

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Report on the Research and Development Tax Incentive Programme 2009/10 Annual Report to Parliament



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

TABLE OF CONTENTS

Preface	6
Executive Summary	7
1. Introduction	9
2. Notes on methodology	10
3. Performance of the R&D tax incentive programme	12
3.1 Overall programme uptake	12
3.2 Levels of participation by company size	14
3.3 Contribution to R&D in specific economic sectors	15
3.4 Contribution to specific types of R&D and fields of research	16
3.5 R&D personnel	19
3.6 Additionality effects of the programme	20
4 Programme Performance in the context of national trends in R&D expenditure	22
5 Interface with other innovation and R&D support measures	24
6 Conclusion and recommendations	27

LIST OF FIGURES

Figure 1: Types of R&D activities reported	17
Figure 2: Eligible R&D expenditure by scientific fields	18
Figure 3: Categories of R&D personnel involved	19
Figure 4: Perceptions of additionality effect by participating companies	21

LIST OF TABLES

Table 1: Uptake of the R&D tax incentive programme	12
Table 2: Estimated tax revenue foregone due to R&D tax incentive	13
Table 3: Repeat R&D tax incentive claimants	13
Table 4: Number of patents and publications produced by beneficiary firms	14
Table 5: Participation by company size and levels of R&D expenditure	14
Table 6: R&D expenditure per economic sector or per SIC code	15
Table 7: Participation per IPAP clusters	16
Table 8: Eligible R&D expenditure per scientific field	18
Table 9: Business R&D expenditure trends in South Africa	22
Table 10: Government funding programmes to support private sector R&D and innovation	24
Table 11: Further details on direct funding programmes	25

LIST OF ABBREVIATIONS

BERD	Business Expenditure on Research and Development
CeSTII	Centre for Science, Technology and Innovation Indicators
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DST	Department of Science and Technology
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on Research and Development
HSRC	Human Sciences Research Council
IPAP	Industrial Policy Action Plan
NRDS	National Research and Development Strategy
NT	National Treasury
OECD	Organisation for Economic Cooperation and Development
R&D	Research and Development
SABS	South African Bureau of Standards
SACNASP Act	South African Council for Natural Scientific Professions Act
SARS	South African Revenue Services
SEDA	Small Enterprise Development Agency
SIC codes	Standard Industrial Classification codes
SME	Small and Medium Enterprise
SPII	Support Programme for Industrial Innovation
StatsSA	Statistics South Africa
S&T	Science and Technology
the dti	Department of Trade and Industry
THRIP	Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TISA	Trade and Investment South Africa

PREFACE

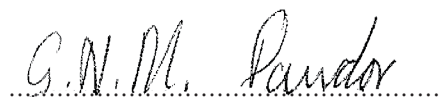
Since the inception of the current R&D tax incentive in 2006, the Department of Science and Technology (DST) focused on ensuring that the programme becomes effective as a policy instrument.

A greater emphasis has been placed on increasing awareness amongst companies about the new tax incentive, its requirements and the process that companies should follow in order to take part in the programme. In this process, the DST has been communicating specific aims of the government regarding the promotion of scientific and technological research and development (R&D) activities in enhancing competitiveness and economic growth.

This is consistent with the national industrial policy agenda for a competitive, faster growing economy that is diversified and has high capacity for large-scale employment creation.

The immediate objective of the programme is to ensure that there is an overall increase in the number of companies conducting R&D in South Africa, and to ensure that the current cohort of R&D performers find encouragement to invest more in R&D locally. The private sector decisions are central to achieving this.

Whereas I am pleased with the increasing levels of awareness amongst companies with respect to this programme, more still needs to be done. This programme should grow in the coming years, in terms of size and effectiveness, to become one of the major instruments of policy implementation towards increased levels of R&D and innovation.



MRS G N M PANDOR, MP

MINISTER OF SCIENCE AND TECHNOLOGY

EXECUTIVE SUMMARY

This is a report to Parliament by the Department of Science and Technology (DST) regarding the direct benefits of the research and development (R&D) activities encouraged by the Research and Development Tax Incentive Programme. Section 11D of the Income Tax Act (Act 58 of 1962) requires the Minister of Science and Technology to report to Parliament on the programme's effect on the economic growth, employment and other broader government objectives.

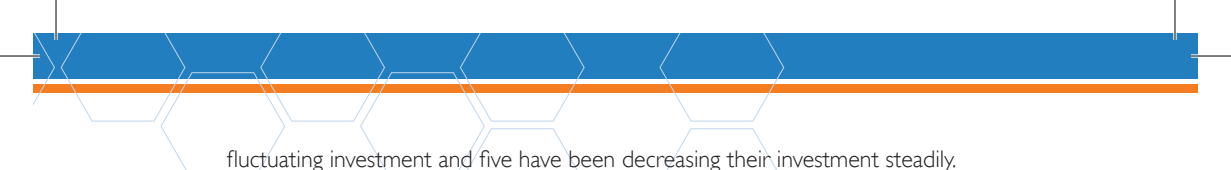
The report is based on submissions that the DST received from private sector companies reporting their projects for which they are claiming the R&D tax benefits under this programme since its inception to February 2010. Forms are captured according to the year of R&D expenditure and activity as indicated by companies. The report is compiled in consultation with the National Treasury (NT), the South African Revenue Services (SARS) and the Department of Trade and Industry (the dti).

Information in the report reflects the status quo at the time of its compilation. Yearly data stated in the report may be revised as companies submit information retrospectively about their previous years' R&D activities. The reason is that companies are allowed to submit their forms years later than their claiming periods, and their data will continually be captured appropriately to reflect the year(s) in which the R&D expenditure was incurred.

The R&D Tax Incentive programme is in its fourth year of operation. For the fiscal year 2009/10 the DST received 116 forms from companies reporting their claims for the R&D tax incentive. A total of R1,2 billion in eligible R&D expenditure was reported.

