Performance of the

RESEARCH AND DEVELOPMENT TAX INCENTIVE PROGRAMME

Report to Parliament – 2011/12

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

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Preface

The Research and Development Tax Incentive Programme is aimed at encouraging the private sector to undertake research and development (R&D) in South Africa. R&D delivers critical input in innovation by creating new products and processes, and by improving existing ones. Our experience is that companies have different capabilities for undertaking R&D and introducing innovations. The support provided through this incentive is aimed at assisting companies to plan new R&D projects or scale up the ones that already exist.

The incentive works alongside other components of the policy package directed at increasing R&D expenditure and the number of companies conducting R&D in South Africa, thereby enhancing competitiveness and economic growth. Since enhancements were introduced in November 2006, the South African incentive for R&D is one of the most generous offered by a government.

Analysis of the uptake, however, indicates that the incentive programme is still accessed by only a small number of companies. To achieve a greater impact, the incentive should support more companies. Many companies still need to be made aware of the incentive and should be assisted to access it. Some of the companies that have taken part in the programme have demonstrated that the R&D that they undertook through the support of this incentive has assisted them in improving their manufacturing processes, introducing new products and improving their competitive positioning in the market.

The Department of Science and Technology (DST) has gained useful insights in the course of implementing this programme and has used the experience to improve administrative arrangements. These improvements were published in the Tax Laws Amendment Act, 2011 (Act No. 24 of 2011), promulgated on 10 January 2012, and include a new approval process and specific measures to enhance the impact of the incentive.

Derek Hanekom
Minister: Science and Technology

Executive summary

This report presents information on the performance of the R&D Tax Incentive Programme for the reference year 2011/12. It also covers the period between November 2006 and February 2012, where a total of 477 companies reported to the DST that they had claimed the R&D tax incentive. These companies submitted 1 026 forms to the DST, representing R&D expenditure of R12 billion. Of this amount, R985 million was for the reporting year 2011/12.

Small and medium enterprises (SMEs) constitute 217 (or 45,5%) of the 477 companies that have benefited from the incentive. SMEs are responsible for R1,3 billion (or 10,9%) of the total R&D expenditure reported to the programme.

An estimated R374 million (2,9%) has been reported as the additional R&D investment that has been made as a result of the incentive.

Of the 477 companies that have applied for the incentive, the manufacturing sector is dominant, with 229 companies (48%) having submitted claims. This is followed by financial and business services, with 167 companies (35%). These two sectors also reported the highest R&D expenditure, with manufacturing contributing R7,3 billion (61%) and financial and business services contributing R1,7 billion (14%). Transport, storage and communication reported 8% of the total R&D expenditure, and the mining and quarrying sectors 7%. These sectors, with the exception of the business services sector, generally comprise fairly large and regular R&D-performing companies.

The tax revenue foregone due to the R&D tax incentives is estimated to be R2 billion for the years 2005/06 to 2009/10, as reported in the National Treasury's budget review of February 2012.

The uptake of the incentive by companies has been slower than expected. This can be explained partly by broader challenges companies had to face over the past two years, including the uncertainties related to the global economic crisis that deepened in the years leading to 2010/11.

Introduction

Worldwide, countries are increasingly offering R&D tax incentives as a means to stimulate private sector R&D investment[1]. Higher levels of investment in R&D are essential for national innovation performance, economic growth and competitiveness. The South African government recognises that innovation is one of the key drivers of socio-economic welfare and competitiveness.

National policies that support R&D growth are the White Paper on Science and Technology, the National R&D Strategy and the Ten-Year Innovation Plan. All of these highlight the role of private sector R&D investment in supporting growth and competitiveness. The R&D Tax Incentive Programme is one of the interventions that have been put in place by the South African government to help achieve this objective.

Section 11(d) of the Income Tax Act, 1962 (Act No. 58 of 1962), requires the Minister of Science and Technology to report to Parliament on the direct benefits of the R&D activities encouraged by the R&D Tax Incentive Programme in contributing to economic growth, employment and other broad government objectives.

This report is based on information submitted to the DST by companies reporting their claims for the R&D tax incentive. The initial part of the report presents data on the uptake by companies. The latter part presents information on the effect of the incentive in areas where the incentive is expected to make a difference. These include economic sectors, industrial policy priority areas, whether the incentive has encouraged additional R&D investment, and employment of R&D personnel.

This report is compiled in consultation with the National Treasury, the South African Revenue Service (SARS) and the Department of Trade and Industry. Annual data in the report is revised, as companies submit information retrospectively about the previous years' R&D activities. This is because the rules of the programme allow companies to submit their forms years later than their claiming periods. As such, their data will continually be captured appropriately to reflect the year(s) in which the R&D expenditure was incurred.

About the R&D tax incentive

Under the R&D tax incentive, companies receive tax deductions amounting to 150% of their operational R&D expenditure and an accelerated depreciation of 50:30:20 on capital assets dedicated to R&D.

An example: Company A incurs eligible operational R&D costs of R5 million and purchases R&D equipment for R2 million in a given year. During that year the company makes a taxable income of R100 million, and is thus liable to pay income tax of about R28 million.

Should Company A decide to claim for the R&D tax incentive, it will receive a deduction of R8,5 million, effectively reducing its tax liability to only R19,5 million.

Assuming all other factors remain constant, Company A would then have more funds available to undertake further R&D or invest in other aspects of its growth.

[1] OECD Science, Technology and Industry Scoreboard 2011; KPMG global R&D and services 2011 (http://www.kpmg.com/global/en/issuesandinsights/articlespublications/taxnewsflash/Pages/default.aspx); Deloitte 2012 Global Survey of R&D Tax Incentives

Performance of the R&D tax incentive programme

Uptake: Forms received by the DST

Between November 2006 and February 2012, a total of 477 companies reported to the DST that they had claimed the R&D tax incentive. These companies submitted 1 026 forms to the DST. Of these forms, 311 submissions (or forms) were received during the reference year 2011/12, with 130 pertaining to R&D expenditure in that same period. Table 1 (below) summarises the number of submissions and claims relating to other years.

