Ensuring that the business of the CSIR remains a going concern. The Board should record the facts and assumptions on which it relies to conclude that the business will continue as a going concern in the financial year ahead and, if it is decided that it will not, indicate which steps the Board should take to remedy the situation.
- Oversee information technology governance.

D.4.2 Duties relating to members

Members should:

- Ensure that they have sufficient time to devote to the execution of their duties;
- Be informed about the financial, social and political milieu within which the CSIR operates;
- Never permit a conflict of duties and interest to occur and disclose potential conflicts of interest at the earliest opportunity;
- Act independently;

- Exercise utmost good faith, honesty and integrity in all dealings with or on behalf of the CSIR;
- Exercise care and skill which can reasonably be expected of persons of their expertise; and
- Always act in the best interests of the CSIR and treat confidential information as such.

D.4.3 Appointment of Board Committees

The Board Committees are an aid to assist the Board and its members in discharging their duties and responsibilities.

The Board may nominate one or more Committees, which may, subject to the Board's instructions, perform those functions of the Board that the Board may determine. Such Committees shall consist of members of the Board .

The Board shall not be absolved from any functions performed by any of the Committees. Delegating authority to the Committees or Executive Management does not mitigate or dissipate the discharge by the board of its duties and responsibilities.

D.4.4 Appointment of the CEO of the CSIR

The Board shall, in consultation with the Executive Authority of the CSIR, appoint the Chief Executive Officer of the CSIR, who shall be responsible for the management of the affairs of the CSIR and shall report on those affairs to the Board as may be required.

D.4.5 Duties emanating from the PFMA

- Section 50 that deals with the fiduciary duties of accounting authorities in Public Entities.
- Section 51 that deals with the general responsibilities of accounting authorities.
- Section 55 that deals with the annual report and financial statements.

For ease of reference, a copy of the above sections (Appendix A) is herewith attached.

D.5 Conflict of Interest

Board Members may not place themselves in a position in which their personal interests conflict, or may possibly conflict, with their duty to act in the best interests of the CSIR. This gives rise to the following duties, namely:

- The duty to act bona fide in the interests of the CSIR;

- The duty not to compete improperly with the CSIR; and
- The duty to disclose direct or indirect personal or private interests, as envisaged by the provisions of Section 50 (3) (a) of the Public Finance Management Act, which shall duly be minuted at a Board Meeting.

D.6 Access to Information

The Board is entitled to full access to the information required to discharge its duties, including access to the CSIR Executive Management Board.

D.7 Meetings of the Board

The Board will hold at least one meetings per quarter and shall hold special meetings whenever else necessary to consider pertinent and urgent matters. There should be disclosure in the CSIR Annual Report of the number of Board meetings held in the year and details of attendance of each member.

The Board should ensure that it receives relevant non-financial information going beyond assessing the financial and quantitative performance of the CSIR, and should look at other qualitative performance factors that involve broader stakeholder interests.

The quorum for a Board meeting shall be the majority of its members.

A decision of the Board shall be taken by resolution of the majority of the members present at any meeting of the Board and, in the event of an equality of votes on any matter, the person presiding at the meeting in question shall have a casting vote in addition to his deliberative vote as a member of the Board.

D.8 Responsibility for the Agenda and the issue of the Minutes

The Board Secretary is responsible for arranging the meetings of the Board, and gathering and distributing agenda papers.

Complete agenda papers must be distributed at least 7 days prior to the date of the meeting.

Any member of the Board who is going to attend a Board meeting must request the Board Secretary to add such items as he or she deems necessary to the agenda a minimum of two days prior to the meeting.

Draft minutes of the meeting are prepared for review by the members of the Board within 14 days of the date of the meeting. Copies of the revised minutes must be distributed to those who were present at the meeting and other relevant parties.

The minutes shall be signed by the Chairperson as evidence of approval.

D.9 Delegation of Authority

The matters specifically reserved for the Board under the Delegation of Authority include decisions about the CSIR strategic and operational plans, budget, annual financial statements, succession planning of the CSIR CEO and members of the Executive Management Board, remuneration, policies (and other aspects as contained in the approval framework), as well as matters involving amounts over specified limits (which vary depending on the nature of the transaction).

The Board reserves to itself all matters with the potential to have a material impact on the reputation of the CSIR.

D.10 General

The Board (and individual members) may obtain independent professional advice if it (or the member) considers it necessary.

D.11 Extracts from Public Finance Management Act number 1/1990

D.11.1 Fiduciary duties of accounting authorities

50. (1) The accounting authority for a public entity must

(a) exercise the duty of utmost care to ensure reasonable protection of the assets and records of the public entity;

(b) act with fidelity, honesty, integrity and in the best interests of the public entity in managing the financial affairs of the public entity;

(c) on request, disclose to the executive authority responsible for that public entity or the legislature to which the public entity is accountable, all material facts, including those reasonably discoverable, which in any way may influence the decisions or actions of the executive authority or that legislature; and

(d) seek, within the sphere of influence of that accounting authority, to prevent any prejudice to the financial interests of the state.

(2) A member of an accounting authority or, if the accounting authority is not a board or other body, the individual who is the accounting authority, may not

(a) act in a way that is inconsistent with the responsibilities assigned to an accounting authority in terms of this Act; or

(b) use the position or privileges of, or confidential information obtained as, accounting authority or a member of an accounting authority, for personal gain or to improperly benefit another person.

(3) A member of an accounting authority must

(a) disclose to the accounting authority any direct or indirect personal or private business interest that that member or any spouse, partner or close family member may have in any matter before the accounting authority; and

(b) withdraw from the proceedings of the accounting authority when that matter is considered, unless the accounting authority decides that the member's direct or indirect interest in the matter is trivial or irrelevant.

D.11.2 General responsibilities of accounting authorities

51. (1) An accounting authority for a public entity

(a) must ensure that that public entity has and maintains

(i) effective, efficient and transparent systems of financial and risk management and internal control;

(ii) a system of internal audit under the control and direction of an audit committee complying with and operating in accordance with regulations and instructions prescribed in terms of sections 76 and 77; and

(iii) an appropriate procurement and provisioning system which is fair, equitable, transparent, competitive and cost-effective;

(iv) a system for properly evaluating all major capital projects prior to a final decision on the project;

(b) must take effective and appropriate steps to

(i) collect all revenue due to the public entity concerned; and

(ii) prevent irregular expenditure, fruitless and wasteful expenditure, losses resulting from criminal conduct, and expenditure not complying with the operational policies of the public entity; and

(iii) manage available working capital efficiently and economically;

(c) is responsible for the management, including the safeguarding, of the assets and for the management of the revenue, expenditure and liabilities of the public entity;

(d) must comply with any tax, levy, duty, pension and audit commitments as required by legislation;

(e) must take effective and appropriate disciplinary steps against any employee of the public entity who

(i) contravenes or fails to comply with a provision of this Act;

(ii) commits an act which undermines the financial management and internal control system of the public entity; or

(iii) makes or permits an irregular expenditure or a fruitless and wasteful expenditure;

(f) is responsible for the submission by the public entity of all reports, returns, notices and other information to Parliament, and to the relevant executive authority or treasury, as may be required by this Act;

(g) must promptly inform the National Treasury on any new entity which that public entity intends to establish or in the establishment of which it takes the initiative, and allow the National Treasury a reasonable time to submit its decision prior to formal establishment; and

(h) must comply, and ensure compliance by the public entity, with the provisions of this Act and any other legislation applicable to the public entity.

(2) If an accounting authority is unable to comply with any of the responsibilities determined for an accounting authority in this Part, the accounting authority must promptly report the inability, together with reasons, to the relevant executive authority and treasury.

D.11.3 Annual report and financial statements

55. (1) The accounting authority for a public entity

(a) must keep full and proper records of the financial affairs of the public entity;

(b) prepare financial statements for each financial year in accordance with generally accepted accounting practice, unless the Accounting Standards Board approves the application of generally recognised accounting practice for that public entity;

(c) must submit those financial statements within two months after the end of the financial year

(i) to the auditors of the public entity for auditing; and

(ii) if it is a business enterprise or other public entity under the ownership control of the national government, to the treasury; and

(d) must submit within five months of the end of a financial year to the treasury, to the executive authority responsible for that public entity and , if the Auditor-General did not perform the audit of the financial statements, to the Auditor-General –

(i) an annual report on the activities of that public entity during that financial year;

(ii) the financial statements for that financial year after the statements have been audited; and

(iii) the report of the auditors on those statements.

(2) The annual report and financial statements referred to in subsection (1) (d) must

(a) fairly present the state of affairs of the public entity, its business, its financial results, its performance against predetermined objectives and its financial position as at the end of the financial year concerned;

(b) include particulars of

(i) any material losses through criminal conduct and any irregular expenditure and fruitless and wasteful expenditure that occurred during the financial year;

(ii) any criminal or disciplinary steps taken as a consequence of such losses or irregular expenditure or fruitless and wasteful expenditure;

(iii) losses recovered or written off,

(iv) any financial assistance received from the state and commitments made by the state on its behalf; and

(v) any other matters that may be prescribed; and

(c) include the financial statements of any subsidiaries.

(3) An accounting authority must submit the report and statements referred to in subsection (1) (d), for tabling in Parliament, to the relevant executive authority through the accounting officer of a department designated by the executive authority.

(4) The treasury may direct that, instead of a separate report, the audited financial statements of a Schedule 3 public entity which is not a government business enterprise must be incorporated in those of a department designated by the treasury.

E

Risk Management Plan

Contents

E.1 Introduction

The underlying premise of Enterprise Risk Management (ERM) is that every entity exists to provide value for its stakeholders. All entities face uncertainty and the challenge for management is to determine how much uncertainty to accept as it strives to grow stakeholder value. Uncertainty presents both risk and opportunity, with the potential to erode or enhance value. ERM enables the organisation to effectively deal with uncertainty and associated risk and opportunity, enhancing the capacity to build value.

Value is maximised when management sets objectives to achieve an optimal balance between growth and related risks, and effectively deploys resources in pursuit of the entity's objectives.

CSIR has classified the top risks into the following broad categories:

- Systemic risks.
- Strategic risks.
- Operational risks.

Systemic risks originate from macro-economic and national challenges affecting the National System of Innovation and National Government Business Enterprise space in which the CSIR operates.