To summarise the programme performance since its inception until February 2010:

- The programme has received 412 forms, recording a total of R6,2 billion in R&D expenditure, R4,7 billion of which is reported as eligible R&D expenditure in terms of Section 11D of the Income Tax Act. Of the total eligible R&D expenditure, R4,3 billion is R&D operational expenditure and R335 million is capital expenditure.
- The programme has had 133 companies submitting claims for the second time and 41 for the third time. Of the companies that have submitted for the third time, 23 have increased their R&D investment for each year they have participated in the programme; 13 had



fluctuating investment and five have been decreasing their investment steadily.

- About 50% of forms are from companies that have a turnover of R40 million and below, these are classified as Small and Medium Enterprises (SME) in terms of the National Small Business Act (Act 102 of 1996).
- Most of the R&D expenditure is on new product development (57,4%) followed by product improvement (24,8%), applied research (15,0%) and lastly 2,8% spent on basic research.
- The total number of personnel directly involved in R&D activities is 13 792.
- Contracted R&D amounted to R1,1 billion; and
- The tax expenditure or tax revenue forgone due to the R&D tax incentives is estimated to be just over R1 billion for the period 2005/06 to 2008/09. The DST estimates an amount of R632 million for the year 2009/10.

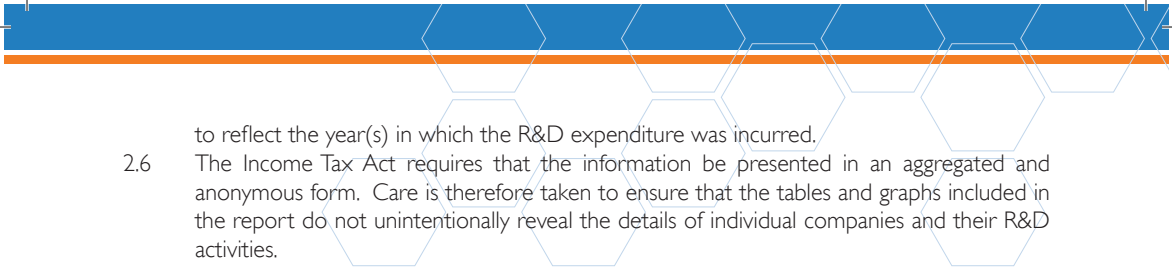
Companies that have utilised the R&D tax incentive have indicated positive effects on their manufacturing process, in introduction of new products and in improving their competitive position in the market. Many SME's have reported specific challenges in accessing the benefits offered through this programme, primarily due to inadequate access to technological know-how, personnel and facilities to conduct R&D on their own. Specific feedback has been received that should help improve administrative processes.

I. INTRODUCTION

- 1.1 Generally, private sector companies would invest less in R&D than is optimal for the economy. Their decisions are largely based on factors such as operational need, cost of investment, the level of risk as well as the projected payback period. The government supports the private sector R&D in order to improve conditions under which these considerations are made. Government aims to stimulate overall growth in R&D investment and the associated innovation activities in order to grow the economy. Incentives are presented as part of an array of policy instruments to address the market failures that constrain the growth of private sector R&D performance.
- 1.2 The policy implementation framework provided by the National Research and Development Strategy (NRDS) and the Ten-Year Innovation Plan for South Africa (2008-2018) has set South Africa on a path for growing R&D investment and innovation, with the private sector as a key player. The economic rationale for government support to business R&D is important for future economic growth, creation of high quality jobs, and increased competitiveness.
- 1.3 To be eligible companies have to incur expenditure on scientific and / or technological R&D in South Africa and the R&D must be for the purpose of deriving income. Eligible activities qualify for a deduction of 150% on operational expenditure and an accelerated depreciation of R&D capital assets at a rate of 50:30:20.
- 1.4 This is a report to Parliament by the DST regarding the direct benefits of R&D activities encouraged by the Research and Development Tax Incentive Programme. Section 11D of the Income Tax Act (Act 58 of 1962) requires the Minister of Science and Technology to report to Parliament on the programme's effect on the economic growth, employment and other broader government objectives.
- 1.5 The structure of the report is as follows:
- Section 1 provides the introduction to the report and background to the R&D tax incentive programme.
 - Section 2 outlines the methodology followed in compiling the report.
 - Section 3 presents the performance of the R&D tax incentive programme.
 - Section 4 discusses the R&D tax incentive in the context of R&D trends in South Africa and its interface with other R&D and innovation support programmes of government.
 - Section 5 provides conclusion and recommendations.

2. NOTES ON METHODOLOGY

- 2.1 The report is based on submissions that the DST received from private sector companies that have invested and conducted scientific and technological R&D since inception to February 2010. Forms are captured according to the year of R&D expenditure and activity as indicated by companies. The report is compiled in consultation with the National Treasury (NT), the South African Revenue Services (SARS) and the Department of Trade and Industry (the dti).
- 2.2 Data is collected in accordance with the requirements of Section 11D (11) of the Income Tax Act through a form prescribed by the Department of Science and Technology. The taxpayer completes the form manually and returns it to DST within six months of their financial year end. Data is captured in the R&D tax incentive database at the DST. At the very least the form collects information on the following:
- Particulars of the taxpayer, including the industrial activity they are involved with.
 - Summary of R&D activities in terms of the nature of R&D, its classification in terms of fields of science and the supporting information such as R&D documentation, publications and registered patents.
 - R&D expenditure and what components of R&D activities are contracted out.
 - Information on sources of funds for R&D activities, the nature of government grants received and the personnel involved in the R&D projects.
 - Information on the effect of the incentive on the way companies make decisions about business R&D.
- 2.3 The data on R&D expenditure distinguished between the R&D expenditure that is eligible under this programme and the overall R&D expenditure incurred by the company. This distinction is important because not all the R&D related expenditure incurred by companies is eligible for the R&D tax incentive.
- 2.4 Data on tax revenue foregone due to the R&D tax incentive is estimated by the South African Revenue Services (SARS) based on the deductions made against the claims for the R&D tax incentives. These figures are published by the National Treasury in its annual Budget Review as part of the estimates for tax expenditure. Available figures are for the years 2005/06 up to 2008/09, and are inclusive of deductions for both the Section 11D and Section 11B. Yearly figures are revised from time to time based on retrospective claims.
- 2.5 Yearly data stated in the report represents the totals that were available at the time of compiling the report. This data gets revised from time to time as claims for the previous years are included. The primary reason is that companies are allowed to submit their forms years later than their claiming period and their data will have to be captured appropriately