Table 1: summary of submissions

Reporting year	Submissions received by the DST	Claims applicable to tax year
2006/07	0	5
2007/08	80[2]	152
2008/09		227
2009/10	332	262
2010/11	303	250
2011/12	311	130
Total	**1 026**	**1 026**

An increased uptake of the programme between 2006 and 2009 illustrates that more companies became aware of the programme and therefore participated in it. A key concern, however, is that the uptake has been slower than anticipated at the inception of the programme.

The rules of the programme allow companies to submit their claims retrospectively. The data of previous years is therefore continually revised as new forms are received. This partly explains the tapering off in the number of submission and claims in later years. The highest number was reached in 2009/10, with 332 submission and 262 claims. A similar pattern is noted with R&D expenditure.

[2] The 80 submissions reported in the 2008/09 tax year include those from 2007/08.

A number of factors could have contributed to what is considered a slow uptake:

- First, there is a possibility of under-reporting owing to gaps in the monitoring arrangements, because companies are able to claim the tax deductions from SARS without notifying the DST.
- Secondly, there is a combination of factors related to the structure of the programme as experienced by companies. Some companies are not yet aware of the programme, while others have indicated that it is difficult to take part in the programme because of its processes, rules and reporting requirements. The various policy programmes available to support innovation, including grants, provide companies with options that best meet their needs, especially where it is not certain that what they consider R&D activities would be eligible for the R&D tax incentive. Companies have also highlighted uncertainties in the interpretation of the legislation concerning the disclosure of intellectual property in terms of the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (Act No. 51 of 2008), when it comes to the R&D supported through the R&D Tax Incentive Programme.
- Thirdly, the global economic crisis, which deepened in the years leading up to 2010/11, affected R&D investment[3]. Some companies have been forced to cancel or scale down R&D budgets, or suspend part of their R&D activities. There have also been reports of companies hoarding cash in the climate of uncertainty[4].

Rationale for the R&D incentive

R&D is a critical input to innovation and productivity, which are essential elements for economic growth and competitiveness. It helps create capacity for developing new products and in improving manufacturing processes. Companies are encouraged for a variety of reasons to undertake R&D.

Government support for private sector R&D is based on an argument that the outcomes of such R&D have wider benefits than what accrues to an individual company undertaking it; that even if particular R&D is undertaken with a private motive, the knowledge that is developed from it, the human capital, and the learning and technology adoption and use by other companies create greater societal returns. Government support helps to address the funding gap for R&D as an intangible investment that has high levels of uncertainty in delivering the intended outcomes.

For an economy, higher levels of R&D create capacity for technology development and adoption and help improve efficiencies and productivity.

[3] OECD 2012 Outlook
[4] South African Reserve Bank Stability Report

R&D expenditure supported

The total R&D expenditure reported for the period between November 2006 and February 2012 is R12 billion, of which R10 billion is eligible for the tax incentive. A further breakdown shows that operational expenditure accounts for R9,6 billion (95,4%) of the eligible R&D expenditure, with the remaining R459 million (4,6%) being capital expenditure.

Table 2: R&D expenditure supported through the R&D Tax Incentive Programme[5]

	Reported expenditure figures (R million)	
	2011/12	Overall (Nov. 2006 – Feb. 2012)
Total R&D expenditure	985	12 021
Total eligible R&D expenditure	669	10 066
Of which:		
Operational expenditure	657	9 607
Capital expenditure	11	459
Outsourced R&D	80	200
Induced additional R&D	38	374

A total R&D expenditure of R985 million was reported for the year 2011/12. Of this figure, R669 million was eligible R&D expenditure supported through the incentive.

Companies participating in the incentive are asked to indicate whether they have made any additional R&D investment as a result of the incentive. Responses to this question are included in 237 (23,1%) of the 1 026 submissions, indicating a total amount of R347 million as additional R&D investment encouraged by the incentive.

Companies follow a variety of arrangements when they undertake R&D to support their innovation and growth. Some conduct R&D in-house, while others outsource a portion of their R&D activities or the entire R&D function to external parties. Other companies follow different modes of collaboration, some even involving international partners.

Instances of outsourced or collaborative R&D are reported on 325 (31,7%) forms, amounting to a total of R2 billion in outsourced R&D expenditure. A large proportion (81%) of the outsourced R&D expenditure went to other private entities. Universities, science councils and other unspecified agents shared the remaining 19%.

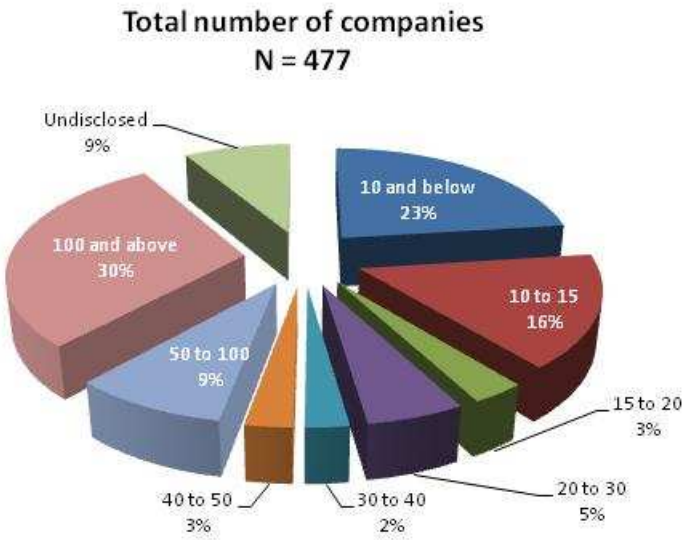
[5] Tables in this report refer to 2011/12 reporting period and then cumulative data from R&D tax incentive programme inception to February 2012, cut-off date for this report.

A variety of factors influence decisions to partner, outsource or collaborate with external parties. These include budgetary constraints, knowledge of available services and limited expertise in organisations. It was expected that beneficiary companies would leverage the incentive and collaborate with public research institutions, especially where they had to establish new internal capabilities and resources for undertaking new lines of R&D outside their existing knowledge base. However, most of the beneficiary companies indicated that they did not agree that the incentive induced them to collaborate with other external parties.

Levels of participation by company size

Most of the beneficiaries (30%) are companies with an annual revenue of R100 million and above. Another large category (23%) is companies with a turnover of R10 million and below. Those with a turnover between these two ends make up 38%, while 9% of companies did not disclose their turnover.