Strategic risks directly impact on the ability of the CSIR to deliver on its mandate.

Operational risks include financial, legal and compliance risks and are those risks affecting the systems, people and processes through which the CSIR operates.

This document is intended to provide a risk management framework to the organisation. It describes CSIR's risk management:

- Policy;
- Objectives;
- Benefits;
- Principles;
- Responsibilities and
- Guidelines.

E.2 Definition

ERM deals with risks and opportunities affecting value creation or preservation and is defined as follows:

> *"Enterprise Risk Management is a process, effected by the Board, Executive Management and personnel, applied in strategy setting and across the operations of the enterprise, designed to identify potential events that may affect the entity, and manage associated risk to be within acceptable levels, to provide reasonable assurance regarding the achievement of entity objectives."*

E.3 Background to ERM

It is acknowledged that the new style of risk management in the King III Code of Corporate Governance (King III) and the Public Finance Management Act (PFMA) addresses a much wider spectrum of risk than in the past. In addition, the corporate governance drivers behind risk management today require new ways of reporting and monitoring CSIR's risk exposures.

This document is based on current recognised business practices and standards and corporate governance principles.

It is important to note that the Risk Management Plan is, of necessity, an evolving document. The contents of the plan reflect the current risk management requirements of CSIR. The document is reviewed and updated annually by the Audit and Risk Committee (The Committee) of the CSIR Board.

E.4 Risk Management Statement

The CSIR is committed to a process of risk management that is aligned to the principles of the King III Report and the Public Finance Management Act (PFMA). It is expected that all operating units and centres, operations and processes are subject to the Risk Management Plan.

The CSIR is a diverse and multidisciplinary entity. There are several operating units and centres working at managing risk exposures.

Different risk related or assurance provider functions will align their various goals and reporting processes into one cohesive and structured framework. All of CSIR's business, financial, technological, legal and operational risk exposures, whether they are insurable or not, will be identified, assessed, and appropriately managed.

All risk management efforts will be focused on supporting CSIR's objectives. Equally, they must ensure compliance with relevant legislation, and fulfil the expectations of employees, communities and other stakeholders in terms of corporate governance.

Effective risk management is imperative to the CSIR. The realisation of CSIR's business plan depends on being able to take calculated risks in a way that does not jeopardise the direct interests of stakeholders. Sound management of risk will enable CSIR to anticipate and respond to changes in our business environment, as well as take informed decisions under conditions of uncertainty.

Every employee has a part to play in this important endeavour.

E.5 Objectives of ERM

The objectives of this plan are to assist the CSIR make informed choices which:

- Provide a level of assurance that current significant risks are effectively managed;
- Improve business performance by assisting and improving decision making and planning;

- Promote a more innovative, less risk averse culture in which the taking of calculated risks in pursuit of opportunities to benefit the organisation is encouraged; and
- Provide a sound basis for integrated risk management and internal control as components of good corporate governance.

E.6 Benefits of ERM

The benefits of ERM to the CSIR include:

- **Aligning risk and strategy** – CSIR considers the current and emerging risks in evaluating the strategy, setting related objectives and developing mitigating mechanisms.
- **Enhancing risk response decisions** – ERM provides the rigour for CSIR to identify alternative risk responses – risk avoidance, reduction, sharing, transfer and acceptance.
- **Reducing operational surprises and losses** – CSIR gains enhanced capability to identify potential events and establish responses thereby reducing surprises and associated costs.
- **Identifying and managing multiple and cross-enterprise risks** – CSIR faces a myriad of risks affecting different parts of the organisation and ERM facilitates effective responses to the interrelated impacts and enhances an integrated response to multiple risks.
- **Seizing opportunities** – By considering a full range of potential events, the organisation is positioned to identify and proactively realise opportunities.
- **Improving deployment of resources** – risk information allows the organisation to effectively assess overall funding requirements and enhance funding allocation.
- **Increasing probability of achieving objectives** – ERM helps CSIR achieve its performance targets and assists with the prevention of loss of resources. Controls and risk interventions will be chosen on the basis that they increase the likelihood that CSIR will fulfil its intentions / commitments to its stakeholders.

E.7 Principles of ERM

The principles contained in this plan are applied at all levels within the CSIR.

CSIR's risk management plan is applied to all operational aspects of the organisation and will consider external strategic risks arising from or related to our partners in projects, government departments, the public and other external stakeholders, as well as wholly internal risks.

CSIR's positive approach to risk management means that CSIR not only looks at the risk of things going wrong, but also the impact of not taking opportunities or not capitalising on CSIR strengths.

All risk management activities are aligned to CSIR values and principles, objectives and organisational priorities and aims to protect and enhance the reputation and standing of the organisation.

Risk analysis forms part of organisational strategic planning, business planning, investment and project appraisal procedures. Risk management is founded on a risk-based approach to internal control, which is embedded in day-to-day operations of the organisation.

CSIR's risk management approach informs and directs organisational work to gain confidence on the reliability of CSIR risk control strategies and therefore provide assurance. Managers and staff at all levels have a responsibility to identify, evaluate, manage and report risks.

Risk Management in CSIR is proactive and reasoned. Strategic and operational risks are identified, objectively assessed, and actively managed. In determining appropriate controls, the cost of controls and the impact of risk occurring is balanced with the benefits of reducing risk.

CSIR also recognises that some risks can be managed by transferring them to a third party, for example by insurance.

E.8 Legislative requirements

The Public Finance Management Act (PFMA) and related Treasury Regulations assign extensive responsibilities to the CSIR. These include:

- Ensuring that the CSIR has and maintains effective, efficient and transparent systems of financial and risk management and internal controls; and
- Ensuring that risk assessments are conducted regularly to determine emerging risks and that these are adequately mitigated.

In accordance with Treasury Regulations 27.2.1, *"The Accounting Authority must ensure that risk assessments are conducted regularly so as to identify emerging risks of the public entity. A risk management strategy, which must include a Fraud Prevention Plan must be used to direct the internal audit effort and priority and to determine the skills of managers and staff to improve controls and to manage these risks."*

E.9 CSIR Risk Management Model

The objective of risk management is to ensure a proactive identification, understanding and assessment of risks, including activities undertaken that yield risks which could impact on business objectives. This is executed through various risk management and governance mechanisms and risk management oversight bodies. These include:

- Independent board committees;
- Risk management in all key operations throughout the CSIR;
- Risk Assurance Office facilitates, coordinates and monitors effective risk management;
- Assurance from Internal Audit Services on the control environment; and
- External audit assurance on CSIR financials.

CSIR employs a holistic and integrated approach to managing risk within the organisation.

E.9.1 Risk management roles and responsibilities in the CSIR:

The risk management roles and responsibilities within CSIR are distributed as follows:

1. **Operating Units/Centres/Departments**
    - Identify, evaluate, mitigate and monitor risks;
    - Ensure adequate resourcing for the management of risk in the operating unit / centre / department;
    - Implement operating unit / centre / department procedures and processes, where applicable, which are to be aligned with CSIR policies; and
    - Provide input/information/assistance to risk management in the development of strategy, policy and all other risk activities.
2. **RAO**
    - Identify risks;
    - Develop strategy, policies and standards;
    - Provide consolidated reporting, inclusive of an overall risk profile, ensuring that major risks are identified and reported to the board;
    - Perform final validation of key risk data;
    - Ensure an appropriate level of awareness of risk management in CSIR/SS and to foster a commensurate risk-aware culture; and
    - Ensuring appropriate corrective actions are implemented on all audit findings made by IAS and other auditing bodies.

3. **Internal Audit Services**
    - Provide objective assurance to the Board on the effectiveness of risk management process;
    - Highlight any additional risks that result from their audit;
    - Assess the adequacy and effectiveness of risk management processes;
    - Review the management of key risks;
    - Monitor organisational compliance on behalf of the Board; and
    - Utilise risk data to assist in the planning of audits.
4. **Executive Management**
    - Sets an appropriate tone for effective management of risks;
    - Holds Management accountable for designing, implementing, monitoring and integrating risk management into their day-today activities;
    - Provides leadership and guidance to enable Management and internal structures responsible for various aspects of risk management to properly perform their functions;
    - Ensures that the control environment supports the effective functioning of risk management; and
    - Oversees management of significant organisational risks;
5. **CSIR Board**
    - Approves the risk management policy, strategy, and implementation plan;
    - Approves the fraud prevention policy, strategy and implementation plan;
    - Approves organisational frameworks, policies and procedures and roles and responsibilities;
    - Approves CSIR's strategic plan, its operating and capital budgets;
    - Oversees management of significant organisational risks; and
    - Provides assurance to relevant stakeholders that key risks are properly identified, assessed and mitigated.

E.10 Risk Management Guidelines

E.10.1 Accountability and Responsibility Guidelines

CSIR management are responsible for the identification of major risks, as well as for forming its own opinion on the effectiveness of the process. Executive Management is accountable to the Board for designing, implementing and monitoring the process of risk management and integrating it into the day-to-day activities of the entity.

Management ensure that appropriate systems are in place to manage the identified risks, measure the impact and to proactively manage it, so that the CSIR's assets and reputation are suitably protected.

Internal Audit Services are responsible for providing assurance to the Audit and Risk Committee (The Committee) of the Board on the effectiveness of the control environment in identifying and addressing risks.

The Committee will be responsible for addressing the corporate governance requirements of risk management and monitoring the CSIR's performance in ensuring controls are in place to prevent or mitigate risks. The Committee will elevate significant risks to the Board together with recommendations to the Board on how to address serious risk issues.

The Board and Executive Management ensure that there is future-looking orientation included in the consideration of risk.

E.10.2 Reporting Requirements

A tiered structure of risk reporting is followed and includes:

- Each Operating Unit/Centre develops a risk register and reports its top risks as part of the business planning process. Management consider the inputs from the bottom-up approach and together with strategic considerations report the top risks to the Committee of the Board.
- Normal management reporting processes Normal management processes, such as monthly management accounts and Safety Health Environment and Quality (SHEQ) meetings that address risk and control issues on a regular basis.
- Incident reports will be generated for material losses.

This is an internal management function. The destination of incident reports will be determined by the nature of the loss, but losses that originate from risks contained in the risk registers should always be elevated to higher levels of management. Variance reports are incorporated into routine management reporting processes.

E.10.3 Risk Assessments

Once a year, the CSIR will undertake a thorough reassessment of its risks.

