

Health Research and Development Budget Allocations and Expenditures in South Africa: A Baseline Report

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1. Acronyms

AR	Annual Report
BR	Budget Review
DOH	Department of Health
DST	Department of Science and Technology
DTI	Department of Trade and Industry
ENE	Estimates of National Expenditure
EPRE	Estimates of Provincial Revenue and Expenditure
GDP	gross domestic product
HSRC	Human Sciences Research Council
ICT	information and communications technology
MRC	Medical Research Council
MTBPS	Medium Term Budget Policy Statement
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
NHLS	National Health Laboratory Services
NHRC	National Health Research Committee
NHRD	National Health Research Database
NHRO	National Health Research Observatory
R&D	research and development
RSA	Republic of South Africa
SMME	Small, medium, and micro enterprise

2. Introduction

It is a reality that research and development (R&D) is an important subject matter for informed and effective public policy and programming. There is an assertion that most critical challenges can be solved by increasing the knowledge and understanding of issues and how to deal with them. According to Battelle (2013), there is a relationship between industry creation and political stability, between economic growth and research and development, and between the knowledge creation for innovation and developing the nation. Thus, public and private institutions ought to invest in R&D to ensure evidence generation to inform policies and programmes. Investing in R&D would indicate how much commitment is given to information generation to inform effective policymaking and programming.

This study provides an analysis of R&D public budget and expenditure in South Africa, with a special focus on health R&D. It outlines South Africa's government research agenda and R&D funding trends in all departments generally with a special focus on health R&D funding and trends in the Departments of Health (DOH), Science and Technology (DST), and Trade and Industry (DTI).

3. Methodology

The first phase of the study used documentary review for data collection. This method aimed at finding existing R&D budget and expenditure information in the public sector, including government-funded health research institutes. The exercise encompassed a desktop review of various government sourced documents, including the following budget policy and expenditure documents containing R&D funding information:

- Estimates of National Expenditure (ENE), 2015/16 and 2016/17.
- Budget Review (BR), 2015/16 and 2016/17.
- Medium Term Budget Policy Statement (MTBPS), 2015/16.
- Estimates of Provincial Revenue and Expenditure (EPRE), 2015/16 and 2016/17.

The second phase of the study identified key informants from the DOH, DST, and DTI. Key informant self-administered questionnaires were shared due to the unavailability of officials for physical meetings. Follow-ups were done telephonically and by email to clarify responses received through the completed questionnaires. Unfortunately, DOH officials could not avail themselves for interviews due to the 2016 International AIDS Conference happening in South Africa during the research period. Instead the research team was referred to the department's 2014/15 Annual Report which provided some additional insights on DOH's R&D plans. DTI indicated no involvement in health R&D and thus could not answer most of the research questions asked, and only DST offered input into their plans, experiences, and suggestions for effective financing of R&D in South Africa.

4. Overview of government spending for 2012/13 to 2018/19

Figure 1 below provides a snapshot of consolidated government spending, consolidated health spending, overall R&D spending, and health R&D spending; providing actual expenditure records (2012/13–2015/16) and budget estimates (2016/17–2018/19). All these are in nominal terms (i.e., they have not been adjusted for inflation).

Figure 1. The consolidated expenditure and R&D spending, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

It must be noted this analysis looked at seven financial years, 2012/13 to 2018/19. The first four years provide government actual expenditure on R&D, and the last three years are Medium Term Expenditure Framework (MTEF) estimates. It is very noticeable that the consolidated government spending has been steadily rising overtime going beyond a trillion Rands in recent years. The consolidated government expenditure has increased steadily over the past four years by an average of 9.8 percent from R1 trillion in 2012/13 to R1.4 trillion in 2015/16 in nominal terms. The public spending is also projected to rise by an average of 7.1 percent over the MTEF to R1.7 trillion in 2018/19 in nominal terms. The government has also continued to invest some resources in R&D over time, despite a very small growth (Table 1).