Figure 1: Number of companies participating per turnover bracket



When applying a broad description of SMEs in terms of the National Small Business Act, 1996, (Act No. 102 of 1996), it is noted that 46% (or 217) of the 477 beneficiary companies indicated an annual turnover of R40 million and below.

Table 3: Number of submissions and expenditure per turnover bracket

	Number of submissions by annual turnover			R&D expenditure (R million)		
Annual turnover (R million)	**2011/12**	**Cumulative totals: 2006-2011**	**% of total**	**2011/12**	**Cumulative totals: 2006- 2011**	**% of total**
10 and below	36	245	23,9%	34	471	3,9%
10 to 15	8	69	6,7%	4	156	1,3%
15 to 20	7	37	3,6%	14	165	1,4%
20 to 30	10	59	5,8%	0.	243	2,0%
30 to 40	2	34	3,3%	2	273	2,3%
40 to 50	6	28	2,7%	46	123	1,0%
50 to 100	17	108	10,5%	4	1 080	9,0%
100 and above	34	373	36,4%	5	9 018	75,0%
Undisclosed	10	73	7,1%	35	494	4,1%
Total	**13**	**1 026**	**100%**	**9**	**12 023**	**100%**

Large companies (with an annual turnover higher than R40 million) are the most dominant participants in the programme, reporting up to 85% of the eligible R&D expenditure. SMEs have reported R1,3 billion (10,9%) of the total R&D expenditure. The remaining 4,1% is reported by companies that did not indicate their level of turnover. The proportion of R&D by SMEs seems to be in line with the general trends in business R&D performance in South Africa, where the largest 20% of R&D-performing enterprises perform about 80% of the business sector R&D[6].

The 2008 South African Innovation Survey (2011) reported that, even if the SME sector has a low proportion of R&D performers, it still constitutes a formidable force in terms of introducing new products, processes and marketing techniques, in many cases without undertaking basic scientific research. Other policy programmes to support innovation, both financial and non-financial, are therefore important to maintain this momentum.

Larger enterprises have more repeat applications than SMEs, which indicates that they are more frequent R&D performers and are able to deal with the administrative requirements of the programme. Many SMEs that interacted with the programme have indicated their challenges are sourcing funding for their R&D and the lack of capacity to undertake bigger, riskier R&D projects.

[6] Source: 2009/10 National Survey for Research and Experimental Development

Tax revenue foregone

The tax revenue foregone (or tax expenditure) due to the R&D Tax Incentive Programme is estimated to be about R2 billion for the period 2005/06 to 2009/10[7]. This figure includes claims that were made under the R&D tax incentive under section 11B of the Income Tax Act, which applied prior to November 2006. These figures are published in the National Treasury's budget review for 2012 and 2011 and represent the deductions SARS allowed based on the claims received for particular tax years.

Table 4: Tax revenue foregone

Year	Estimated tax revenue foregone (R million)
2005/06	183
2006/07	449
2007/08	358
2008/09	537
2009/10	432
2010/11	Information not yet available
2011/12	Information not yet available
Total	**1 959**

[7] Latest available figures published by National Treasury at the time of compiling this report (February 2012)

International landscape of R&D incentives

Worldwide, fewer than 50 countries offer incentives to stimulate private sector R&D. Among these are advanced economies and emerging economies, many of which introduced the R&D incentives in the past decade.

The increasing competition for global R&D investments has been a key driver, as multinational companies continually look for cost-effective locations for the R&D and strategic locations that offer proximity to critical input resources, human capital and markets.

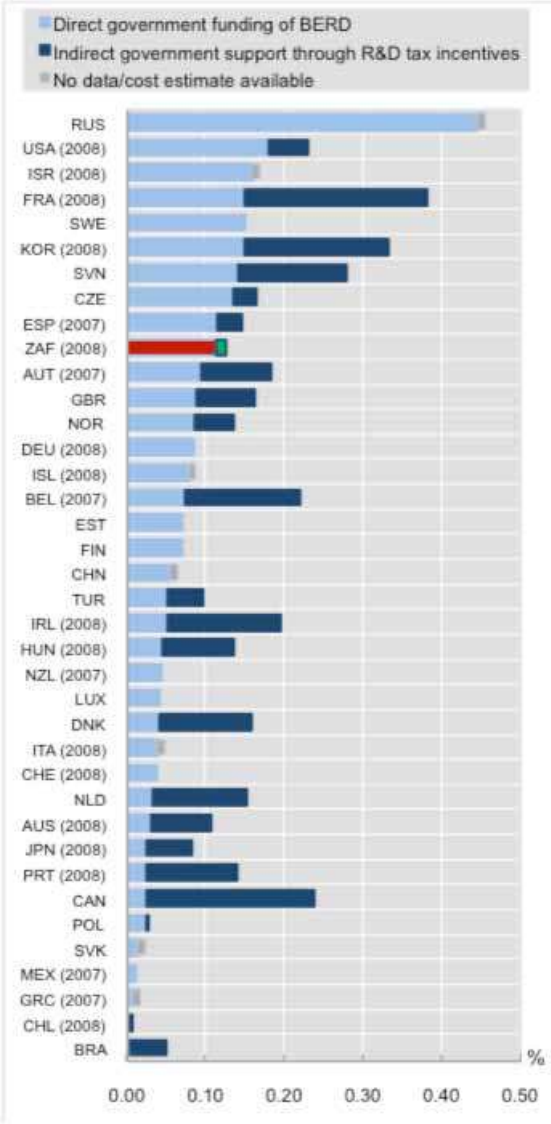
South Africa and a few other countries offer lucrative incentives, referred to as "super deductions" on R&D expenditure ranging from 120% to as high as 200% or more. Such countries include Brazil, China, Malaysia, Russia and India.

Other than the tax-based incentive presented in this report, a variety of other forms of incentives are on offer, in the form of grants, loans, partnerships and various combinations of instruments.

Likewise, South Africa has grant-based programmes on offer, such as the Support Programme for Innovation in Industry and the Technology and Human Resources for Industry Programme, as well as loans and equity-based support administered through the Technology Innovation Agency and the Industrial Development Corporation.