There are many different processes and methodologies in use by which risks can be identified i.e. risk workshops, interviews, questionnaires and surveys, research, control and risk assessments.

At a minimum a risk assessment should result in:

- Identification of relevant risks which threaten the achievement of objectives; and
- The prioritisation of risks, which often necessitates estimating the timing, magnitude and probability of risk occurrence.

The first part of carrying out a structured risk assessment is to profile the key aspects of the CSIR. This will highlight dependencies, critical parts of the business and start to pinpoint vulnerabilities.

1. **Profile the context**

   The risk assessment processes begin with the profiling of the CSIR's context. Consideration is given to, amongst others:

   - Business environment;
   - Key resources;
   - Key stakeholders;
   - Service portfolios;
   - Key suppliers; and
   - Market's driving forces.

2. **Profile the objectives of the operating unit/ centre**

   The profile of the individual Operating Unit/Centre objectives should take into consideration:

   - Revenue and expenditure targets;
   - Customer objectives and targets;
   - Socio economic targets; and
   - Other business objectives.

3. **Profile the stakeholders of the CSIR**

   Stakeholders include the following:

   - Community;
   - Customers;
   - Business;
   - Government;
   - Employees;
   - Preferred suppliers; and
   - Professional bodies.

4. **Profile the CSIR's value creation processes**

   The manner in which economic value is generated by the CSIR must be understood. This contributes to the understanding of potential risk in the CSIR.

5. **Identify and profile the CSIR's key assets and performance drivers**

   The key assets and performance drivers should be profiled and should include amongst others:

   - Critical success factors;
   - Customer satisfaction;
   - Core competencies; and
   - Competitive strengths and weaknesses.

6. **Map the CSIR's strategy**

   The future direction and intent of the CSIR must be understood.

7. **Profile the key processes**

   The drivers of research and development and delivery on the CSIR mandate must be identified and interpreted. For example:

   - The processes that generate revenue must be profiled.
   - Incoming actions such as recruitment, purchasing and procurement must be identified.
   - Outgoing processes such as public relations, investments and branding should be profiled.
   - Inherent and cyclical processes such as budgeting, information systems and staffing matters must be incorporated into the CSIR risk profile.

   The deliverable of steps 1 to 7 will result in a business / dependency profile of the CSIR and its related activities.

   The next part of the risk assessment process is to identify threats and risks to all of the elements identified above.

8. **Identify potential sources of risk associated with the CSIR's profile**

   The risk assessment process must identify the potential sources of risk associated with the profile of the CSIR. The CSIR will follow a top-down approach together with giving consideration to the bottom-up inputs received from the business planning process. The process has a future orientation as well as examining the facts of today's business profile.

9. **Assess the impact of risk across the CSIR**

   Risks do not normally exist in isolation. They usually have a potential knock-on effect on other functions, processes and risk categories. These cause-and-effect relationships must be identified and understood.

10. **Identify any influencing factors that may contribute to or shape the risk profile**

    Having identified a key risk exposure (e.g. increasing competition, lack of funding) the risk assessment must identify the factors that influence and shape the risk (e.g. barriers to entry). Every key risk will have influencing factors or variables, others may relate to timing and cyclical factors (e.g. national elections).

11. **Evaluate recent and imminent internal changes as possible sources of risk**

    Recent changes in the CSIR may be a source of present risk. The nature of the changes may relate to the launch of programmes or services. Major changes in the CSIR's organisational structure may change the dynamics of risk.

12. **Identify external changes and identify associated risks**

    Risk assessment processes not only focus on existing dynamics prevailing in the CSIR. Near-future changes must also be included in the process. Anticipated changes that are self-generating will be easily identifiable, such as investments or launching of new capital projects. Certain changes in government, outside of the CSIR's control can also be anticipated such as regulatory changes.

13. **Identify the potential root causes of risk events**

    The purpose of identifying potential root causes is to give direction to risk intervention measures.

14. **Identify the key controls currently implemented for the identified risks**

    The existing controls implemented for identified risks must be documented. The term "control" should not be construed only as a financial term. It is now the commonly accepted term to describe any mitigating measure for any particular type of risk.

15. **Identify the perceived shortcomings in current measures to mitigate the impact of risks**

    Management then evaluate the appropriateness of current controls. Observation and judgment is often sufficient to identify shortcomings in control measures, and the level of desired control effectiveness can be expressed.

    Operational risks lend themselves more to a more rigorous process of evaluating control effectiveness.

16. **Calculate the probability of risk events (Pre-control)**

    This is the probability that the identified risk / threat will occur within a specified period of time (between 1 and 3 years) on the basis that the organisation have no specific / focused controls in place to address the risk / threat. The probability of occurrence is assessed for every identified risk.

    The CSIR has developed an assessment guideline table, (see Table ??). The realistic evaluation of risk probability is essential, because it guides the allocation of resources in the CSIR. When deciding upon a probability factor from the table, the following guidelines are considered:

- Consider how many similar incidents have occurred in the CSIR;
- Consider, and research if necessary, how many similar incidents have occurred at similar entities; and
- Consider the effectiveness of the existing preventative controls for the risk.

17. **Calculate the potential impact of the identified risk scenarios (Pre-control)**

    This is the potential magnitude of the impact on the CSIR's operations should the risk / threat actually occur. This is assessed on the basis that the organisation has no specific / focused controls in place to address the risk / threat (therefore before any controls).

    The consequences of risk are not only characterised in financial terms. Consideration must be given to various scales of impact that are relevant according to the prevalent categories of risk. These may include the scales for reputation damage, personal injuries and fatalities, media coverage, and operational impact.

    Refer to Table ??.

18. **Rank the risks in order of priority (Inherent risk)**

    Inherent risk is the risk to the CSIR in the absence of any actions the organisation might take to alter either the risk's likelihood or impact. Inherent risk is the product of the impact of a risk and the probability of that risk occurring before the implementation of any direct controls.

    The ranking of risks provides the organisation with some perspective of priorities. This should assist in the allocation resources in the operations. Management may choose to raise the profile of certain risks for other reasons. This may be justified because of non-financial influences such as media implications, social responsibilities or regulatory pressures. The ranking of risks are shaped by strategic and business objectives.

19. **Consider perceived control effectiveness**

    Controls are the activities / policies / procedures/ processes / functions / departments / physical controls that the organisation has in place to manage the strategic and significant risks. These actions may reduce the likelihood of occurrence of a potential risk, the impact of such a risk, or both. Management then assesses the control effectiveness based on their understanding of the control environment currently in place at the CSIR.

20. **Assess the residual risk status**

    Residual risk reflects the risk remaining after intended actions to mitigate an inherent risk have been effectively implemented.

E.10.4 Control Requirements

Every risk will have a number of controls, mitigations or interventions that have been designed to contain the potential impact or likelihood of the risk. These controls need to be identified

and evaluated. They will form the basis of an assurance plan and will be tested by the internal audit process.

The following aspects of the control environment should be considered:

- Verify and evaluate the controls currently in place for key risks
- Evaluate the strategic mitigations in place for key risks
- Identify and evaluate the post-event measures in place for response to risk
- Review the financial risk protection measures in place to respond to the consequences of risk events
- Verify the levels of compliance with regulatory requirements
- Take decisions on the acceptability of identified risks and controls

E.11 Risk Assessment Guideline Tables

The following tables are to assist the organisation in assessing the potential impact that a risk exposure may have to the CSIR.

E.11.1 Qualitative assessment of likelihood of occurrence

The table below is to be used to assist in quantifying the probability of a specific risk occurring in the CSIR

Level	Description	Rating
Almost Certain	It is expected that the event will occur in most circumstances.	5
Likely	The event will probably occur in most circumstances.	4
Possible	The event may possibly occur in some circumstances.	3
Unlikely	It is not expected that the event will occur.	2
Rare	The event may occur only in exceptional circumstances.	1

Table E.1: Likelihood Table

Level	Rating	Description	Financial	Business Continuity	Legal and compliance	Human Resource	Image and reputation
Catastrophic	5	A disaster or event that will lead to the lasting negative consequences.	– Exceeds the approved budget by more than 20%. – Loss of income (50% or more).	Business interruption exceeds one month.	– Non compliance to the CSIR mandate as per the Scientific Research Council Act. – Found guilty of breaches of the majority of applicable legislation (e.g. Occupational Health and Safety Act) and standards (e.g. ICT). – Non compliance with research ethics.	– Loss of key staff (say more than 30%). – Cannot obtain necessary skills in the market.	Strained stakeholder relations with no remedial action possible.
Major	4	A serious event that will have extensive negative consequences over the long term.	– Exceeds the approved budget by more than 10%. – Loss of income (30% or more).	– Business interruption between 2-3 weeks.	Found guilty of breaches of policies and procedures (e.g. Confidentiality agreements).	– Loss of key staff (say more than 25%) – Can obtain limited skills from the market.	Strained stakeholder relations with limited remedial action possible.
Moderate	3	An event that will have extensive negative consequences in the short term.	– Exceeds the approved budget by 5%. – Loss of income (20% or more).	Business interruption between 1-2 weeks.	Breach of external standards and guidelines.	– Loss of key staff (say more than 20%) – Can obtain sufficient skills in the market.	Strained stakeholder relations with remedial action possible with expectation of positive outcomes.
Minor	2	An event that can be sustained under normal operating conditions.	Exceeds the approved budget by 3%.	Business interruption one week.	Breach of internal policies and guidelines.	– Loss of key staff (say more than 15% but less than 20%). – Minimal problem in obtaining skills from the market.	Strained stakeholder relations with remedial action possible resulting in guaranteed positive outcomes.
Insignificant	1	An event that will have no or limited impact on the CSIR.	Exceeds the approved budget by 1%.	Business interruption 3 days.	Insignificant breaches of policies and guidelines.	– Loss of key staff (say more than 15% but less than 5%) – No problem obtaining skills from the market.	Minor stakeholder relations with remedial action resulting in positive outcomes.

Table E.2: Impact Table

F

Fraud Prevention Plan

Contents

F.1 Definition of Terms

"Corruption" Directly or indirectly accepting or agreeing to accept any gratification from another person for his or her benefit or of others; and giving or agreeing to give any other person any gratification in order to influence that person directly or indirectly to exercise his powers, duties or legal obligations, whether for the benefit of that other person, or for the benefit of another person.