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- to reflect the year(s) in which the R&D expenditure was incurred.
- 2.6 The Income Tax Act requires that the information be presented in an aggregated and anonymous form. Care is therefore taken to ensure that the tables and graphs included in the report do not unintentionally reveal the details of individual companies and their R&D activities.
- 2.7 The R&D tax incentive database is arranged in a manner that enables reporting according to Statistics South Africa's (StatsSA) Standard Industrial Classification codes (SIC codes) and the scientific areas of research as defined in the South African Council for Natural Scientific Professions Act, 2004 (SACNASP Act No. 16 of 2004). These levels of categorisation enable analysis of the performance of R&D tax incentive programme in terms of the Industrial Policy Action Plan (IPAP) focus areas, alignment of the programme with government priorities and the targets for research fields in line with the NRDS and the Ten Year Innovation Plan (2008-2018).

3. PERFORMANCE OF THE R&D TAX INCENTIVE PROGRAMME

3.1 OVERALL PROGRAMME UPTAKE

3.1.1 The R&D Tax Incentive programme is in its fourth year of operation. Since inception until end February 2010, the DST received 412 forms from companies, reporting a total of R6,2 billion in R&D expenditure, R4,7 billion of which is reported as eligible R&D expenditure in terms of Section 11D of the Income Tax Act. For the fiscal year 2009, R1,2 billion in R&D expenditure was reported, of which 97% is reported as eligible for the R&D tax benefits. Table 1 gives a few salient facts about the R&D tax incentive since inception.

Table 1: Uptake of the R&D tax incentive programme

Item	Reported Figures				
	2006 (Starting 02 Nov)	2007	2008	2009	Overall
Number of forms received from companies	4	127	165	116	412
Number of forms received from SME's	2	71	75	57	205
Total R&D Expenditure (R'000)	27 578	2 260 104	2 704 505	1 238 470	6 230 657
Total eligible R&D Expenditure (R'000)	8 679	1 450 555	2 029 308	1 207 214	4 695 756
Of which:					
R&D operational Expenditure (R'000)	8 679	1 354 170	1 889 227	1 108 009	4 360 086
R&D Capital Expenditure (R'000)	0	96 385	140 081	99 205	335 670
Contracted R&D (R'000)	3 433	129 769	777 860	213 916	1 124 978
R&D personnel involved	51	5 446	5 579	3 141	13 792 ¹

3.1.2 The number of forms submitted by companies in retrospect has been increasing for the first three years of the programme. The total 2009/10 submissions is 116. Inquiries have increased substantially during 2009/10 as more companies have become aware of the programme. Up to R4,3 billion (or 93%) of the eligible R&D expenditure reported is on operational costs. These costs comprise of materials, overheads and salaries of staff directly involved in R&D activities as well as costs associated with contracted R&D. The remaining 7% (or R335 million) is on capital expenditure. For the four years of the programme, contracted R&D reported amounted to R1,1 billion (30% of operational expenditure).

¹Number of R&D personnel is not necessarily a cumulative figure of yearly totals. Its estimation takes into account the fact that some companies have submitted more than once.

- 3.1.3 The tax expenditure or tax revenue forgone due to the R&D tax incentives is estimated to be just over R1 billion for the period 2005/06 to 2008/09. The figures represent the deductions allowed by SARS based on the claims received for particular tax years. The DST estimates an amount of R632 million for the year 2009/10.

Table 2: Estimated tax revenue foregone due to R&D tax incentive

Year	Estimated tax revenue foregone (R' million)	Cumulative totals
2005/06	183	183
2006/07	313	496
2007/08	286	782
2008/09	219	1 001

- 3.1.4 R&D capital expenditure is incurred to acquire tangible assets such as buildings, machinery, plant, implements, utensil and articles used for scientific and technological R&D. These items qualify for an accelerated depreciation over a three year period at a rate of 50:30:20 from the year they are first brought into use. Many companies that already have R&D infrastructure or have started depreciating their R&D assets using depreciation methods specified elsewhere in the Income Tax Act may not change to the depreciation method under Section 11D.
- 3.1.5 The programme had 133 companies submitting claims for the second time and 41 for the third time. Of the companies that have submitted for the third time 23 have increased their investment for each year they participated in the programme; 13 had fluctuating investment and five have been decreasing their investment steadily.

Table 3: Repeat R&D tax incentive claimants

Tax Year	2006	2007	2008	2009	Total
No. of 2nd time claimants	0	4	101	28	133
R&D Expenditure (R'000)	0	34 649	1 528 526	188 625	1 751 800
No. of 3rd time claimants	0	0	1	40	41
R&D Expenditure(R'000)	0	0	16 867	844 081	860 948

- 3.1.6 Publications, local and international patents are the preferred modes of intellectual property (IP) protection. There are companies choosing not to patent as best way to protect their IP and also citing patenting costs as being too high. For those that protect their IP the trend is to use of both local and international patents.