Government support for R&D through tax incentives and other direct funding

Source: OECD Science, Technology and Industry Scoreboard 2011



Impact analysis and policy implications

Contribution to R&D in specific economic sectors

The rules of the R&D tax incentive programme that applied between November 2006 and February 2012 made the incentive available to all economic sectors. Under the Income Tax Act, expenditure relating to certain activities is disqualified for eligibility, for example expenditure claimed by any person carrying on banking, financial services or insurance business, as well as expenditure claims relating to activities of exploration or prospecting, management of internal business processes, trademarks, social sciences and humanities, market research sales or marketing promotions.

The available data enables reporting of the uptake by economic sectors in terms of the Standard Industrial Classification (SIC) codes and for each sector prioritised in the Industrial Policy Action Plan (IPAP). Companies in the manufacturing and information communication and technology (ICT) and software development sectors are the most active participants in the programme. There are currently 229 (48%) companies from the manufacturing sector and 167 (35%) companies from the business and financial services sector.

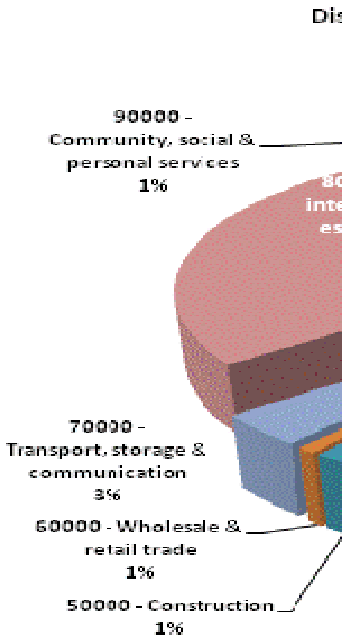


Figure 2: Number of companies participating per economic sector

The manufacturing sector is dominant in terms of its level of uptake, as well as its overall R&D expenditure, with 48,1% of all submissions and 61,1% of the eligible R&D expenditure. This is

followed by the business and financial services, with 34,0% of the forms and 14,4% of the R&D expenditure. Community, social and personal services and the wholesale and retail trade sectors show the lowest uptake. The R&D expenditure of the business services sector has increased steadily from 2006 to 2012.

Table 1: Number of submissions per economic sector or SIC code

Economic sector and SIC code	2011/12		Overall (Nov. 2006 – Feb. 2012)	
	Number of submissions	% of total	Number of submissions	% of total
10 000 – Agriculture, hunting, forestry and fishing	8	6,2%	66	6,4%
20 000 – Mining and quarrying	4	3,1%	33	3,2%
30 000 – Manufacturing	53	40,8%	493	48,1%
40 000 - 60 000 – Electricity, gas, water supply, construction, wholesale and retail trade	4	3,1%	32	3,2%
70 000 – Transport, storage and communication	9	6,9%	41	4%
80 000 – Financial and business services	50	38,5%	349	34%
90 000 – Community, social and personal services	2	1,5%	12	1,2%
Total	**130**	**100%**	**1 026**	**100%**

Table 2: R&D expenditure by SIC code (R million)

SIC code	2011/12		Overall (Nov. 2006 – Feb. 2012)	
	R&D expenditure	% of total	R&D expenditure	% of total
10000 – Agriculture, hunting, forestry and fishing	35	3,5%	608	5,1%
20000 – Mining and quarrying	34	3,4%	783	6,5%
30000 – Manufacturing	430	43,7%	7 339	61,1%
4 000 - 60000 – Electricity, gas, water supply, construction, wholesale and retail trade	17	1,7%	563	4,6%
70000 – Transport, storage and communication	46	4,7%	956	7,9%
80000 – Financial and business services	419	42,5%	1 733	14,4%
90000 – Community, social and personal services	5	0,5%	40	0,3%
Total	***986***	***100%***	***12 021***	***100%***

It appears that companies in the following sectors are fairly large R&D performers, because they have a relatively higher average R&D expenditure: transport, storage and communication with R448 million; mining and quarrying with R23,7 million; electricity, gas and water supply with R23,3 million; and manufacturing with R14,8 million.

Contribution to R&D in national industrial policy priority areas

Of the total R&D expenditure reported since the inception of the programme, over R5 billion (41,6%) is R&D expenditure in the sectors prioritised in terms of IPAP.

A total of 273 submissions were received from companies in these clusters. Of this number, 38 submissions were received for 2011/12, with R&D expenditure of R395 million. The plastics, pharmaceuticals and chemicals industry has the most submissions, as well as the highest R&D expenditure (R2,3 billion). Among the beneficiaries are multinational companies that operate in these R&D-intensive sectors.

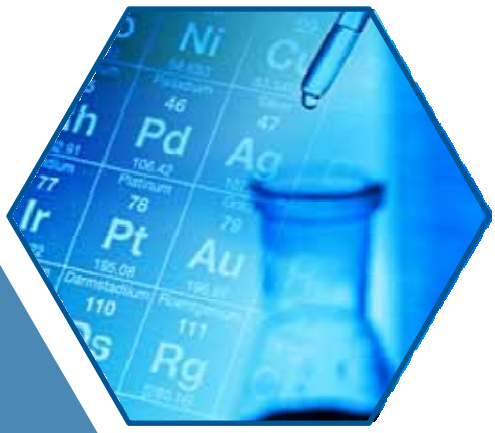


Table 7: Participation per IPAP cluster

Clusters according to IPAP	2011/12	Overall (Nov. 2006 – Feb. 2012)
	R&D expenditure (R million)	R&D expenditure (R million)
Cluster 1 – Qualitative new areas of focus		
1. Realising the potential of the metal fabrication, capital and transport equipment sectors, particularly arising from large public investment	144	1 193
2. "Green" and energy-saving industries	0	230
3. Agro processing, linked to food security and food pricing imperatives	29	85
Total for cluster 1	**173 (19 submissions)**	**1 508 (77 submissions)**
Cluster 2 – Scale up and broaden interventions in existing IPAP sectors		
1. Automotives, components, medium and heavy commercial vehicles	6	156
2. Plastics, pharmaceuticals and chemicals	169	2 294
3. Clothing, textiles, footwear and leather	0	0
4. Biofuels	0	0
5. Forestry, paper, pulp and furniture	3	94
6. Strengthening linkages between cultural industries and tourism	0	0
7. Business process servicing	7	501
Total for cluster 2	**185 (18 submissions)**	**3 045 (176 submissions)**
Cluster 3 – Sectors with potential for long-term advanced capabilities		
1 and 2 nuclear and advanced materials, and aerospace	37	453
Total for cluster 3	**37 (1 submission)**	**453 (20 submissions)**
Total	**395 (38 submissions)**	**5 006 (273 submissions)**

Contribution to specific types of R&D and fields of science

About 56,8% of the eligible R&D expenditure for the years 2006 to 2012 is new product development, followed by product improvement at 22,9%. Applied research accounts for 17,7%, while basic research makes up 2,6% of the expenditure.