"Fraud" The unlawful and intentional making of a misrepresentation, resulting in actual or potential disadvantage to another individual or group.

"Theft" The unlawful and intentional misappropriation of anothers property, or property which is in his/her lawful possession, with the intention of depriving the owner of his/her rights permanently.

F.2 Executive Summary

The CSIR's Fraud Prevention Plan focuses on the timeous identification and prevention of fraud, corruption and theft.

The CSIR's planning for fraud prevention includes the development, implementation and monitoring of appropriate policies, processes and procedures, and ensuring appropriate allocation of responsibilities. This plan also makes provision for a communication and education programme aimed at encouraging employees and other stakeholders to report instances of fraud, corruption and theft. Planning is aligned with applicable legislation such as the Public Finance Management Act.

The elements of fraud prevention are:

- Defining the required control environment;
- Assessment of the effectiveness of controls;
- Ongoing risk assessment;
- Risk response;
- Communication; and
- Consequence management.

Fraud prevention is a business imperative, and a shared responsibility between management and employees. The primary responsibility for awareness, enforcement, and investigation of incidents rests with Management, Risk Assurance Office, Internal Audit Services, Finance and Legal Services teams.

The fraud prevention plan forms part of the Shareholders Compact to be approved by the CSIR Board.

F.3 Fraud Risk Areas

In the CSIR context, fraud could potentially manifest itself in the following areas:

F.3.1 Research

Use of research facilities and Intellectual Property for one's own benefit; and Falsifying research outputs (scientific dishonesty).

F.3.2 Systems

Where a process/system exists which is prone to abuse by employees, the public or other stakeholders, for example:

- Inadequate pre-screening of candidate employees;
- Procurement fraud such as collusion between CSIR employees and suppliers;
- Deliberate non-compliance with prevailing CSIR policies and procedures; and
- Non-compliance with the approval framework.

F.3.3 Finances

Where individuals or entities have fraudulently obtained money from CSIR, for example:

- Suppliers invoicing for work not done, or over invoicing;
- Unauthorised transfer of funds from CSIR bank accounts; and
- Submission of fictitious subsistence and travel claims by employees.

F.3.4 Property Plant and Equipment (PPE) and resources

Where equipment is utilised for personal benefit or stolen, for example:

- Theft of PPE;
- Theft or unauthorised use, or leakage, of confidential information;
- Theft of intellectual property; and
- Misuse and abuse of PPE.

F.3.5 Other

Activities undertaken by employees, which may be contrary to established policies, or fall below established ethical standards, for example:

- Related party transactions;
- Conflicts of interest;
- Nepotism;
- Non-disclosure of private business interests; and
- Omitting or refusing to report or act upon reports of fraud.

F.4 Principles Governing Fraud Prevention

The CSIR adheres to the principles of good corporate governance, which requires the conducting of business in an efficient, effective and transparent manner. This calls for commitment to fighting fraudulent and corrupt behaviour at all levels within the organisation.

The main principles upon which the fraud prevention plan of the CSIR is based are the following:

- Creating a corporate culture which is ethical, fair and intolerant to fraud;
- Deterrence of fraud;
- Investigating any detected fraud;
- Taking appropriate action in the event of fraud, e.g. disciplinary action, recovery of losses and prosecution; and
- Applying sanctions, such as blacklisting of suppliers/service providers guilty of corrupt practices.

This plan applies to all allegations, attempts and incidents of fraud impacting or having the potential to impact the CSIR.

All employees and management must comply with the spirit and content of the plan.

A person who holds a "position of authority" should report any suspected corrupt activity and/or an offence of theft/ fraud to the police as per the requirements of the Prevention of Corrupt Activities Act.

F.5 Elements of Fraud Prevention

The main objective of the Plan is to raise awareness about potential fraud and corruption, and to put fraud response and prevention strategies in place.

The components of the Fraud Prevention Plan are the following:

- Creation of fraud and corruption awareness amongst employees and relevant stakeholders through communication and education;
- Communication concerning the organisation's policies, procedures, rules, regulations and other prescripts (including the PFMA and supporting Treasury Regulations);
- Publicising of the disciplinary code and procedure;
- Implementation of sound internal controls to prevent and detect fraud and corruption;

- Implementation of an effective internal audit function;
- Institute an effective fraud and corruption investigating capacity;
- Ongoing risk assessments;
- Management structures to ensure effective implementation and maintenance of the Fraud Prevention Plan;
- A "zero tolerance" policy to fraud and corruption, including a fraud and corruption response plan, and take comprehensive steps for the proper resolution of reported and detected incidents, and allegations of fraud and corruption;
- Implement a confidential fraud and corruption reporting system;
- Install physical and information security management; and
- Provide for ongoing maintenance and review of the Fraud Prevention Plan.

F.5.1 Approach to Fraud Prevention

The approach to fraud prevention in CSIR entails the following:

- Defining the control environment
  - Audit and Risk Committee oversight;
  - Code of conduct/ research ethics/ disciplinary code; and
  - Prevention and response plan.
- Information sharing and ongoing communication

F.5.2 Fraud Risk identification and Response

Ongoing risk assessment

CSIR acknowledges that it faces diverse fraud risks from both internal and external sources. In order to comply with the requirements of the PFMA and Treasury Regulations, CSIR conducts risk assessments on an ongoing basis. Fraud awareness forms part of the prevention strategy. The Audit and Risk Committee, in performing its duties, ensures that adequate controls are in place to prevent and detect fraud.

Consideration of fraud schemes and scenarios

The identification of fraud risks include consideration of typical fraud schemes and scenarios that CSIR may be exposed to; and CSIR continually monitors and takes stock of fraud schemes to which it is exposed and develops mitigating actions to deter and prevent such schemes.

Ongoing identification of fraud risk controls

The CSIR continually develops specific anti-fraud controls and action plans for risks identified. The ongoing rationale for controlling fraud encompasses:

- Identifying and taking preventative measures to reduce exposure to specific fraud schemes;
- Identifying key individuals and participants;
- Eliminating the opportunity to commit fraud emanating from internal control weaknesses;
- Evaluating the design and operating effectiveness and efficiency of controls during the course of audits;
- Implementing basic internal controls that assist in the mitigation of identified fraud risks, including, though not limited to:
- Adequate approval of transactions as prescribed in the approval framework;
- Implementation of security measures designed to ensure that access to assets and information is restricted to authorised employees;
- Arithmetic and accounting controls, which include checking arithmetical accuracy of records, the maintenance and checking of totals, monthly reconciliation of control accounts, and accounting for whereabouts of documents;
- Supervision of day to day transactions and checking these; and
- Adequate segregation of duties.

Evaluate operational effectiveness and efficiency

The effectiveness and efficiency of controls are evaluated through the monitoring of fraud risk factors and indicators, and fraud auditing.

F.5.3 Timely Detection and Response

Incident reporting

Employees and/or external parties may be faced with the dilemma of not knowing what they should do or where to report suspected fraud. The first step is for the employee to approach their immediate manager. If a member of management is the subject of the complaint, the HRM, Legal and/or CSIR Internal Audit Services should be informed. The external parties may approach the CSIR Internal Audit Services.

How will allegations of fraud be dealt with?

For issues raised by employees or members of the public, the action taken will depend on the nature of the concern. The matters raised are screened and evaluated and may subsequently:

- Be investigated internally by CSIR Internal Audit Services;
- Be investigated by an independent forensic service provider (where necessary);
- Be referred to a law enforcement agency;
- Any fraud committed by an employee or any other person is pursued by way of an investigation. Appropriate action will be taken, which may include:
  - In the case of employees, taking disciplinary action within a reasonable period of time after the incident has been investigated;
  - Instituting civil action to recover losses; and
  - Initiating criminal prosecution by reporting the matter to the SAPS.
- When fraud is reported, the first response is to conduct a high-level assessment of the information that is provided and involves the following steps:
  -
  - Seriousness of the allegation;
  - Authentication of the allegation;
  - Consideration of the source of information;
  - Preliminary investigation and consulting with appropriate managers within CSIR regarding the allegation;
  - Ensuring that the investigation is conducted within a reasonable time period;
  - Detailed investigation, if necessary, based on the outcomes of the preliminary investigation;

  - If the allegation is found to be valid, disciplinary proceedings are instituted, investigated, heard and disposed of, in accordance with the disciplinary code and the PFMA;
  - Ensuring that disciplinary proceedings are carried out in accordance with the CoS;
  - Reporting to the Auditor-General, National Treasury and the Executive Authority in terms of the PFMA. The report is to include a schedule of:
    * The manner, form and circumstances of the allegation;
    * The particulars of the misconduct and the nature of the disciplinary steps and/or criminal charges laid;
    * Matters relating to the investigation; and
    * The circumstances and outcomes of any disciplinary hearing and/or criminal charges.

- During the detailed investigation, simultaneous loss and risk mitigation steps are implemented. This includes:
  - Suspending the perpetrator to limit further financial losses, prevent destruction of evidence and interference with witnesses;
  - Removal of the asset at hand/ subject to vulnerability from custodian;
  - Suspension of access to information systems (where necessary);
  - Withdrawal of approval rights (where applicable); and
  - Addressing the control weakness to prevent the fraud from continuing or recurring.

Recovery of losses

Managers are required to ensure that losses or damages suffered by the CSIR, as a result of reported acts committed or omitted by an employee, management or any other person, are recovered from such person if found liable for the same.

Feedback to reporters of fraud

Upon receiving an allegation of fraud the following actions will be taken by CSIR Internal Audit Services in collaboration with Legal Services/ HRMs:

- Acknowledge receipt of the allegation;
- Indicate how the matter will be dealt with;
- Give an estimate of how long it will take to provide a final response; and
- Give feedback on the outcome of the investigation.

Confidentiality

All information relating to fraud that is received and investigated is treated confidentially. The progress of investigations is handled in a confidential manner and is not disclosed or discussed with any person(s) other than those who have a legitimate right to such information on a "need to know basis". This is important in order to avoid harming the reputation of a suspected person who may subsequently be found innocent of fraudulent conduct.

Protection of the Whistleblower

Whistle blowing is encouraged. This can be done directly to CSIR Internal Audit Services/ Legal Services/ HRM's or an employee's immediate manager.

Whistle blowers are protected in terms of the applicable legislation (Protected Disclosure Act).