In nominal terms, the consolidated health expenditure has seen a gradual increase of an average of 8.1 percent from R126.5 billion in 2012/13 financial year to R159.4 billion in 2015/16, whilst overall R&D expenditure rose from R8.5 billion to R11.3 billion over the same period. Over the MTEF, the consolidated health expenditure is expected to increase by an average of 8.1 percent to R198.6 billion whilst overall R&D expenditure is expected to rise to R12.5 billion in 2018/19.

5. Introduction to R&D spending in South Africa

Innovation is a concept that basically means finding new convenient ways of doing things, and therefore without proper investment in R&D, innovation is impossible. The South African government has showed interest in innovation by establishing research institutes and commissioning other independent research hubs to do research for it. However, the main issue is whether the government is allocating enough funding for R&D to ensure that its health R&D agenda is implemented.

According to the National Development Plan (NDP), South Africa spent 0.92 percent of its gross domestic product (GDP) on R&D in 2007. The government has set a target in the 2014–2019 Medium Term Strategic Framework (MTSF, 2013) to increase investment in R&D to 1.5 percent of GDP by 2019 (NDP, 2011: 325; MTSF, 2013). However, the Human Sciences Research Council (HSRC) recently found that R&D investment was 0.76 percent of the GDP in 2012/13 (HSRC, 2014), which indicates a decline from the 0.92 percent cited by the NDP in 2007. These findings suggest that R&D investment in South Africa has not yet reached its full potential. Investment in R&D will boost strategic research initiatives and capacity for new innovative knowledge creation with a specific outcome for development.

5.1 Provincial and national departmental R&D activities and budgets

Tables 1 and 2 below present all programmes and budget line-items identified in government budget and expenditure documents. These tables provide R&D figures in both provincial and national documents and contain actual expenditure data for 2012/13 to 2014/15, and budget estimates for the 2016/17–2018/19 MTEF. The 2015/16 figures are presented as revised estimates; they need to be updated and audited in 2016/17. Refer to Appendix 1 for details on what various departments spend their R&D money.

Table 1. National Departmental R&D programmes and budgets 2012/13–2018/19.

Research & Development actual expenditure and MTEF estimates (R' million)									
National Department	Programme	Outcome			Revised	MTEF			MTEF
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	TOTAL
Communications	Communications Policy, Research and Development	5.0	5.7	6.5	5.9	8.5	9.8	11.8	30.1
	Policy and research	29.3	28.3	29.8	31.8	33.0	35.2	37.3	105.5