Table 4: Number of patents and publications produced by beneficiary firms

	2006	2007	2008	2009	Totals
Local Patents	0	51	41	11	103
International Patents	0	76	63	134	273
Total Patents	0	127	104	145	376
Publications	0	154	110	32	296

3.2 LEVELS OF PARTICIPATION BY COMPANY SIZE

3.2.1 Since inception until February 2010, the DST received 205 forms from companies with an annual turnover of R40 million and below. In terms of the National Small Business Act (Act 102 of 1996) these companies are classified as Small and Medium Enterprises (SMEs).

Table 5: Participation by company size and levels of R&D expenditure

Annual turnover (R. million)	Number of forms	% to total	Eligible R&D Expenditure (R'000)	% R&D Expenditure
Turnover not indicated	35	8,5	132 486	2,8
10 and below	103	25,0	168 731	3,6
10-15	28	6,8	77 504	1,7
15-20	9	2,2	30 089	0,6
20-30	21	5,1	67 770	1,4
30-40	9	2,2	32 069	0,7
40-50	9	2,2	22 579	0,5
50 - 100	39	9,5	411 158	8,8
100 and above	159	38,6	3 753 370	79,9
TOTAL	412	100,0	4 695 756	100,0

3.2.2 Participation in the R&D tax incentive programme by SMEs is still low and effort to encourage participation revealed that many small companies have specific challenges of accessing R&D finance, knowledgeable human resource and general lack of understanding the R&D tax incentive programme. The volumes of claims from companies with turnover less than R40 million are 49,7%; their reported R&D expenditure is 10.8%. About 80% of R&D expenditure comes from 38,6% of companies with turnover of R100 million and above.

3.3 CONTRIBUTION TO R&D IN SPECIFIC ECONOMIC SECTORS

- 3.3.1 The current design of the R&D tax incentive programme targets all economic sectors, with the exclusion of the financial services (including the banking and insurance companies), and the activities of exploration or prospecting, management of internal business processes, trade marks, social sciences and humanities, market research including sales and promotions.
- 3.3.2 The available programme data enables reporting of the uptake by economic sectors in terms of the SIC codes and per the sectors prioritised within the Industrial Policy Action Plan (IPAP).
- 3.3.3 About 51,9% of participating companies are from the manufacturing sector accounting for 57% of eligible R&D expenditure, recording the highest in 2008 (at 27%) and R481 million in 2009. This is followed by the business services sector with 32% of participation spending R452 million (9.6%) on R&D expenditure. The eligible R&D expenditure reported by other sectors is as follows: transport, 11%; mining, 10%; agriculture just less than 2%. The rest of the sectors comprise the remaining 5% of companies with eligible R&D expenditure at 6.45% of the total.

Table 6: R&D expenditure per economic sector or per SIC code

SIC Code description	No. of forms	Reported R&D Expenditure (R'000)				
		2006	2007	2008	2009	Overall
10000 - Agriculture, hunting, Forestry and Fishing	25	0	66 290	114 148	86 997	267 435
20000 - Mining and Quarrying	14	0	214 486	194 122	73 759	482 367
30000 - Manufacturing	214	6 126	910 668	1 274 801	481 981	2 673 576
40000 - Electricity, Gas & Water Supply	6	0	2 598	9 956	209 012	221 566
50000 - Construction	4	0	10 429	19 770	11 438	41 637
60000 - Wholesale & Retail Trade	2	1 751	15 170	0	0	16 921
70000 - Transport, Storage & Communication	14	0	105 952	236 951	187 610	530 513
80000 - Financial Intermediation, Real Estate & Business Services	131	803	124 695	179 560	147 764	452 822
90000 - Community, Social and Personal Services	2	0	269	0	8 653	8 922
TOTALS	412	8 679	1 450 555	2 029 308	1 207 214	4 695 756

- 3.3.4 Of the eligible R&D expenditure reported since programme inception, R2, 8 billion (61%) is within the sectors prioritised in terms of the IPAP. A total of 132 forms were received from these clusters. Table 6 provides R&D expenditure by IPAP clusters.

Table 7: Participation per IPAP clusters

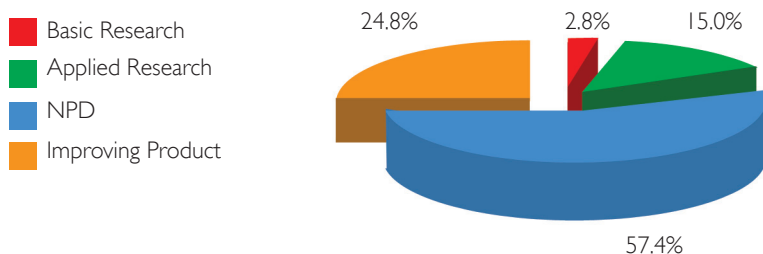
Clusters according to IPAP	No. of Forms	R&D Expenditure R'000
Cluster 1 - Qualitative new areas of focus	29	883 700
1. Realising the potential of the metal fabrication, capital and transport equipment sectors, particularly arising from large public investment	15	617 880
2. 'Green' and energy-saving industries	9	223 960
3. Agro-processing, linked to food security and food pricing imperatives	5	41 860
Cluster 2 - Scale up and broaden interventions in existing IPAP sectors	89	1 687 147
1. Automotives, components, medium and heavy commercial vehicles	5	71 897
2. Plastics, pharmaceuticals and chemicals	52	1 504 380
3. Clothing, textiles, footwear and leather	0	0
4. Biofuels	0	0
5. Forestry, paper, pulp and furniture	13	48 510
6. Strengthening linkages between cultural industries and tourism	0	0
7. Business process servicing	19	62 360
Cluster 3 - Sectors with potential for long-term advanced capabilities	14	287 740
1. Nuclear and Advanced materials	4	15 690
2. Aerospace	10	272 050
TOTAL	132	2 858 587

3.4 CONTRIBUTION TO SPECIFIC TYPES OF R&D AND FIELDS OF RESEARCH

- 3.4.1 About 57,4% of the eligible R&D expenditure for the years 2006 – 2009 comprise of new product development (NPD), followed by product improvement with 24,8%, applied research with 15,0% and lastly basic research with 2,8%. The spread of these activities is similar to the trends in business expenditure on R&D (BERD) reported in the national Surveys on Research and Experimental Development (R&D Surveys).