F.5.4 Control Environment

Oversight by the Audit and Risk Committee

CSIR's Audit and Risk Committee significantly influences the fraud control environment, particularly by overseeing the "tone at the top". This is done in the discharge of its duties in terms of the PFMA and Treasury regulations.

The Audit and Risk Committee systematically oversees, and periodically reviews the internal controls established by the management of CSIR. Oversight extends to:

- Enterprise risk and fraud risk management;
- The potential for management to override controls or exercise other inappropriate influence over the financial reporting process;
- Mechanisms for employees to report concerns;
- Receipt and review of periodic reports describing the nature, status and eventual resolution of alleged or suspected fraud;
- An internal audit plan that addresses fraud risk, and a mechanism to ensure that internal audit can express any concerns about management's commitment to appropriate internal controls, or to report suspicions or allegations of fraud;
- Involvement of other experts, such as legal and human resources, as needed to investigate any alleged or suspected wrongdoing;
- Review of accounting principles, policies, and reasonableness of significant estimates used by the CSIR;

- Review of significant non-routine transactions (if any) entered into by management and employees; and
- Functional reporting by internal and external auditors to the Audit and Risk Committee.

Research ethics and code of business conduct

The CSIR subscribes to good business practises, as dealt with in the code of ethics.

Management must be held accountable for complying with, and implementing, CSIR's systems, policies and procedures for preventing fraud, theft and corruption. This is addressed in job descriptions, delegations of authority, declaration of conflicts of interest, agreed work plans, performance contracts, and annual appraisals.

Trading partners e.g. suppliers, contractors, consultants and former employees

Goods and services are procured in accordance with the approved procurement policies and procedures.

Other control environment considerations

CSIR has a number of systems, policies, procedures, acts and regulations designed to ensure compliance with specific laws and basic internal controls.

All employees and relevant stakeholders are expected to comply with the applicable policies and procedures. A fundamental risk in this area is the lack of knowledge, awareness, effective communication and training relating to prevailing systems, policies and procedures in place at CSIR.

Non-compliance with policies and procedures is a risk which is addressed by developing clearly defined communication to create awareness of all policies and procedures. All employees acknowledge in writing that they have read policies and procedures on appointment.

Regular communiqués are circulated regarding policies and procedures.

A structured monitoring mechanism has been developed for keeping a proper record of the policies and procedures that are updated, and of new policies and procedures that are being developed in order to set clear targets and monitor progress.

Discipline

The disciplinary code and procedures prescribes appropriate steps to be taken in addressing disciplinary matters. The respective HRM, Legal and CSIR Internal Audit Services depart-

ments support the CSIR in instituting and completing disciplinary action in cases of fraud and corruption.

The consistent and efficient application of disciplinary measures is an integral component of effective fraud prevention and will be achieved by:

- Creating awareness amongst employees of conduct that is forbidden in terms of the code of conduct and disciplinary code;
- Ongoing training of managers in the application of disciplinary measures;
- Speedy finalisation of investigations and hearings; and
- Regular monitoring and review of the application of discipline with the objective of improving weaknesses identified.

Policies and procedures

Appropriate policies and procedures are necessary to ensure effective internal controls to mitigate fraud risks. The effectiveness of the existing policies and procedures is also tested during the course of audits, and shortcomings are addressed.

Physical Security

CSIR has implemented physical security controls which have been updated and continually refined, including the following:

- Visitors reporting to reception;
- Access control in the form of access cards for employees and other tenants;
- Proper management of issuing of access cards; and
- Use of security services.

F.5.5 Information and Communication

Information Security

Large volumes of information are stored on computers. If improperly managed, sensitive data could end up in the hands of unauthorised individuals. Physical and logical access controls over the computer systems continually seek to achieve the following:

- Striking the right balance between allowing access to information to enable efficient operations, and denying inappropriate access to ensure that information is not compromised;

- Implementing preventative controls to limit access to unauthorised persons; and
- Implementing detective controls to determine whether unauthorised access is being attempted or unusual patterns of activity are occurring.
- CSIR has a computer usage policy to manage information security. CSIR ensures that all employees are sensitised on a regular basis to the fraud risks associated with information security and the utilisation of computer resources, and ensures that controls are developed to limit the risk of manipulation of computerised data;
- Regular communiqus are sent to employees pointing out security policies, with particular emphasis on e-mail, telephone and internet usage, and the implications of abusing these and other computer related facilities. Where employees are found to have infringed on prevailing policy in this regard, disciplinary action is taken; and
- Regular reviews of information and computer security are also conducted by CSIR. Weaknesses identified during these reviews are addressed and policies updated accordingly.

Change management

Creating awareness

This is the cornerstone of the Plan and comprises two areas, namely:

- Education; and
- Communication.

A Fraud Prevention Plan Awareness Programme approved by CSIR Executive Management is in place. The main principles that form the basis of the awareness program are:

- Facilitating a culture which takes pride in a high standard of ethics; and
- Training and education regarding ethics, and CSIR's stance on prevention, combating, detection and investigation of fraud and corruption.

Education

- Formal awareness presentations are conducted for employees of CSIR through the PFMA roadshow.

Communication

- The objective of communication is to further create awareness amongst employees, the public and other stakeholders of the Fraud Prevention Plan, in order to inculcate a culture where all stakeholders strive to contribute towards the eradication of corruption and fraud;
- To ensure that there is no uncertainty amongst employees, suppliers and clients about the policies and procedures that shape CSIR's approach to fraud as being one of 'zero tolerance'. This includes making appropriate attachments to offers of employment and the inclusion of appropriate items in induction and training programmes;
- Signing of declarations of commitment by all employees to the CoS and applicable policies and procedures;
- Publishing the transgressions and the consequences thereof in the Annual Report when these exceed the set materiality levels; and
- Communication will use a variety of mediums, including but not limited to:
- Email communiques and circulars;
- Posters;
- Pamphlets and flyers; and
- Publishing the Fraud Prevention Plan on the CSIR website

Monitoring

- A system is in place to facilitate the consolidation of all allegations of fraud and corruption. This enhances the management of fraud risk and threats that could be overlooked in the absence of such a system;
  - A centralised register is kept for purposes of:
  - Recording all allegations;
  - Tracking progress on allegations with the relevant managers; and
  - Facilitating the early identification of systemic weaknesses/risks, and inform managers and employees of these.
- Providing feedback to employees and whistle blowers on the management and progress of allegations.

F.6 Conclusion

The CSIR has taken a proactive approach towards managing fraud risk in the organisation. It has adopted a zero tolerance approach towards fraud, theft and corruption and has taken the necessary measures to ensure the risks are managed effectively.

G

Materiality / Significance Framework

G.1 Executive Summary

In terms of Treasury Regulations for government departments, trading entities, constitutional institutions and public entities, issued in terms of the Public Finance Management Act, 1999, the CSIR must have a materiality framework of acceptable levels of materiality and significance within the organisation.

The CSIR's reputation, built over more than half a century, depends on the nature of every business transaction conducted by every employee on a daily basis. It is built on an implicit set of values, which inspires our employees to maintain the highest ethical standards in all their dealings with our clients and stakeholders, as well as their relationships within the CSIR.

The CSIR is committed to a policy of fair dealing and integrity in conducting its business. This commitment is based on a fundamental belief in honest, fair and legal conduct in all business activities. We expect all our employees to share this commitment to high moral, ethical and legal standards.

Ethics involve the ability to distinguish right from wrong and a commitment to do what is right. Values are core beliefs, which create individual attitudes. Although individual values may differ, this does not imply a choice about behaving ethically in the business environment of the CSIR. Our Code of Conduct, as well as the Constitution of South Africa and the national laws and regulations, prescribe legal conduct that embodies values based on ethical principles, while respecting cultural diversity.

G.2 TREASURY REGULATION 28.1.5

"For purposes of "material" [sections 50(1), 55(2) and 66(1) of the Act] and "significant" [section 54(2) of the Act], the accounting authority must develop and agree a framework of acceptable levels of materiality and significance with the relevant executive authority in consultation with the external auditors."

(THE CSIR HAS HOWEVER BEEN EXEMPT FROM SECTION 54 (2) AND THIS SCHEDULE DOES NOT INCLUDE THIS SUBSECTION.)

		Material
Section 50 (1)	(1) The accounting authority for a public entity must –	
	(a) exercise the duty of utmost care to ensure reasonable protection of the assets and records of the public entity;	Significant audit findings that could negatively impact on the CSIR's operations and the attainment of strategic goals.
	(b) act with fidelity, honesty, integrity and in the best interest of the public entity in managing the financial affairs of the public entity;	The CSIR sets high standards on fidelity, honesty and integrity. The best interest of the public entity is always relevant in fulfilling its mandate and in the execution of the Shareholders Compact. Any acts of dishonesty, infidelity and that are not in the best interests (from a research, financial and reputation perspective) and of the CSIR are viewed in a serious manner.
	(c) on request, disclose to the executive authority responsible for that public entity or the legislature to which the public entity is accountable, all material facts, including those reasonably discoverable, which in any way influence the decision or actions of the executive authority or that legislature; and	The CSIR is committed to disclose any relevant information to its stakeholders. Materiality can only be determined if the nature of the information is known.
	(d) seek within the sphere of influence of that accounting authority, to prevent any prejudice to the financial interests of the state.	The CSIR employs an ongoing enterprise risk management system as well as controls that are aimed at prevention/mitigation of any prejudice to the financial interest of the entity. Lack of the required governance processes, lack of due diligence in conducting business, and fruitless and wasteful expenditure are inherently regarded as material.

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		Material
Section 55 (2)	(2) The annual report and financial statements referred to by PFMA Subsection 55 (1)(d) must –	
	(a) fairly present the state of affairs of the public entity, its business, its financial results, its performance against predetermined objectives and its financial position as at the end of the financial year concerned;	As per guidelines issued by National Treasury: Significance/materiality is calculated as 0.75% of revenue, which amounts to R 18 400 000.
	(b) include particulars of –	
	(i) any material losses through criminal conduct and any irregular expenditure and fruitless and wasteful expenditure that occurred during the financial year;	R 1 000 000. All cases are unique and will thus be treated as such. These will be subject to internal audit reviews.
	(ii) any criminal or disciplinary steps taken as a consequence of such losses or irregular expenditure or fruitless and wasteful expenditure;	R 1 000 000. All cases are unique and will thus be treated as such. Issues that inform steps to be taken are: • The level of responsibility and position of the person involved; • The affected core business/support/operational; and • The impact on other areas of operation of the CSIR. • These will be subject to internal audit reviews.
	(iii) any losses recovered or written off;	R 1 000 000 (excluding losses incurred through normal operating activities)
	(iv) any financial assistance received from the state and commitments made by the state on its behalf; and	Will disclose as prescribed.
	(v) any other matters that may be prescribed; and	Will disclose as prescribed.