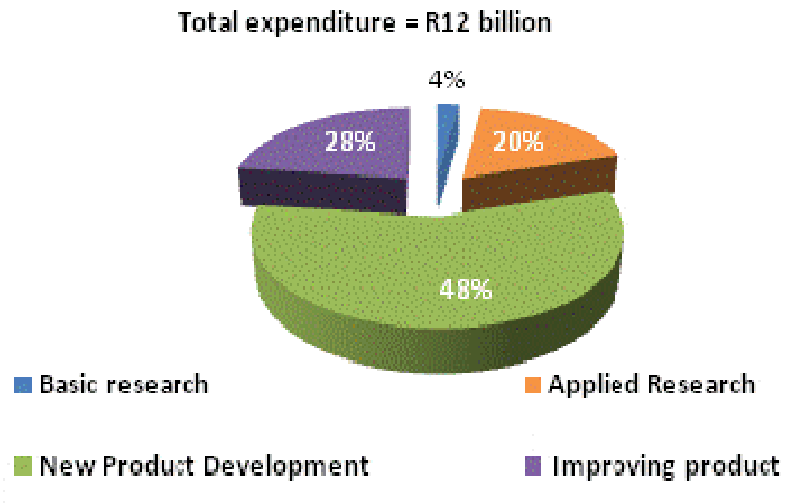


Figure 3: R&D expenditure by type of research, Nov. 2006 - Feb. 2012

The spread of these activities displays a similar pattern to that of business expenditure on R&D that is reported in the national R&D surveys, where applied and experimental R&D constitutes the bulk of R&D expenditure.

The expenditure on basic research can be an indication of the number of R&D businesses devoted to establishing capacity for investigating entirely new phenomena and acquiring new knowledge. In the national R&D survey, basic research constitutes a three-year average of about 10% of the gross expenditure on R&D. Applied research and experimental development, on the other hand, involves using the findings of basic research in developing new products, processes or technologies and improving them.

A breakdown of reported R&D is also done in terms of the research fields as defined in the Natural Scientific Professions Act, 2003 (Act No. 27 of 2003). Most of the reported R&D expenditure is in the research field of industrial science, with 28,8%. This is followed by chemical science, with 24,2%, and mathematical science, with 13,4%.

Table 8: Eligible R&D expenditure per scientific field

Scientific field [8]	2011/12 (R million)	% of total	Overall (Nov 2006 – Feb 2012) (R million)	% of total
Industrial science	198	29,6%	2 902	28,8%
Agricultural science	24	3,6%	573	5,7%
GIS science	2	0,3%	170	1,7%
Biological science	0	0%	156	1,5%
Mathematical science	207	31%	1 349	13,4%
Physical science	38	5,7%	990	9,8%
Animal science	0	0%	25	0,2%
Chemical science	104	15,6%	2 436	24,2%
Geological science	0	0%	53	0,5%
Metallurgical science	35	5,2%	1 008	10%
Food science	55	8,2%	250	2,5%
Materials science	1	0,1%	96	1%
Environmental science	0	0%	40	0,4%
Forestry science	0	0%	1	0%

[8] See Annexure A for definitions of the respective scientific fields.

Scientific field [8]	2011/12 (R million)	% of total	Overall (Nov 2006 – Feb 2012) (R million)	% of total
Soil science	0	0%	0	0%
Earth science	0	0%	12	0,1%
Water care science	4	0,6%	4	0%
Total	**668**	**100%**	**10 066**	**100%**

R&D personnel

The number of R&D personnel directly involved in the R&D activities that have been supported since the inception of the programme is estimated at 11 086[9]. This takes into account the fact that some companies have submitted forms for each year without increasing their staff complement, and other possible variations in the number of R&D personnel.

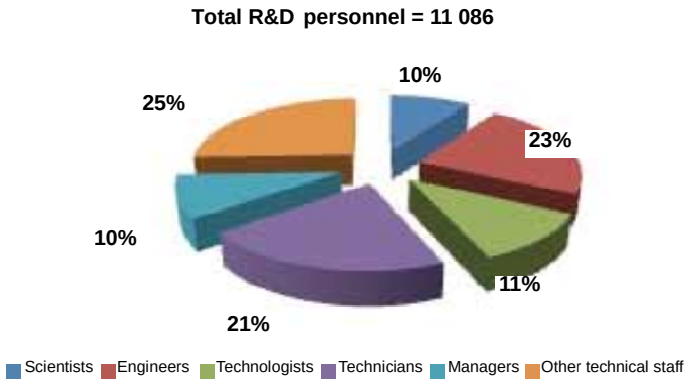


Figure 4: R&D personnel distribution

The proportion of scientists and managers is the lowest in the entire collection. Both personnel categories comprise 10% of the reported R&D workforce. These are followed by technologists, who make up 11% of the total personnel. Technicians and engineers are more dominant than scientists and managers, with the former at 21% and the latter at 23%. The category "other technical staff" represents 25% of the total R&D employees.

The R&D tax incentive form also collects perceptual information about whether the incentive has led to the employment of additional R&D personnel. Responses to this question are spread

[9] This figure is less than the previously reported 13 792. It has been revised to remove instances of double counting.

across the spectrum. The responses from fourth and fifth-time claimants seem to suggest that the programme has not led to increased employment of R&D personnel.