Figure 1: Types of R&D activities reported

(2006–2009: Total eligible R&D expenditure of R4.7bn)



3.4.2 A breakdown of reported R&D is also done in terms of the research fields as defined in the SACNASP Act No.16 of 2004. Most of the R&D expenditure reported is in the research field of chemical sciences with 32,3%, followed by industrial sciences with 24,4%, metallurgical sciences (12,8%), mathematical sciences (12,0%) and physical sciences (10,5%). Other fields constitute the remainder of reported R&D expenditure. Although the chemical sciences dominate in terms of R&D expenditure, only a few companies have participated so far.

3.4.3 Chemical sciences among others include pharmaceuticals, household and personal care products, polymers, paints and coatings; industrial sciences are made up of multidisciplinary fields of advanced industries such as physical sciences and machinery; metallurgical sciences involve the know-how in the mining and resources industries; mathematical sciences include the research in the information technology and software development industries. The levels of R&D expenditure reported per scientific area have improved except for the environmental sciences.

Figure 2: Eligible R&D expenditure by scientific fields

(2006-2009: Total eligible R&D expenditure of R4.7bn)

- Industrial Science
- Agricultural Science
- GIS Science
- Biological Science
- Mathematical Science
- Physical Science
- Animal Science
- Chemical Science
- Geological Science
- Metallurgical Science
- Food Science
- Material Science
- Environmental Science
- Forestry Science

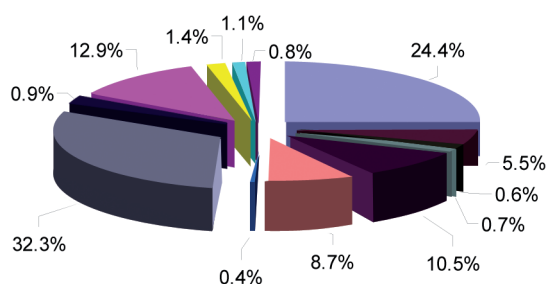


Table 8: Eligible R&D expenditure per scientific field

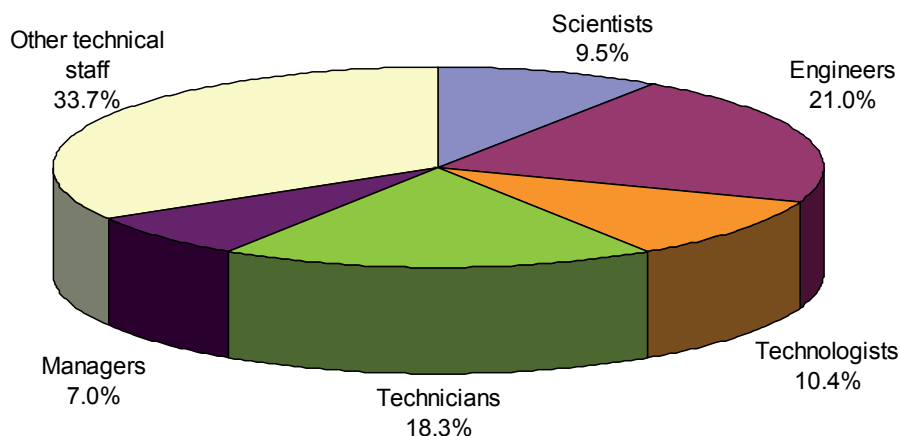
Scientific Field	2006 (Starting 02 Nov) R'000	2007 R'000	2008 R'000	2009 R'000	Overall R'000	% to total
Industrial Science	0	274 335	478 354	392 727	1 145 416	24
Agricultural Science	0	63 830	110 613	83 833	258 276	5,5
GIS Science	0	4 733	13 003	8 470	26 206	0,6
Biological Science	0	4 454	10 680	17 827	32 961	0,7
Mathematical Science	803	69 969	144 627	276 319	491 719	10
Physical Science	0	66 016	183 700	156 910	406 626	8,7
Animal Science	3 278	6 661	6 205	2 757	18 901	0,4
Chemical Science	1 751	600 320	790 642	122 625	1 515 338	32
Geological Science	0	10 429	19 970	10 949	41 348	0,9
Metallurgical Science	2 848	272 522	232 412	95 670	603 451	12,9
Food Science	0	16 680	29 213	20 270	66 163	1
Material Science	0	22 942	9 294	18 223	50 459	1
Environmental Science	0	37 664	0	0	37 664	0,9
Forestry Science	0	0	594	634	1 228	0
TOTAL	8 679	1 450 555	2 029 308	1 207 214	4 695 756	100,00

3.5 R&D PERSONNEL

- 3.5.1 The count of R&D personnel involved in the R&D activities reported since inception of the programme is 13 792. Number of R&D personnel is not necessarily a cumulative figure of yearly totals. Its estimation takes into account the fact that some companies have submitted more than once. Categories of R&D personnel include scientists, engineers, technologists, technicians, managers and other technical staff directly involved in R&D as outlined in figure 3 below.