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		Material
	(c) include the financial statements of any subsidiaries	All subsidiaries are consolidated.
Section 66 (1)	(1) An institution to which this Act applies may not borrow money or issue a guarantee, indemnity or security, or enter into any other transaction that binds or may bind that institution or the Revenue Fund to any future financial commitment, unless such borrowing, guarantee, indemnity, security or other transaction – (a) is authorised by this Act; and (b) in the case of public entities, is also authorised by other legislation not in conflict with this Act; and (c) in the case of loans by a province or a provincial government business enterprise under the ownership control of a provincial executive, is within the limits as set in terms of the Borrowing Powers of Provincial Governments Act, 1996 (Act No 48 of 1996).	The CSIR complies with this requirement.

H

Financial Plan

Contents

H.1 CSIR Budget and Parliamentary Grant Cashflow 2015/16

H.1.1 CSIR Statements of Comprehensive Income the MTEF period

R'000	Forecast 2014/2015	Budget 2015/2016	Budget 2016/2017	Budget 2017/2018
Total Operating Revenue	**2 319 663**	**2 546 035**	**2 728 371**	**2 929 831**
R & D Contract Income	**1 653 419**	**1 786 267**	**1 929 085**	**2 088 954**
Public - South Africa	1 180 148	1 307 625	1 416 158	1 535 116
Private - South Africa	149 180	165 476	179 211	194 264
International	219 859	243 392	263 594	285 735
Parliamentary Grant - Ringfenced	104 233	69 774	70 123	73 839
Parliamentary Grant	**657 819**	**752 416**	**791 441**	**831 092**
Parliamentary Grant	657 819	752 416	791 441	831 092
Royalty Income	8 425	7 352	7 845	9 785
Other Income	9 400			
Total expenditure	**2 263 620**	**2 476 067**	**2 654 248**	**2 849 971**
Employees' Remuneration	1 243 121	1 403 398	1 513 056	1 625 049
Operating Expenses	928 000	976 957	1 038 205	1 114 109
Depreciation	92 499	95 712	102 986	110 813
Operating Profit before Investment Income	**65 444**	**69 968**	**74 124**	**79 861**
Investment Income	43 350	43 585	44 893	46 239
Net profit before non-guaranteed employees' remuneration (Performance bonus)	**108 794**	**113 553**	**119 016**	**126 100**
Non-guaranteed employees' remuneration (Performance bonus)	*58 938*	*59 895*	*60 908*	*63 138*
NET PROFIT	**49 855**	**53 659**	**58 108**	**62 962**

H.1.2 CSIR Statements of Financial Position over the MTEF period

	FORECAST March 2015 R'000	BUDGET March 2016 R'000	BUDGET March 2017 R'000	BUDGET March 2018 R'000
ASSETS				
Non-Current assets	**626 019**	**674 249**	**703 299**	**733 657**
Property, plant and equipment	598 635	645 574	674 624	704 982
Interest in Joint Ventures and Associates	1 315	1 315	1 315	1 315
Interest in Subsidiaries	20 661	20 661	20 661	20 661
Investment	5 408	6 699	6 699	6 699
Current Assets	**1 228 214**	**1 247 116**	**1 273 043**	**1 303 117**
Trade and other receivables	245 863	247 895	262 598	280 102
Inventory and contracts in progress	94 569	103 589	106 856	110 426
Cash and cash equivalents	887 782	895 632	903 589	912 589
TOTAL ASSETS	1 854 233	1 921 365	1 976 342	2 036 774
EQUITY AND LIABILITIES				
Reserves	**728 166**	**781 825**	**839 933**	**902 895**
Retained earnings	728 166	781 825	839 933	902 895
Non-current liabilities	**10 651**	**11 610**	**12 655**	**13 793**
Post retirement medical benefits	10 651	11 610	12 655	13 793
Current Liabilities	**1 115 416**	**1 127 930**	**1 123 754**	**1 120 086**
Advances received	669 718	674 272	665 039	652 460
Trade and other payables	445 698	453 658	458 715	467 626
TOTAL EQUITY AND LIABILITIES	1 854 233	1 921 365	1 976 342	2 036 774

H.1.3 CSIR Cash Flow Statement

	MARCH 2016 R'000
Cashflow from operating activities	
Cash receipts from external customers	1 782 567
Parliamentary Grant income	752 416
Cash paid to suppliers and employees	(2 456 477)
Cash generated from operating activities	78 506
Net finance income	43 585
Net cash from operating activities	**122 091**
Cashflow from investing activities	
Increase in investments	(1 291)
Acquisition of property, plant and equipment	(112 950)
Net cash utilised in investing activities	**(114 241)**
Cashflow from financing activities	
Increase in long-term liabilities	-
Net cash generated from financing activities	**-**
Net increase in cash and cash equivalents	**7 850**
Cash and cash equivalents at beginning of the year	887 782
Cash and cash equivalents at end of the year	**895 632**

H.1.4 Twelve Month Cash Flow Projection for Parliamentary Grant: 2015/16 (including VAT)

R'000		Total	April	July	October	January
TOTAL		**1 150 796**	287 699	287 699	287 699	287 699
	Baseline	827 704				
	National laser Centre	30 050				
	Laser Loan Programme	8 822				
	African Laser Centre	4 820				
	Implementation: ICT R&D Strategy	65 900				
	SANReN	113 300				
	CHPC	100 200				

H.1.5 Property, Plant and Equipment (PPE) Budget Summary

Category	2015/16 (R'000)
Buildings	31 666
R&D equipment	45 882
Computer, IT and office equipment	28 031
Furniture and fittings	3 689
Vehicles	3 682
Total	112 950

Notwithstanding the fact that an item is included in the above budgeted amount, the investment in PPE remains subject to approval as per the Approval Framework of the CSIR and additional considerations such as strategic alignment, return on investment and available cashflow

H.2 CSIR Group 3 Year Financial Plan

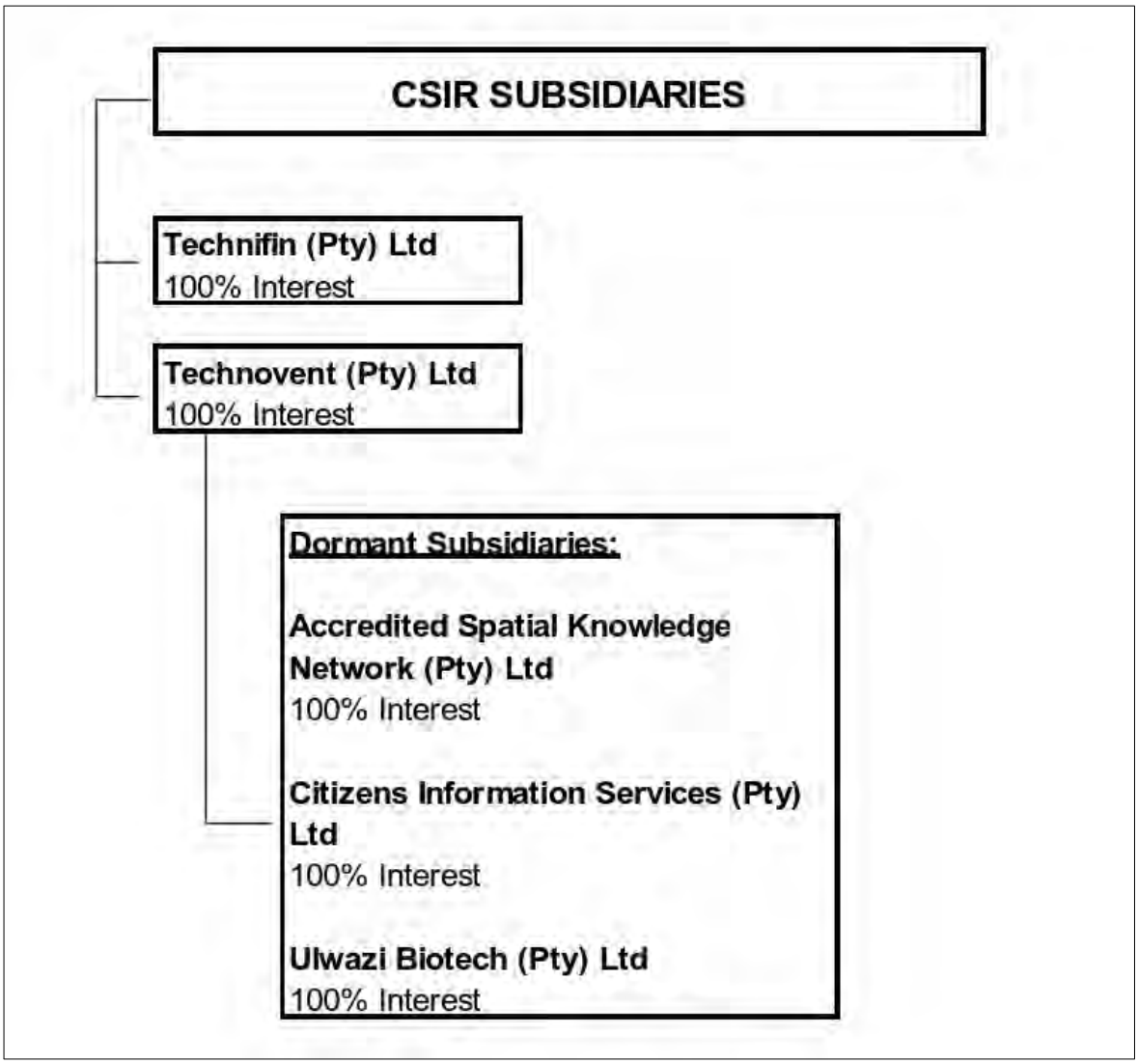
H.2.1 Subsidiaries and Associate Companies

2015/16					
	Total	**Technifin**	**Technovent Group**	**SERA**	**Ellipsoid**
Incorporated % Holding		South Africa 100	South Africa 100	South Africa 50	South Africa 50
	Budget Annual R '000	Budget Annual R '000	Budget Annual R '000	Budget Annual R '000	Budget Annual R '000
Contract R&D income	18 420	-	18 420	-	-
Royalty income	10 631	10 631	-	-	-
Finance income	1 486	900	520	-	66
Other income	1 097	50	1 047	-	-
Operating expenses	17 290	3 558	13 712	-	20
Employees remuneration	4 205	770	3 435	-	-
Depreciation/Amortisation	588	28	560	-	-
Net profit	9 551	7 225	2 280	-	46

The CSIR subsidiary companies have duly appointed Boards. The subsidiary companies are audited by the Auditor-General and subject to the oversight of the CSIR Audit and Risk Committee of the CSIR Board.