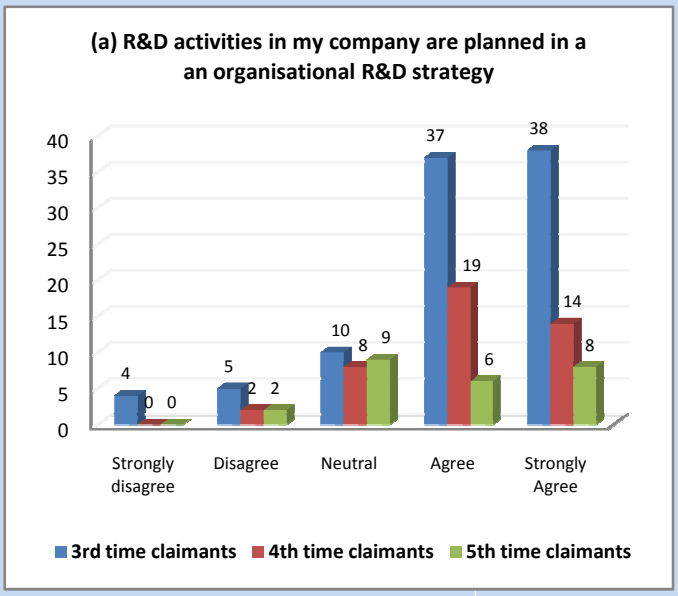
To further analyse the impact on R&D personnel, an analysis of data from 23 companies that have claimed the R&D incentive five consecutive times was undertaken. The analysis shows that these companies had a net increase of 86 in the number of R&D personnel. Seven of the companies had neither a decline nor an increase in the number of R&D personnel.

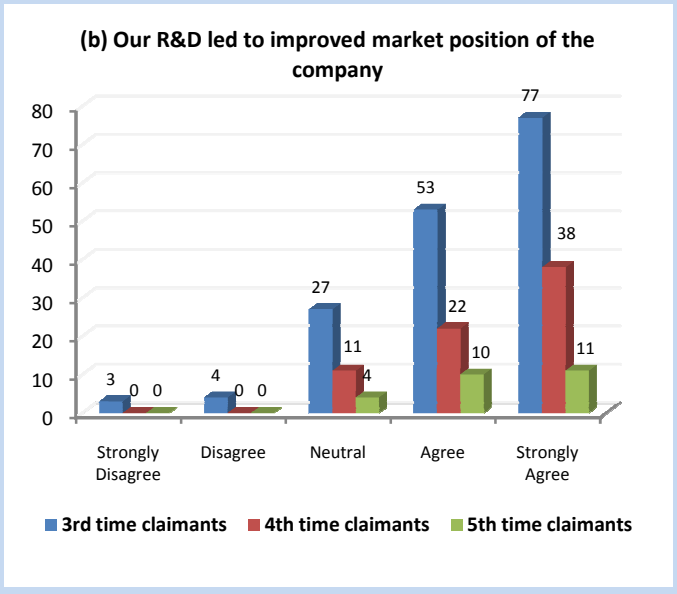
Perceptions about the effects of the R&D tax incentive

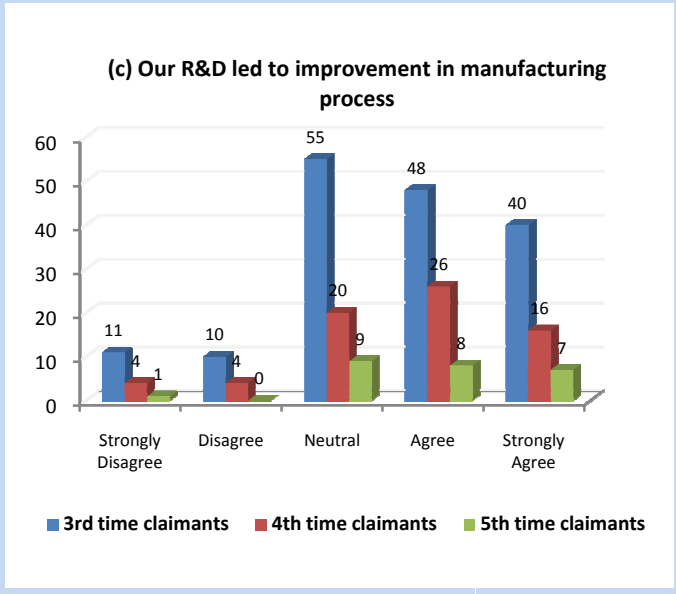
A set of questions are included on the R&D tax incentive form to collect perceptual information regarding the impact of the programme at company level, based on a choice between five options: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree and (5) Strongly agree.

Figure 8 provides a summary, which indicates that most companies reported that –

- R&D activities are planned as part of their organisational strategy (8a);
- their R&D led to an improved market positioning (8b);
- their R&D led to improvements in their manufacturing process (8c);
- their R&D led to the introduction of new products (8d).







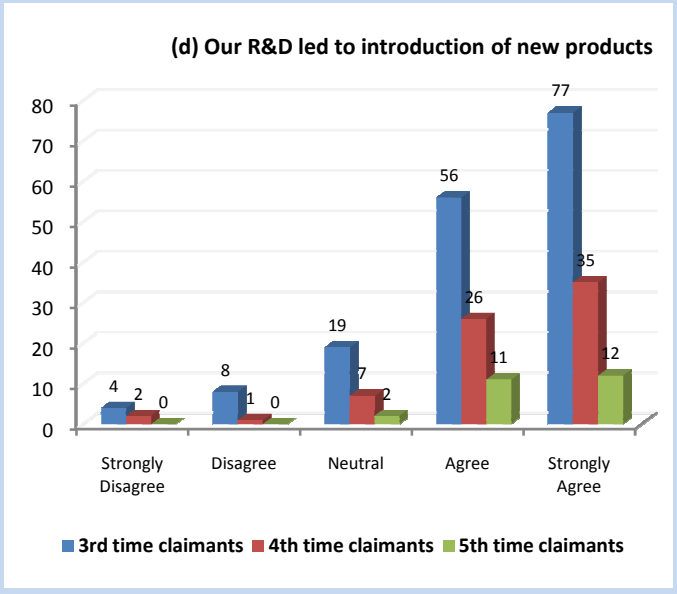


Figure 5: Summary of perceptions about behavioural additionality effects

Conclusion

During the first years of the implementation of the R&D tax incentive programme, the DST focused on getting the administrative processes to work effectively and creating broad awareness among R&D-performing companies. The DST also provided the necessary support to companies to enable them to access the programme. These interactions provided valuable feedback in terms of how companies received the programme.