Figure 3: Categories of R&D personnel involved

(2006 - 2009: Total of 13 792)



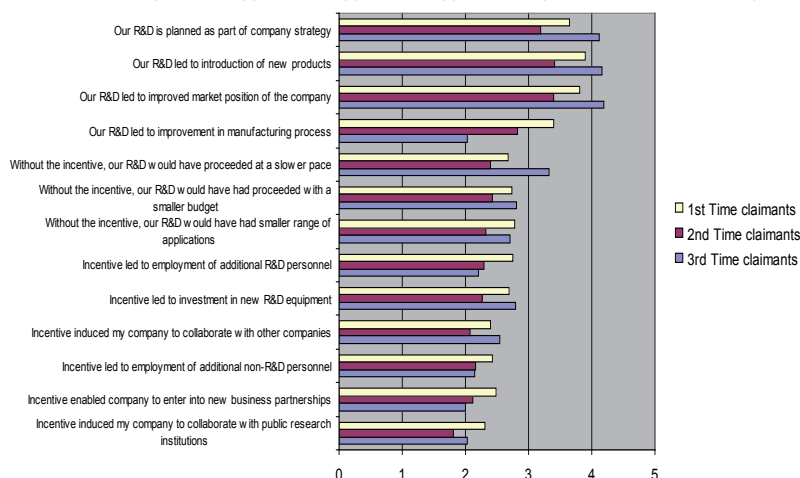
- 3.5.2 About 84.2% of the reported R&D personnel are in the same scientific fields of research that reported the most R&D expenditure, namely industrial sciences (29, 6%), metallurgical sciences (26, 7%), chemical sciences (14, 9%), and mathematical sciences (13, 7%). About 82,8% of the R&D personnel are within companies that indicated annual turnover of R50 million and above. Just more than one-third are in the manufacturing sector, followed by business services with 22,0%.

- 3.5.3 There is incremental employment visible in companies that are regular R&D performers (those that submitted more than once). Data indicates that 7% of these companies have increased their R&D personnel ranging from 1 to 49 and these increases in personnel are in categories of engineers, technicians and other staff directly involved in R&D.

3.6 ADDITIONALITY EFFECTS OF THE PROGRAMME

- 3.6.1 There are early signs of programme impact on firm-level decision making. Figure 4 summarises the experiences of companies concerning the programme. The information is collected using the questionnaire included in part 5 of the R&D tax incentive form. The questionnaire is made up of 16 questions linked to a Likert rating scale of 1 – 5, where (1) = Strongly Disagree (2) = Disagree (3) = Neutral (4) = Agree and (5) = Strongly Agree.
- 3.6.2 Companies indicate that the availability of the R&D tax incentive shape their key strategic considerations when planning their R&D projects. In addition to this, companies, in particular the third time claimants, also allocated higher ratings for dimensions indicating that:
- The R&D activities have led to the introduction of new products;
 - The R&D led to improved market position of the company; and
 - To some extent that the incentive assisted in completing the R&D project earlier.
- 3.6.3 Companies are neutral on the impact of the incentive on:
- Whether R&D would have continued on a smaller budget and smaller range of application;
 - Employment of additional R&D personnel; and
 - Investment in new R&D equipment.
- 3.6.4 Companies have given lower ratings for the incentive's impact on the following:
- Encouraging collaboration with other companies and public research institutions;
 - Enabling new business partnerships; and
 - Employing additional non-R&D personnel.

Figure 4: Perceptions of additionality effect by participating companies



3.6.5 Other than the experiences of companies, some of the R&D activities reported show that the programme is supporting private sector projects that are relevant to attainment of specific government priorities. These include projects involving R&D in green and energy saving, and clean technologies researched by companies to help reduce the carbon footprint. Research in mining and agriculture is pursued for beneficiation of natural resources.

3.6.6 Participation by companies in the sectors and industries like energy, chemicals and pharmaceuticals clearly indicates that the programme is supporting industries that have fast growing R&D investment across the world over the recent past, indicating South Africa's attractiveness to these globally competitive R&D driven industries. These industries are important in addressing the challenges of energy crisis, health and food security. Clinical research conducted allows patients access to innovative medicines contributing to improving healthcare by identifying causes of problems, facilitating diagnosis and improving the efficiency and effectiveness of healthcare. Each step in the R&D value chains of these industries is capable of contributing to industrial growth, development of high-end skills and manufacturing excellence.

3.6.7 Where multinational companies are concerned, the aim should be to have them to locate the core components of their R&D activities in South Africa, as opposed to only the peripheral or latter stages of the R&D. This requires a combination of country factors and instruments that are important to decision making of these companies. For example, the nature of R&D conducted by multinational companies within the pharmaceutical industry in South Africa should shift and expand beyond phase II to IV clinical trials. It is important to attract more pharmaceutical companies that can conduct basic R&D, pre-clinical trials and manufacturing specification development in South Africa.

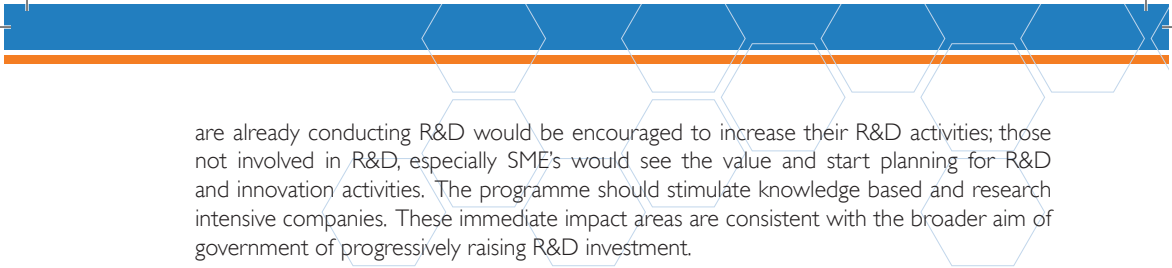
4. PROGRAMME PERFORMANCE IN THE CONTEXT OF NATIONAL TRENDS IN R&D EXPENDITURE

- 4.1 Results of the National Survey on Research and Experimental Development (R&D Survey) indicate that South Africa has maintained a steady growth in R&D expenditure for over a decade, with Gross Expenditure on Research and Development (GERD) growing fivefold from R4 billion in 1997/98 to about R21 billion in 2008/09. GERD comprises an aggregated total of actual expenditure on R&D in South Africa by business, higher education, government (including science councils), and the not-for-profit organisations.
- 4.2 The latest measurement of GERD/GDP shows a decrease for the second time from 0.93% in 2007/08 to 0.92% in 2008/09. For the past decade, GERD/GDP peaked at 0.95% in 2006/07. Overall, R&D expenditure has not been increasing at the targeted rate.