The subsidiary companies have a zero dividend policy.

H.2.2 CSIR Subsidiary Companies



H.2.3 CSIR Group Statements of Comprehensive Income

R'000	Forecast GROUP 2014/2015	Budget GROUP 2015/2016	Budget GROUP 2016/2017	Budget GROUP 2017/2018
Total Operating Revenue	**2 335 671**	**2 575 086**	**2 728 372**	**2 929 831**
Contract R&D Income	**1 669 427**	**1 804 687**	**1 929 086**	**2 088 954**
Public - South Africa	1 180 148	1 307 625	1 416 158	1 535 116
Private - South Africa	165 187	183 896	179 211	194 264
International	219 859	243 392	263 594	285 735
Parliamentary Grant - Ring fenced	104 233	69 774	70 123	73 839
Parliamentary Grant	**657 819**	**752 416**	**791 441**	**831 092**
Parliamentary Grant - Baseline	657 819	752 416	791 441	831 092
Royalty Income	8 425	17 983	7 845	9 785
Other Income	10 318	1 097	553	557
Total Expenditure	**2 283 557**	**2 498 149**	**2 655 217**	**2 850 932**
Employees' Remuneration	1 248 429	1 407 603	1 513 525	1 625 548
Operating Expenses	942 226	994 246	1 038 698	1 114 563
Depreciation	92 902	96 300	102 994	110 821
Operating Profit before Investment Income	**62 432**	**78 034**	**73 708**	79 456
Investment Income	44 854	45 071	45 981	47 318
Net profit before non-guaranteed employees' remuneration (Performance bonus)	**107 286**	**123 105**	**119 689**	**126 774**
Non-guaranteed employees' remuneration (Performance bonus)	58 938	59 895	60 908	63 138
Net Profit	**48 348**	**63 210**	**58 781**	**63 636**

H.2.4 CSIR Group Statements of Financial Position

	FORECAST GROUP March 2015 R'000	BUDGET GROUP March 2016 R'000	BUDGET GROUP March 2017 R'000	BUDGET GROUP March 2018 R'000
ASSETS				
Non-Current assets	**613 415**	**662 088**	**682 678**	**713 036**
Property, plant and equipment	598 665	645 604	674 654	705 012
Interest in Joint Ventures and Associates	9 342	9 785	1 325	1 325
Interest in Subsidiaries	-	-	-	-
Investment	5 408	6 699	6 699	6 699
Current Assets	**1 249 244**	**1 277 254**	**1 312 314**	**1 343 062**
Trade and other receivables	245 912	247 944	262 647	280 151
Inventory and contracts in progress	94 569	103 589	106 856	110 426
Cash and cash equivalents	908 763	925 721	942 811	952 485
TOTAL ASSETS	1 862 659	1 939 342	1 994 992	2 056 098
EQUITY AND LIABILITIES				
Reserves	**735 909**	**799 119**	**857 900**	**921 536**
Retained earnings	735 909	799 119	857 900	921 536
Non-current liabilities	**10 651**	**11 610**	**12 655**	**13 793**
Post retirement medical benefits	10 651	11 610	12 655	13 793
Current Liabilities	**1 116 099**	**1 128 613**	**1 124 437**	**1 120 769**
Advances received	669 718	674 272	665 039	652 460
Trade and other payables	446 381	454 341	459 398	468 309
TOTAL EQUITY AND LIABILITIES	1 862 659	1 939 342	1 994 992	2 056 098

H.2.5 CSIR Group Cash Flow

	MARCH 2016 R'000
Cashflow from operating activities	
Cash receipts from external customers	1 811 618
Parliamentary Grant income	752 416
Cash paid to suppliers and employees	(2 477 906)
Cash generated from operating activities	86 128
Net finance income	45 071
Net cash from operating activities	**131 199**
Cashflow from investing activities	
Increase in investments	(1 291)
Acquisition of property, plant and equipment	(112 950)
Net cash utilised in investing activities	**(114 241)**
Cashflow from financing activities	
Increase in long-term liabilities	-
Net cash generated from financing activities	**-**
Net increase in cash and cash equivalents	**16 958**
Cash and cash equivalents at beginning of the year	908 763
Cash and cash equivalents at end of the year	**925 721**

H.3 3 Year Borrowing Plan

The CSIR has submitted a request to DST in terms of section 66 of the PFMA. The letter sent to DST in this regard is attached and is aligned with the request by National Treasury to submit a 5 year borrowing plan.

Chief Financial Officer

PO Box 395 Pretoria 0001 South Africa
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Fax: +27 12 841 4502
Email: crsturdy@csir.co.za

14 January 2015

Mrs Naledi Pandor
Minister of Science and Technology
Department of Science and Technology
Private Bag X727
PRETORIA

Dear Minister

CSIR: SECTION 66 OF THE PFMA - ISSUANCE OF PERFORMANCE BONDS AND PAYMENT GUARANTEES

In terms of Section 66(3)(b) of the PFMA, a schedule 3B public entity may only borrow money, or issue guarantees, indemnities or securities if so authorised by notice in the Government Gazette by the Minister of Finance.

In order for the CSIR to obtain the Minister of Finance's approval, the agreement and assistance from the Minister of Science and Technology, as the Executive Authority, is requested.

The CSIR, in the execution of our contract R&D obligations, may from time to time be required to issue guarantees and bonds as stipulated in contracts with clients.

The previous borrowing plan submitted in January 2012 was approved and gazetted by the Minister of Finance and is valid until March 2015 (Attachment 1). The CSIR hereby requests that the borrowing plan for the next five years, as submitted with this proposal, be recommended for approval.

As is evident from the proposed borrowing plan (Attachment 2), the payment guarantees issued in lieu of advances received are highest in value but do not constitute any risk as the corresponding funds are received by the CSIR at the time the guarantee is issued. These guarantees are required where the CSIR receives advances from a customer based on contractual agreements. The guarantee provides surety to our customers that the CSIR will contractually deliver on funds already received. The value of the advance payment guarantee reduces as the contracts are executed.

It is also international practice to require a successful tenderer to lodge a performance bond. The performance bond obliges the contractor to deliver the specified services in accordance with the tender. The international norm is that a performance bond is calculated as a percentage of the contract price. In the case where a tender is not successful or the contract has been completed, the bond is cancelled. In order to limit our exposure, the CSIR usually requests our bankers to issue such performance bonds and the CSIR usually invests an equal amount of money to cover the obligation.

The CSIR from time to time utilises a type of performance bond know as a carnet. These are required when equipment is temporarily exported from South Africa and temporarily imported into another country where the equipment is used in terms of a specific contract. The same risk mitigation procedures are followed by the CSIR, but in this case, the carnets are issued by SACCI and not by a commercial bank. When the equipment is re-imported into South Africa, the carnet is cancelled.

The CSIR is regularly required to provide contractual indemnities/warranties in agreements with licensees, clients, service providers and suppliers. For instance, in its capacity as licensor of intellectual property, the CSIR is inevitably required by a potential licensee to provide an indemnity to the effect that the CSIR:

i) warrants that it is the rightful owner of the intellectual property which is to be licensed to it ; and

ii)

iii) the organisation indemnifies the licensee in the event of (proven) claims brought against it by third parties, based on infringement of such third parties' rights.

We believe that, strictly speaking, the warranties and indemnities referred to above, are also covered by the provisions of section 66 (3)(b) of the PFMA.

As our Legal Services Department drafts and vets any agreement prior to finalisation and signature thereof, any identified risk concomitant to the provision of any indemnity or warranty of this nature, is appropriately addressed in the relevant agreements. Any potential liability to be incurred by the CSIR in providing such an indemnity is as a matter of course not only insured as part of the CSIR's Professional Indemnity Insurance, but is limited to either the contract value of a specific agreement or alternatively to a specific amount. We accordingly submit that any risks that the PFMA aims at addressing in this regard through section 66, is adequately addressed by the CSIR.

The CSIR borrowing plan is not expected to have any impact on the balance sheet gearing as the limits requested are associated with planned contract revenue. The CSIR has no long term debt financing at present.

The CSIR would appreciate the assistance from the Minister of Science and Technology in obtaining the necessary approval, from the Minister of Finance in terms of Section 66(3)(b) of the PFMA.

We wish to thank you for your assistance in this regard.

Yours sincerely

Chris Sturdy
CSIR Chief Financial Officer

cc: Dr Phil Mjwara (DST)
Dr Sibusiso Sibisi (CSIR)
Mr Imraan Patel (DST)
Mr David Mmakola (DST)

Page 2 of 4

Attachment 1

NOTICE 408 OF 2012

NATIONAL TREASURY

PUBLIC FINANCE MANAGEMENT ACT, 1999 (ACT NO 1 OF 1999)

LIMITS ON THE ISSUANCE OF GUARANTEES, INDEMNITIES AND SECURITIES

I, PRAVIN JAMNADAS GORDHAN, MINISTER OF FINACE, acting in terms of Section 66(3)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999, the "Act"), approve the annual limits for the Council for Scientific and Industrial Research (CSIR) to issue performance bonds, local and foreign advance payment guarantees and camets. The schedule of total annual limits is:

CSIR ANNUAL LIMITS

Financial Year Ended	Camets	Bid Bonds	Performance Bonds	Payment Guarantees	Advance Payment Guarantees	Total Annual Limits
Amounts in R'000						
31 March 2013	2000	3000	10000	10000	60000	75000
31 March 2014	2500	3000	12000	10000	65000	82500
31 March 2015	3000	3000	15000	10000	60000	91000

MINISTER OF FINANCE

Attachment 2

CSIR Annual limits for Borrowing plan 2016 - 2020

Financial year ending	Performance bonds	Bid Bond	Payment guarantee	Advance Payment Guarantee	Total Annual Limit
			R'000		
31 March 2016	20 000	3 000	6 000	30 000	59 000
31 March 2017	20 000	3 000	8 000	35 000	66 000
31 March 2018	23 000	4 000	11 000	38 000	76 000
31 March 2019	25 000	4 000	15 000	45 000	89 000
31 March 2020	25 000	5 000	20 000	50 000	100 000

I

Public Finance Management Act Exemptions

MINISTRY OF TRADE AND INDUSTRY

UMNYANGO WEZOHWEBO NEZIMBONI • MINISTERIE VAN HANDEL EN NYWERHEID
LEFAPHA LA TSA DIKGWEBO LE MADIRELO

Ref: ISM 3/1/2/3

Minister T Manuel, MP
Department of Finance
Private Bag X115
PRETORIA
0001

Dear Trevor

THE PUBLIC FINANCE MANAGEMENT ACT, ACTS NO. 1 & 29 OF 1999
RE -LISTING OF CSIR.