The R&D Tax Incentive Programme was introduced as one of the policy instruments to encourage private sector R&D investment in South Africa. National policies such as the National Research and Development Strategy, the Ten-Year Innovation Plan for South Africa (2008-2018) and IPAP have all highlighted the role of increased private sector R&D in contributing to economic growth and competitiveness. R&D is a critical input in developing new products and in improving manufacturing processes and innovation.

So far there have been encouraging signs relating to the early impact of the incentive. There is a positive trend of companies that have increased their R&D investment as a result of the incentive. The incentive also supported R&D in specific economic sectors that are national industrial policy priorities. It has furthermore encouraged R&D by foreign-owned multinational companies and has supported SMEs with their R&D.

Specific areas of improvement have been noted to enhance the policy impact of the programme going forward. Among others, the following key points are noted:

- The DST should continue to intensify its efforts to increase awareness about the programme. The current database of participants is used to maintain momentum, while new leads for R&D performers are being established. Processes to access the incentive should be improved continually to ensure that more companies can participate in the programme.
- The general awareness of all government support programmes and the assistance available through organisations such as the Council for Scientific and Industrial Research, Mintek and the South African Bureau of Standards should be improved as well, especially among SMEs that appear to have a greater need to access the infrastructure and specialised skills available at these institutions.
- The R&D incentives can be used to increase foreign technology-based R&D investment. Deliberate actions are needed to provide multinational companies with information that will assist them to evaluate the attractiveness of South Africa as a potential location in which to expand their R&D functions.

Working with the National Treasury, SARS and the Department of Trade and Industry, the DST will be implementing amendments to the R&D Tax Incentive Programme with effect from October 2012. The changes resulted from a review of the experiences in implementing the incentive since its inception. The improvements were published in the Tax Laws Amendment Act, 2011 (Act No. 24 of 2011), promulgated on 10 January 2012, and include a new approval process, as well as specific measures to enhance the impact of the incentive.

Annexure A: Definitions of Scientific Fields

Agricultural science is a broad, multidisciplinary field that encompasses parts of exact, natural, economic and social sciences that are used in the practice and understanding of agriculture.

Animal science can be described as a study of the biology of animals that are under the control of humankind.

Biological science is a branch of science that is defined as the study of life. It provides the fundamental study for the biotechnology industry. Biological science has a great impact on our lives and is likely to have an even bigger impact in the future.

Chemical science consists of a diversity of disciplines in pharmaceuticals, polymers, paints and coatings, household and personal care products, etc.

Environmental science is an interdisciplinary academic field that integrates physical and biological sciences (including ecology, physics, chemistry, biology, soil science, geology, atmospheric science and geography) into the study of the environment and the solution of environmental problems. Environmental science provides an integrated, quantitative and interdisciplinary approach to the study of environmental systems.

Food science is a study concerned with all the technical aspects of food, beginning with harvesting or slaughtering and ending with cooking and consumption.

Forestry science is the scientific management of forests for the production of lumber and other resources. It is the science of cultivating, maintaining and developing forests.

Geographical information system science includes the design of systems to capture, store, manipulate, analyse, manage and present all types of geographically referenced data.

Geological science is the science comprising the study of the earth, the rocks of which it is composed and the processes by which it evolves. It is commercially important for mineral and hydrocarbon exploration and for evaluating water resources.

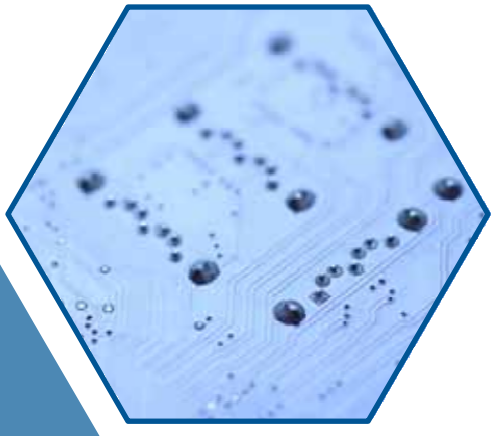
Industrial science is made up of multidisciplinary fields, e.g. a combination of information technology, physical science and machinery, which advance industries.

Materials science is an interdisciplinary field that applies the properties of matter to various areas of science and engineering. It investigates the relationship between the structure of materials at atomic or molecular scale and their macroscopic properties. It incorporates elements of applied physics and chemistry.

Mathematical science refers to disciplines that are mathematical in nature. It includes fields like computer science, computational science, statistics, theoretical physics and actuarial science.

Metallurgical science includes disciplines concerned with the science and technology of metals and alloys. It includes fields such as process metallurgy, physical metallurgy and mechanical metallurgy.

Physical science includes any of the sciences that analyse the nature and properties of energy and non-living matter, e.g. physics, chemistry, astronomy and geology.



Annexure B: Description of SIC codes

SIC code	Description of economic activities	
Major division	**Division**	
10000		**Agriculture, hunting, forestry and fishing**
	11000	Agriculture, hunting and related services
	12000	Forestry, logging and related services
	13000	Fishing, operation of fish hatcheries and fish farms
20000		**Mining and quarrying**
	21000	Mining of coal(hard) and lignite (brown coal)
	22000	Extraction of crude petroleum oils and natural gas; service activities incidental to oil and gas extraction, excluding surveying
	23000	Mining of gold and uranium ore
	24000	Mining of metal ores, except gold and uranium ore
	25000	Other mining and quarrying
	29000	Service activities incidental to mining of minerals
30000		**Manufacturing**
	30000	Manufacture of food products, beverages and tobacco products
	31000	Manufacture of textiles, clothing and leather goods
	32000	Manufacture of wood and of products of wood and cork, (except furniture); manufacture of articles of straw and plaiting materials; manufacture of paper and paper products; manufacture of publishing, printing and reproduction of recorded material
	33000	Manufacture of coke, refined petroleum products and nuclear fuel; manufacture of chemicals and chemical products; manufacture of rubber and plastic products
	34000	Manufacture of non-metallic mineral products
	35000	Manufacture of basic metals, fabricated metal products, machinery and equipment and of office, accounting and computing machinery
	36000	Manufacture of electrical machinery and apparatus (n.e.c.*)
	37000	Manufacture of radio, television and communication equipment and apparatus of medical, precision and optical instruments, watches and clocks
	38000	Manufacture of transport equipment
	39000	Manufacture of furniture; manufacturing n.e.c.; recycling
40000		**Electricity, gas and water supply**
	41000	Electricity, gas, steam and hot water supply
	42000	Collection, purification and distribution of water
50000	**50000**	**construction**
	50000	Construction