	Industry Research and Analysis	-	-	-	-	0.2	0.2	0.2	0.6
Cooperative Governance and Traditional Affairs	Research and Information Management	-	-	7.2	7.8	9.0	9.2	10.5	28.7
International Relations and Cooperation	Diplomatic Training, Research and Development	67.5	59.4	60.2	68.7	72.7	77.7	85.3	235.7
National Treasury	Programme Management for Economic Policy, Tax, Financial Regulation and Research	19.4	20.2	20.7	22.1	23.3	24.0	24.9	72.2
	Research	7.5	16.7	11.5	10.9	11.7	12.5	12.1	36.3
Planning, Monitoring and Evaluation	Evaluation and Research	18.1	23.1	22.1	25.3	30.9	30.7	37.9	99.5
	Research and Policy Services	40.3	29.3	49.8	48.4	70.6	82.6	97	250.2
Public Service and Administration	Policy Development, Research and Analysis	2.9	3.2	4.5	5.9	2.6	2.8	3.0	8.4
	Research and Analysis	1.6	1.8	1.8	3.9	4.0	4.3	4.6	12.9
Public Works	Construction Policy Development Programme	18.0	19.1	18.7	25.6	16.2	27.5	29.2	72.9
	Property Policy Development Programme	8.9	13.7	12.6	11.4	12.7	14.0	14.9	41.6
Statistics South Africa	Prog management for Methodology, Standards and Research	4.4	3.1	1.0	4.2	4.3	4.2	4.2	12.7
	Policy Research and Analysis	3.5	4.6	5.1	5.7	5.8	6.4	6.8	19.0
Women	Research and Policy Analysis	3.9	3.8	7.7	5.1	4.5	4.4	4.4	13.3
NDOH	Consolidated R&D	1439.1	1673.6	1847.2	2044.8	2169.5	2242.3	2338.5	6,750.3
Social Development	Social Policy Research and Development	3.7	4.6	3.7	5.2	5.6	5.7	5.9	17.2
Defence and Military Veterans	Management of Strategic Facilities - Research and Development	242.2	294.5	312.7	371.2	386.2	414.7	441.0	1,241.9
Office of the Chief Justice and Judicial Administration	Judicial policy and research	-	1.0	2.1	5.8	7.6	8.1	8.5	24.2
Agriculture, Forestry and Fisheries	Agricultural Research	943.0	950.3	1029.2	803.9	813.0	974.6	1,031.10	2,818.7
	Fisheries Research and Development	52.7	57	58.1	63.4	68.8	70.8	73.4	213.0
Energy	Policy Analysis and Research	11.8	2.3	0.5	1.5	2.4	2.4	2.5	7.3
Environmental Affairs	Oceans and Coastal Research	117.1	95.6	93.0	117.9	135.0	138.1	138.8	411.9
Labour	Research, Policy and Planning	5.3	7.4	6.7	12.0	9.4	13.2	13.5	36.1
Science and Technology	Consolidated R&D	3,229.2	3,819.2	4,117.6	4,516.3	4,570.2	4,635.9	4,745.6	13,951.7
Small Business Development	Policy, Research and Legislation	10.4	13.5	11.7	11.7	18.5	18.7	21.2	58.4
Telecommunications and Postal Services	Economic and Market Analysis	1.9	8.3	6.2	5.9	4.7	4.8	5.2	14.7
	Research	5.1	6.0	4.0	5.4	6.0	6.6	7.0	19.6
Tourism	Research and Knowledge Management	17.7	20.0	22.1	29.9	26.4	27.3	28.5	82.2
Trade and Industry	Consolidated R&D	429.2	403.1	476.3	486.1	491.7	582.5	589.3	1,663.5
Transport	Research and Innovation	7.9	7.4	14.1	13.1	13.7	14.1	14.8	42.6
TOTAL		6,746.6	7,595.8	8,264.4	8,776.8	9,038.7	9,505.3	9,848.9	28,392.9