Table 9: Business R&D expenditure trends in South Africa

Period	GERD R'000	GERD % of GDP	Business Expenditure on R&D (BERD) R'000	BERD % of GERD
1993/4	1 784 300	0.61	1 336 227	76.7
1997/8	2 724 380	0.60	2 216 000	81.8
2001/02	7 285 167	0.73	4 023 576	56
2003/04	9 617 657	0.81	5 591 325	60
2004/05	12 009 981	0.87	6 766 361	58
2005/06	15 149 239	0.92	8 243 776	59.9
2006/07	16 520 584	0.95	9 243 165	57
2007/08	18 624 013	0.93	10 738 456	58.9
2008/09	21 041 046	0.92	12 332 012	58.7

- 4.3 The business sector has consistently performed the bulk of R&D in South Africa over the years. In 2008/9 business expenditure on R&D (BERD) constituted 58.6% of the gross R&D expenditure. About 67.6% of BERD is funded by business itself.
- 4.4 The policy programmes such as the R&D tax incentive are meant to create conditions that stimulate increased private sector role in national R&D investment and innovation performance. They complement the grant based programmes to support private sector activities and the various programmes implemented by government.
- 4.5 In this context, the immediate objective of the DST in administering the tax incentive is to influence decision making within companies concerning R&D investment. The policy effect of this programme, and related programmes, would be observed in the following ways: generally the number of companies conducting R&D would increase; companies that



are already conducting R&D would be encouraged to increase their R&D activities; those not involved in R&D, especially SME's would see the value and start planning for R&D and innovation activities. The programme should stimulate knowledge based and research intensive companies. These immediate impact areas are consistent with the broader aim of government of progressively raising R&D investment.

- 4.6 The level of uptake of the R&D tax incentive programme, as indicated by the number of forms received by the DST, is still low. Caution is however taken that some of the companies may have been omitted from this count because of not having submitted their information to the DST, whereas they have submitted their claims to SARS. Comparing the R&D tax incentive with the R&D survey shows a large gap of reporting by companies conducting R&D. Data from the R&D survey reveals that 60 (7,9%) of the 762 companies that performed in-house R&D in 2008/9 indicated to have claimed for the R&D incentive, and that for the two years 2007/8 and 2008/9 the total R&D expenditure of R2.2 billion and R2.7 billion reported for the tax incentive programme is about 21% of the Business Expenditure on Research and Development (BERD) for the respective years as measured in the 2008/9 R&D survey.
- 4.7 Internationally, countries such as Spain and New Zealand, which have been running their R&D incentive programmes for a number of years now, have had similar experiences in the earlier years of their programmes. A country like Australia has increased participation rates to the levels where the R&D incentives database is used as a primary source for generating national statistics on business R&D performance. In the case of South Africa, the programme is relatively new and therefore increased levels of awareness amongst companies is still needed for the programme to become of a sufficient scale to be effective as a policy instrument.
- 4.8 The data released by the Organisation for Economic Corporation and Development (OECD) indicates an increase in the use of R&D tax incentives amongst its 30 member countries, from 2 in 1995 to 18 in 2004 and 22 in 2010. Most of its member countries and other emerging economies have either introduced or improved their R&D tax incentives during the past five years. In 2008, 23 OECD member countries implementing these types of programmes allocated an average of 0.05% of the support through R&D incentives (estimated through foregone tax revenues) as a percentage of GDP. Canada and South Korea have allocated higher proportions of 0.22% and 0.19% respectively¹.

¹OECD (2010) *Measuring Innovation: A New Perspective*; OECD's Main Science and Technology Indicators Database, 2010: <http://dx.doi.org/10.1787/835805814452>

5. INTERFACE WITH OTHER INNOVATION AND R&D SUPPORT MEASURES

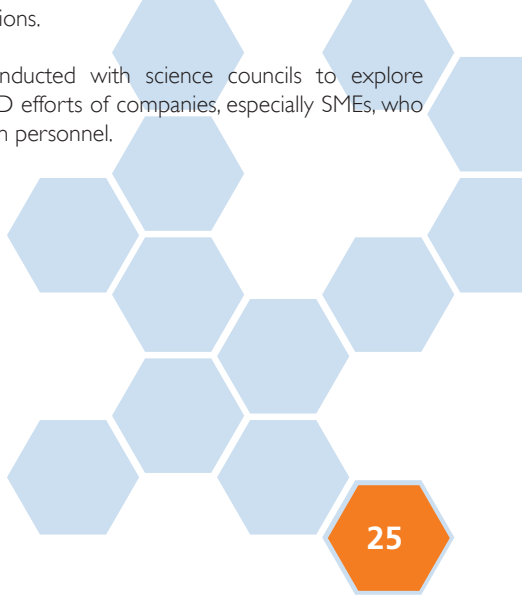
- 5.1 A number of government support instruments are available to encourage companies to engage in R&D and innovation activities. The R&D tax incentive benefits can be accessed alongside the support offered by some of these programmes, provided that such practice is allowable in terms of relevant programme requirements.
- 5.2 Amongst these are direct funding programmes such as, the Support Programme for Industrial Innovation (SPII), the Technology and Human Resources for Industry Programme (THRIP), Innovation Fund and the Technology Programme administrated by the Small Enterprise Development Agency (SEDA). These programmes had a collective budget of R429 million in 2009/10 according to the Estimates of National Expenditure (ENE) published by the National Treasury. Table 10 and Table 11 provide further details. There is also a range of financial and non-financial instruments to be administered under the newly established Technology Innovation Agency (TIA), which would essentially consolidate some of the existing programmes into a manageable portfolio of few high-impact instruments.