I address this letter to you in my capacity as the Executive Authority of the CSIR as per the Public Management (PFMA), Act 1 of 1999, that recently came into operation and in terms of which you are the responsible Minister.

My office has been approached by the CSIR with various requests pertaining to the aforesaid legislation and I understand that you have likewise received the same, as contained in previous correspondence from the CSIR, and more specifically their latest letter dated 3 July 2000, addressed to both our offices.

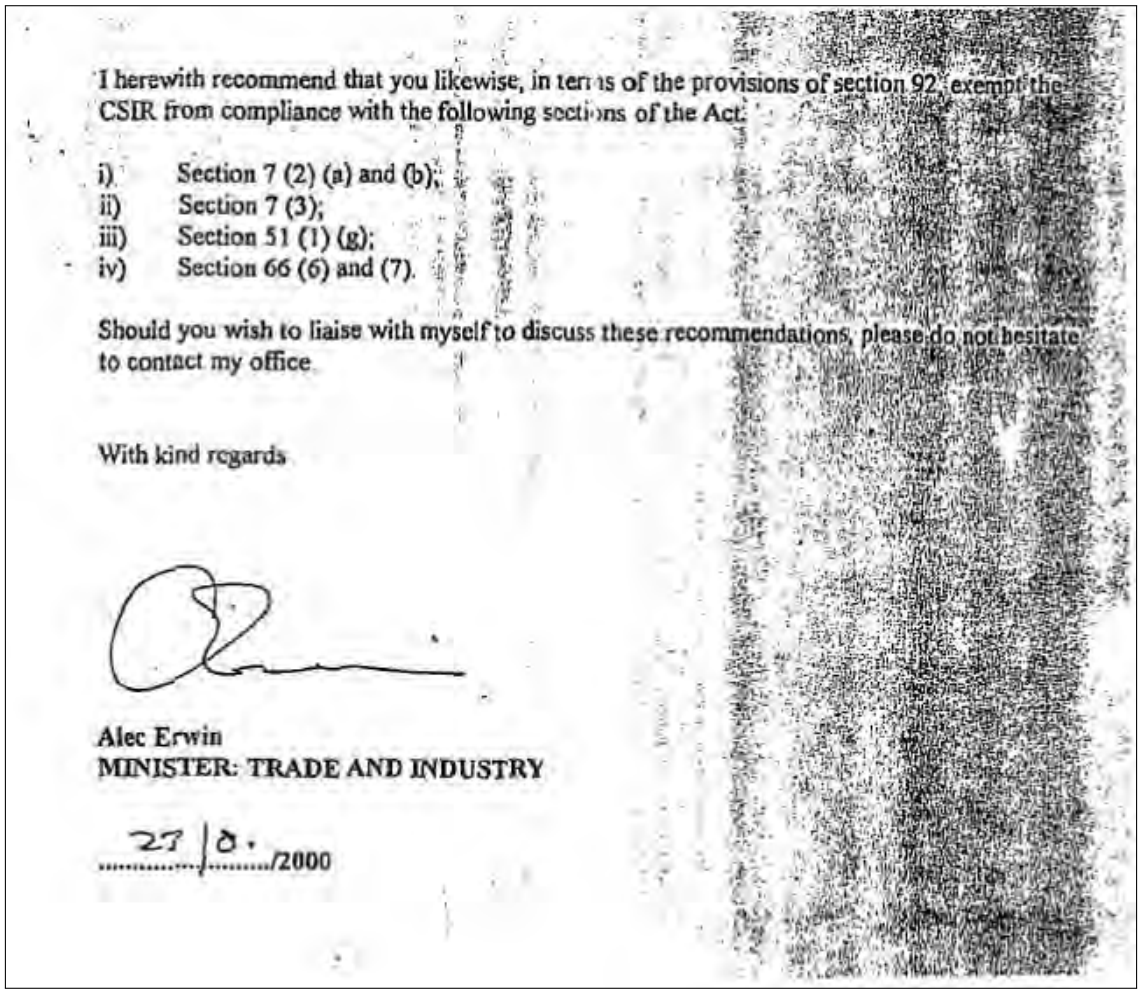
I confirm that, as its Executive Authority, I support the CSIR's approach, and herewith recommend the following:

i) that the CSIR be re-listed by you in terms of Section 47 (1) (b), so that it will be moved from a Schedule 3 A Public Entity to a 3 B Public Entity.

ii) in terms of the provisions of Section 54 (4) of the PFM Act, I have with the information at my disposal, and given the nature of the CSIR's activities, decided to support the exemption of CSIR from compliance with the provisions of Section 54 (2). In reaching this decision, I have also given consideration to the composition of the CSIR Board as Accounting Authority thereof for purposes of the PFM Act, the members of whom have all been appointed by myself in accordance with the CSIR Act, Act 46 06 of 1988.

[illegible] Town 8001
TEL: (021) 461-7191/2/3 FAX: (021) 45-1291

[illegible] BAG X274 PRETORIA
TEL: (012) 322-7677/8/9 FAX: (012) 322-7[illegible]



I herewith recommend that you likewise, in terms of the provisions of section 92, exempt the CSIR from compliance with the following sections of the Act:

i) Section 7 (2) (a) and (b);
ii) Section 7 (3);
iii) Section 51 (1) (g);
iv) Section 66 (6) and (7).

Should you wish to liaise with myself to discuss these recommendations, please do not hesitate to contact my office.

With kind regards

Alec Erwin
MINISTER: TRADE AND INDUSTRY

27 / 8 / 2000

MINISTRY: TRADE AND INDUSTRY
REPUBLIC OF SOUTH AFRICA
Private Bag X274, Pretoria, 0001, Tel: (012) 322 7677/8/9, Fax: (012) 322 7851
Private Bag X9047, Cape Town, 8000, Tel: (021) 461 7191/2/3, Fax: (021) 465 1291

Dr G Garrett
President
Council for Scientific and Industrial Research
P O Box 395
PRETORIA
0001

Ref: F1/B/1
Enq: SJ Ndala
Tel: (012) 310 9736
Fax: (012) 320 2843

Dear Geoff

2000 -10- 02

PUBLIC FINANCE MANAGEMENT ACT

With reference to numerous discussions between the CSIR staff and officials of this Department, you are hereby advised that, after careful consideration, and due to the nature of the activities undertaken by the CSIR the latter is hereby with retrospective effect from 1 April 2000 exempted from Section 54(2)of the Public Finance Management Act.

I trust that this exemption will assist the CSIR to achieve its goals.

With kind regards

Alec Erwin, MP
MINISTER IF TRADE AND INDUSTRY

GESERTIFISEERDE AFSKRIF
VAN DIE ORSPRONKLIKE
CERTIFIED A TRUE COPY OF THE ORIGINAL
E H LOMBARD
EX OFFICIO
REGSADVISEUR / LEGAL ADVISER
MINISTER
PRETORIA

40 No. 22337 GOVERNMENT GAZETTE, 8 JUNE 2001

No. 504

8 June 2001

PUBLIC FINANCE MANAGEMENT ACT, 1999
RE-CLASSIFICATION OF PUBLIC ENTITIES

I, TREVOR ANDREW MANUEL, MINISTER OF FINANCE, acting in terms of Section 48 of the Public Finance Management Act, 1999 (Act No 1 of 1999), hereby determine the re-classification of public entities as indicated in the schedule below. The classification will be immediately effective.

MINISTER OF FINANCE
Date: 23 05 01

SCHEDULE

Mintek	From Schedule 3A	To Schedule 3B
CSIR	From Schedule 3A	To Schedule 3B
SABS	From Schedule 3A	To Schedule 3B

MINISTER: FINANCE
REPUBLIC OF SOUTH AFRICA

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PO Box 29, Cape Town, 8000, Tel: +27 21 464 6100, Fax: +27 21 461 2934

Ref. M3/4/3/1 (684/14)

Mr DA Hanekom, MP
Minister of Science and Technology
Private Bag X727
PRETORIA
0001

Dear Derrick,

EXEMPTION FROM THE NATIONAL TREASURY REGULATION 16 FOR THE COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)

The National Treasury received a letter dated 14 October 2013 from the Department of Science and Technology requesting exemption from Treasury Regulation 16 on behalf of the CSIR.

I hereby confirm that the granting of a right to private parties for usage of the Intellectual Property of the CSIR, falls within the definition of Public Private Partnership (PPP) under Regulation 16 of the Public Finance Management Act, 1999 (Act 1 of 1999), (PFMA) ("Regulation 16").

Although granting of the right by the CSIR to private parties for usage of CSIR Intellectual Property falls within the definition of Public Private Partnership (PPP) under Regulation 16, we believe that it is appropriate to exempt the CSIR from the application of Treasury Regulation 16 for a period of 10 (ten) years as requested from the signature date. The exemption is subject to the institution submitting an annual report in a format and date to be communicated to the Department.

In accordance with Regulation 16.10 of the PFMA, the CSIR is hereby exempted from the provisions of Treasury Regulation 16. However, this exemption does not preclude the CSIR from complying with the provisions of the PFMA or section 217 of the Constitution of the Republic of South Africa.

Kind regards

Pravin

PRAVIN J GORDHAN
MINISTER OF FINANCE
Date: 25-4-2014