Source: ENE 2015/16 and 2016/17; Budget Review 2016.

Table 2. Provincial Departmental R&D programmes and budgets 2012/13–2018/19.

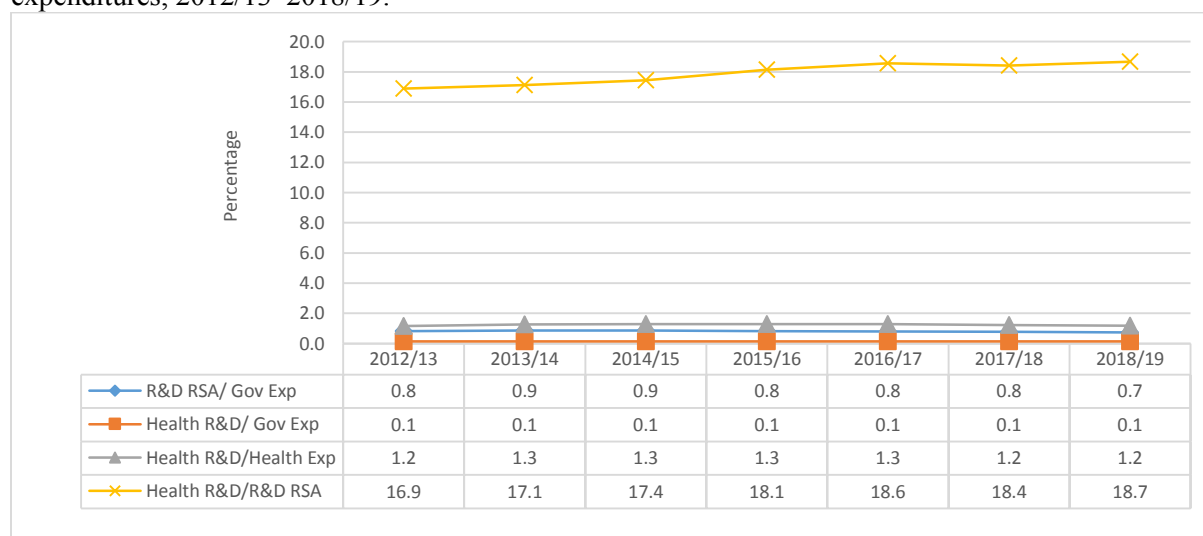
Province	Research & Development actual expenditure and MTEF estimates (R' million)										
	Department	Programme	Sub-Programme	Outcome				MTEF			MTEF TOTAL
				2012/13	2013/14	2014/15	Revised 2015/16	2016/17	2017/18	2018/19	
EC	Health		Research & development	579,964	650,152	726,252	740,647	799,467	880,304	923,217	2,602,988
	Social Development		Research & development	227,866	256,339	276,934	301,396	316,310	333,407	352,745	1,002,462
	Rural Development and Agrarian Reform	Research and Technology Development Services	Research	90,186	112,903	99,605	131,161	145,841	141,651	170,929	458,421
	Office of the Premier	Planning, Policy Coordination, monitoring and evaluation	Policy Planning and Research Co-ordination	75,511	74,803	60,815	58,341	53,975	54,470	56,554	164,999
	Provincial Legislature	Parliamentary Services	Research Services	15,047	15,235	16,368	17,696	18,727	19,361	20,484	58,572
	Human Settlements	Housing needs, research and planning	Research	6,239	6,308	6,297	4,684	4,796	4,574	4,883	14,253
	Safety and Liaison	Civilian Oversight	Policy and Research	-	-	934	2,131	2,547	2,809	2,972	8,328
FS	Social Development		Research & development	93,481	112,178	99,126	113,673	132,712	124,521	132,028	389,261
	Agricultural and Rural Development	Technology, Research And Development Services	Research	17,160	23,902	21,312	23,773	25,970	28,091	30,122	84,183
	Police, Roads and Transport	Administration	Strategic Planning & Research Development	7,350	5,491	4,558	4,400	4,118	4,028	4,240	12,386
	Human Settlements	Housing Needs, Research & Planning	Research	-	-	-	-	1,061	1,126	1,185	3,372
GP	Economic Development	Economic Planning	Research & Development	4,809	6,721	8,076	6,500	7,500	9,236	9,772	26,508
	Social Development		Research & Development	227,818	288,581	362,286	417,381	454,461	486,502	514,719	1,455,682
	Human Settlements		Research	-	49	21	3,805	4,007	4,207	-	8,214
	Community Safety	Civilian Oversight	Policy & Research	5,569	6,081	21,531	8,672	8,550	8,943	9,462	26,955
KZN	Agriculture	SA Sugarcane Research Institute	Research	25,475	22,673	33,172	54,401	39,699	41,865	44,293	125,857
	Agriculture	Research and Technology Development Services	Research	1,439	1,197	918	2,557	2,242	2,354	2,472	7,068
	Economic Development, Tourism and Environmental Affairs	Economic Planning	Research and Development	6,227	8,538	10,688	12,093	15,499	16,360	17,309	49,168
	Human Settlements	Housing needs, Research and planning	Research	5,481	5,922	6,946	8,695	7,738	8,180	8,643	24,561
	Community Safety and Liaison	Civilian Oversight	Policy and Research	935	1,294	3,867	3,700	3,969	4,068	4,304	12,341
	Social Development		Research and Development	162,613	230,827	237,315	184,057	227,140	238,566	254,133	719,839
	Safety, Security and Liaison	Civilian Oversight	Policy and Research	2,847	3,600	2,805	3,309	4,999	5,335	5,617	15,951
MP	Social Development		Research and Development	134,527	157,995	156,234	170,524	180,251	179,609	190,027	549,887