SIC code	description of economic activities	
Major division	**Division**	
60000		**Wholesale and retail trade; repair of motor vehicles, motor cycles and personal and household goods; hotels and restaurants**
	61000	Wholesale and commission trade, except of motor vehicles and motor cycles
	62000	Retail trade, except of motor vehicles and motor cycles; repair of personal household goods
	63000	Sale, maintenance and repair of motor vehicles and motor cycles; retail trade in automotive fuel
	64000	Hotels and restaurants
70000		**Transport, storage and communication**
	71000	Land transport; transport via pipelines
	72000	Water transport
	73000	Air transport
	74000	Supporting and auxiliary transport activities; activities of travel agencies
	75000	Post and telecommunication
80000		**Financial intermediation, insurance, real estate and business services**
	81000	Financial intermediation, except insurance and pension funding
	82000	Insurance and pension funding, except compulsory social security
	83000	Activities auxiliary to financial intermediation
	84000	Real estate activities
	85000	Renting of machinery and equipment, without operator, and of personal and household goods
	86000	Computer and related activities
	87000	Research and experimental development
	88000	Other business activities
90000		**Community, social and personal services**
	91000	Public administration, compulsory social security and defence activities
	92000	Education
	93000	Health and social work
	94000	Sewage and refuse disposal, sanitation and similar activities
	95000	Activities of membership organisations n.e.c.
	96000	Recreational, cultural and sporting activities
	99000	Other service activities

Annexure C: Notes on methodology

This report is based on submissions the DST received from companies that reported claims in terms of the R&D tax incentive programme under section 11(d) of the Income Tax Act for the period November 2006 to February 2012. Submissions are captured according to the year of R&D expenditure and activity, as indicated by the companies.

Data is collected in accordance with the requirements of Section 11(d)(11) of the Income Tax Act using a form prescribed by the Department of Science and Technology. The taxpayer completes the form manually and submits it to the DST within six months after the close of their financial year-end. Data is captured in the R&D Tax Incentive Programme database at the DST. At the very least, the form collects information on the following:

- Particulars of the taxpayer, including the industrial activity in which they are involved.
- Summary of R&D activities in terms of the nature of R&D, its classification in terms of fields of science, and supporting information such as R&D documentation, publications and registered patents.
- R&D expenditure and which 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-related R&D.

The data on R&D expenditure distinguishes 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.

Data on tax revenue foregone owing to the R&D tax incentive programme is estimated by 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 until 2009/10 and are inclusive of deductions for both Section 11(d) and section 11 (b). Annual figures are revised from time to time based on retrospective claims.

Annual data stated in the report represent the totals that were available at the time of compiling the report. The data are revised from time to time as claims for previous years are included. The primary reason for this is that companies are allowed to submit their forms years later than their claiming period. Their data will have to be captured appropriately to reflect the year(s) in which the R&D expenditure was incurred.

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 in the report do not unintentionally reveal the details of individual companies and their R&D activities.

The R&D tax incentive database is arranged in a manner that enables reporting according to SIC codes published by Statistics South Africa and the scientific areas of research as defined in the Natural Scientific Professions Act, 2003. These levels of categorisation enable an analysis of the performance of the R&D Tax Incentive Programme in terms of the number of companies benefiting from the incentive, the R&D expenditure supported and the contribution to different areas of impact, for instance the different sectors and industries – including IPAP focus areas – the nature of R&D supported and the research fields, as well as companies' perceptions of how the incentive is influencing their R&D investment behaviour.

The data on R&D output that has been supported require further analysis to articulate the firm-level impact of the incentive in terms of innovation, productivity, company growth and overall employment. The available data also need to be complemented by other information so that the actual impact on these elements can be analysed. A potential limitation of the existing data is that they have partly been collected upfront and therefore represent a perception or estimation of the likely impact. The changes that will be introduced to the incentive in 2012 will enable the collection of some of the information on the changes that occur after the intervention.

The DST will from time to time revise data, analyses and indicators if deemed necessary. Such revisions of data may result from data quality and consistency checks. Any revisions will be published on the R&D tax incentive web page, www.dst.gov.za/r-d.

Annexure D: Summary of Annual Report 2010/11

Between November 2006 and February 2010, a total of 375 companies reported to the DST about their R&D incentive claims. These companies submitted 715 forms to the DST, representing R&D expenditure of R9,6 billion. Of this amount, R3,7 billion was reported for the year 2011/12.

Item	Reported figures	
	2010/11	Overall (Nov 2006 to Feb 2011)
Number of submissions received	303	715
Number of submissions from SMEs	138	296
Total R&D expenditure (R million)	3 730	9 621
Total eligible R&D expenditure (R million)	3 501	8 030
Of which:		
Operational expenditure (R million)	73	7 588
Capital expenditure (R million)	3 428	442
Total R&D personnel involved	7 258	9 551
R&D expenditure in the IPAP clusters	1 735	4 584

The manufacturing sector has been dominant in terms of both the uptake by companies and R&D expenditure.

About R1,7 billion of the R&D that was supported was in the clusters or sectors prioritised by IPAP. This makes up 57,1% of the eligible R&D expenditure. The bulk of this expenditure was in the cluster of plastics, pharmaceuticals and chemicals. This is followed by a cluster which comprises metal fabrication, capital and transport equipment, and then business process servicing.

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(For information on the R&D tax incentive programme go to www.dst.gov.za/r-d)