Table 10: Government funding programmes to support private sector R&D and innovation

Programme	Number of participating companies or projects supported (latest available data)	Budget appropriation for 2009/10 (National Treasury Estimates of National Expenditure)
Support Programme for Industrial Innovation (SPII)	70 projects (2008/09)	R47.7 million
Technology and Human Resources for Industry Programme (THRIP)	207 SMMEs (2008/09) - Targeted 2 500 students and 250 researchers in 2009/10	R163.8 million
Innovation Fund (Incorporated into TIA)	19 new projects in 2009/10; and historical commitments with Technology Advancement Programme, Missions in Technology Programme, Patent Support Fund, Seed Fund and Patent Incentive Fund	R149.2 million
SEDA Technology Programme (STP)	30 incubators; 654 SMMEs supported, 244 of these newly established and 35% women owned (2008/09)	R68.3 million

Table 11: Further details on direct funding programmes

Name	Objective	Description
Support Programme for Industrial Innovation (SPII) Administered by Industrial Development Corporation (IDC) on behalf of the dti	To promote technology development in all private sector entities in South Africa through provision of financial assistance for the development of innovative, competitive products and or processes.	A matching grant ranging from 50 -80% of qualifying costs incurred during the development of new products and services.
Technology and Human Resources for Industry Programme (THRIP) Administered by NRF on behalf of the dti	To support companies undertaking science, engineering and technology (SET) research collaboration with educational institutions that aim to address the technology needs of companies and development of research personnel and students	A cost-sharing grant of between 30 and 50 % to with industry for enhancing the quality and quantity of appropriately skilled people, i.e. students, researchers.
Innovation Fund (Incorporated into TIA)	To promote technological innovation within the research community and cross-sectoral collaboration and to support protection of and commercialisation of innovations emanating from SA enterprises.	Competitive funding towards innovative activities, i.e. Technology Advancement Programme, Missions in Technology Programme, Patent Support Fund, Seed Fund and Patent Incentive Fund.
SEDA Technology Programme (STP) Administered by SEDA on behalf of the dti	To provide technology and business support services to small enterprises. STP incorporates the Godisa Trust; the dti Incubators; National Technology Transfer Centre (NTTC); Technology Advisory Centres (TACs); SMME activities of Technology for Women in Business (TWIB); and Quality Conformity activities of the South Africa Quality Institute (SAQI).	Financial support to support early, seed and start up technology ventures based on approved business plans and technology incubators.

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- 5.3 These programmes are well known to the market and appeal to the needs of most enterprises. They use selection criteria with a bias towards specific type of activities and arrangements as opposed to the R&D tax incentive, which allows companies more latitude in terms of R&D activities. R&D tax incentives complements these programmes, specifically, by addressing the early research activities, some of which are not covered by the direct funding programmes. The SPII, for instance, supports technology development activities at the end of basic research and ends at a point where a pre-production prototype is produced.
- 5.4 A process has been initiated to implement the Cabinet's recommendation for a consolidated report on government support for private sector R&D and innovation. Starting 2011, the National Treasury (NT) will publish information on estimated tax expenditure to summarise the tax revenue foregone due to implementation of tax-based programmes in support of the private sector. This information will include data on the R&D tax incentive programme. A similar process is required for the on-budget grant based programmes, of which a large component is implemented through the dti.
- 5.5 For greater awareness the programme has been advertised in print media, presentations delivered to workshops and meetings organised with the dti, and with various industry associations, as well as meetings directly with companies. As a result general enquiries and interest increased, companies started submitting forms in retrospect. Information packs have been distributed with the 2009/10 R&D survey questionnaires in order to reach a lot more R&D performing companies.
- 5.6 The current design of the R&D tax incentive to claim for the deduction once a company has generated a taxable income seem to be more effective for companies that are able to fund R&D activities from internal sources. SME's may need a different R&D programme for them to successfully complete R&D projects. It will also be necessary going forward to promote increased collaboration among companies, and between companies and universities and the science councils, to utilise the infrastructure and specialised skills at these research institutions.
- 5.7 Going forward workshops will be conducted with science councils to explore opportunities for further supporting R&D efforts of companies, especially SMEs, who lack R&D facilities and expensive research personnel.

6. CONCLUSION AND RECOMMENDATIONS

- 6.1 For the first four years of implementation of the new R&D tax incentive, the DST focused on getting the administrative processes to work effectively and creating broad awareness amongst R&D performing companies. The DST has also been providing necessary support to companies to enable them to access the programme. These interactions have provided valuable feedback in terms of how the programme is received by companies.
- 6.2 Specific areas of improvement have been noted to enhance the policy impact of the programme going forward. Amongst others, are the following:
 - 6.2.1 That DST should continue to intensify its awareness creation activities about the programme. The current database of participants is used to maintain momentum, while new leads for R&D performers are being established.
 - 6.2.2 That the general awareness of all government support programmes and the assistance available through organisations such as the Council for Scientific and Industrial Research (CSIR), Mintek and the South African Bureau of Standards (SABS) need to be improved as well, especially amongst the SMEs. Going forward, it will be necessary to promote increased collaboration among companies, and between companies and universities and the science councils, to utilise the infrastructure and specialised skills at these research institutions.
 - 6.2.3 That the DST should investigate the feasibility of improving the current offering of the R&D incentive with a view to promote R&D and innovation activities of SMEs.
 - 6.2.4 That the administration arrangements between the DST and the SARS should be streamlined to minimise uncertainty amongst companies regarding the prospects of their R&D incentive claims.
 - 6.2.5 That the R&D incentives can be used to further increase the foreign technology based and R&D investment. This will require promotion of South Africa as an R&D destination within a comprehensive programme of attracting Foreign Direct Investment (FDI).

NOTES

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