	Agriculture, Rural Development, Land And Environmental Affairs	Research and Technology Development Services	Research	19,301	17,891	21,957	28,103	36,844	24,412	29,927	91,183
	Economic Development And Tourism	Economic Planning	Research and Development	1,478	1,126	1,141	588	708	2,314	2,465	5,487
	Community Safety, Security And Liaison	Civilian Oversight	Policy and Research	5,154	3,290	3,249	3,489	4,468	5,345	5,655	15,468
	Social Development		Research and Development	106,659	126,159	122,057	142,119	196,335	142,445	162,414	501,194
	Social Development	Non-Governmental Organizations	Research and Development	17,471	15,941	23,193	37,540	45,454	18,971	20,521	84,946
	Human Settlements	Housing needs, Research and planning	Research	1,565	1,666	1,454	1,185	2,634	2,630	2,668	7,932
NC	Social Development		Research & development	79,177	112,300	106,677	124,995	124,196	127,285	134,234	385,715
	Agriculture, Land Reform And Rural Development	Research & Technology Development services	Research	20,446	21,980	25,477	26,537	28,988	30,416	32,152	91,556
	Environment and Nature conversation		Research & development	4,823	4,185	4,753	4,872	5,149	5,407	5,915	16,471
	Civilian Secretariat		Policy and Research	1,767	1,832	2,027	2,109	2,225	2,336	2,756	7,317
NW	Economic Development	Economic Planning	Research and Development	2,415	2,342	3,991	3,420	3,680	3,864	4,024	11,568
	Provincial Legislature	Legislature Operations	Library, Research & Information Services	2,820	2,294	2,260	2,364	2,489	2,613	2,832	7,934
	Community Safety and Transport	Civilian Oversight	Policy and Research	-	-	3,724	311	4,118	4,365	4,482	12,965
	Economy and Enterprise Development	Economic Policy	Research and Development	1,394	1,954	1,355	1,733	1,825	1,917	2,215	5,957
	Education and Sports Development	Administration	Human Research Development	6,557	6,242	16,471	15,952	17,230	19,610	20,952	57,792
	Local Government And Human Settlements	Housing needs, planning and research	Research	15,402	91,719	62,735	23,273	24,689	27,224	29,352	81,265
	Tourism	Tourism Planning	Research and Development	6,619	7,170	11,984	3,961	6,117	6,379	6,824	19,320
WC	Social Development		Research and Development	105,549	96,144	123,285	142,144	152,932	180,579	199,852	533,363
	Rural, Environment And Agriculture	Research And Technology Development Services	Research	14,514	49,040	47,520	56,475	62,147	80,255	91,578	233,980
	Community Safety	Civilian Oversight	Policy and Research	6,261	7,887	9,028	9,558	9,651	10,079	10,589	30,319
	Social Development		Research and Development	46,721	51,558	68,342	79,661	47,830	40,595	43,763	132,188
	Human Settlements	Housing needs, research and planning	Research	13,966	14,605	17,067	21,215	21,493	24,084	24,923	70,500
		Water Research Commission		-	-	-	500	-	-	-	0
	Environmental affairs and development	Environmental policy, planning and coordination	Research and development support	4,850	4,938	6,824	7,573	6,605	7,271	5,592	19,468
TOTAL	Agriculture	Research and Technology Development Services	Research	54,645	60,341	64,896	72,401	70,668	72,760	76,856	219,684
	Economic development and Tourism	Economic planning	Research and Development	1,697	14,159	21,377	5,449	3,291	3,521	3,717	10,529
TOTAL				2,354,253	2,829,440	3,053,662	3,230,746	3,443,121	3,556,409	3,806,356	10,805,886

Source: EPRE 2015/16 and 2016/17

6. General and health R&D investments

The consolidated (provincial and national) government R&D expenditures have been steadily growing from R8.5 billion in 2012/13 to R11.7 billion in 2016/17. The budget is estimated to increase to R12.7 billion in 2018/19. In 2013/14, the total R&D expenditure grew by 15 percent, whilst in the recent years it is planned to grow at a much slower pace, with the budget having grown by 4 percent in 2016/17, and is estimated to grow by 4.5 percent in 2018/19. These estimated growth rates are below the estimated average inflation rate of 6 percent, indicating that the budgets are not enough to cover real costs, and that funding is not sufficient to expand on the current R&D plans because the funding will not allow it.

Figure 2. The percentage share of overall R&D and health R&D in consolidated health and government expenditures, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

Having seen the increasing allocations for government expenditure, it is important for one to understand how much financial commitment is given to overall R&D and health R&D programmes as part of the overall government expenditure. We can determine this commitment by calculating the share of R&D expenditure in consolidated government spending. On average, overall R&D expenditure accounted for 0.8 percent of the total government expenditure whilst health R&D expenditure constituted an average of 0.1 percent in consolidated government spending for the 20015/17–2018/19 period. This means that even though R&D budget figures may be increasing in absolute terms, their share in the total government spending is not increasing.

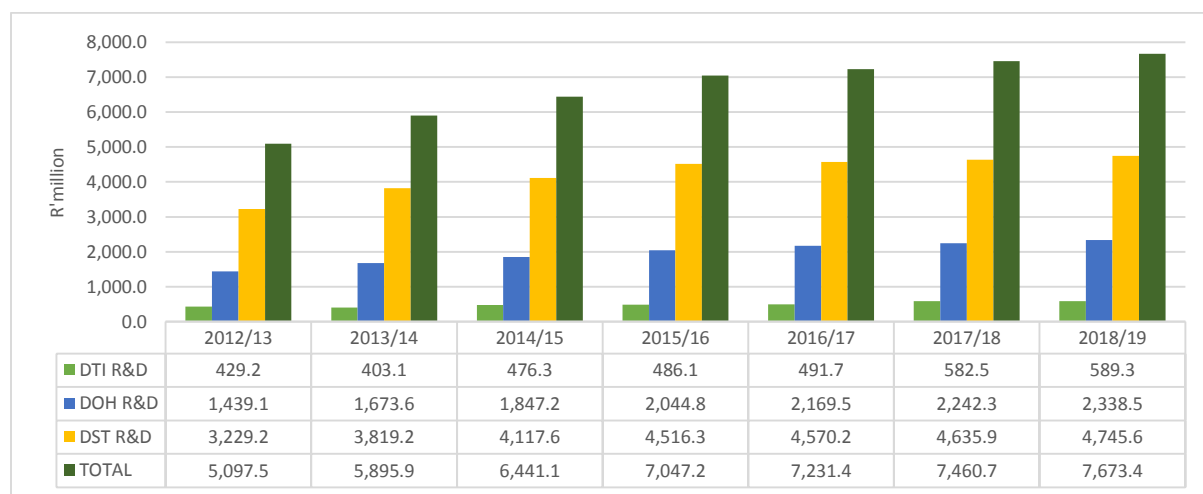
According to the South African 2016 Budget Speech, for local firms to boost output and remain competitive, the economy requires greater investment, and research and development, particularly in fast-growing and emerging sectors (National Treasury, 2016). However, the pace at which the overall R&D and health R&D is increasing is not keeping up with the general government expenditure. The share of overall R&D as a proportion of consolidated government expenditure has been generally decreasing over the years in nominal terms. The overall R&D share in government expenditure was 0.8 percent in 2012/13 and has been stagnant over the past four financial years, and is expected to decrease by 0.1 percent to 0.7 percent in 2018/19.

The health R&D has also been at 0.1 percent of the consolidated government expenditure since 2012/13 and is still estimated to remain the same over the MTEF period. Health R&D expenditure is expected to decline as a share in consolidated health expenditure from 1.3 percent in 2016/17 to 1.2 percent in 2017/18. This raises questions of whether there will be enough resources to advance health policy and to improve health programmes. Interestingly, health R&D expenditure is planned to increase as a share of general R&D expenditure, from 18.6 percent in 2016/17 to 18.7 percent in 2018/19. However, a slight decline of 0.3 percent in the share is expected for 2017/18, showing inconsistency in resource allocation for health R&D.

7. In-depth analysis of R&D spending in the NDOH, DST, and DTI

Government R&D spending has increased in nominal terms in DST, DOH, and DTI. Figure 3 shows that in 2012/13, the total R&D expenditure for these three departments was R5.1 billion and increased to R7.0 billion in 2015/16. Expenditure is expected to increase to R7.7 billion in 2018/19. The same pattern is observed in all three departments with an increase in R&D expenditure from 2012/13 to 2015/16. The three departments are also expecting an increase in their R&D expenditure over the MTEF period.

Figure 3. Government expenditure on R&D in DST, DTI & DOH, 2012/13–2018/19.

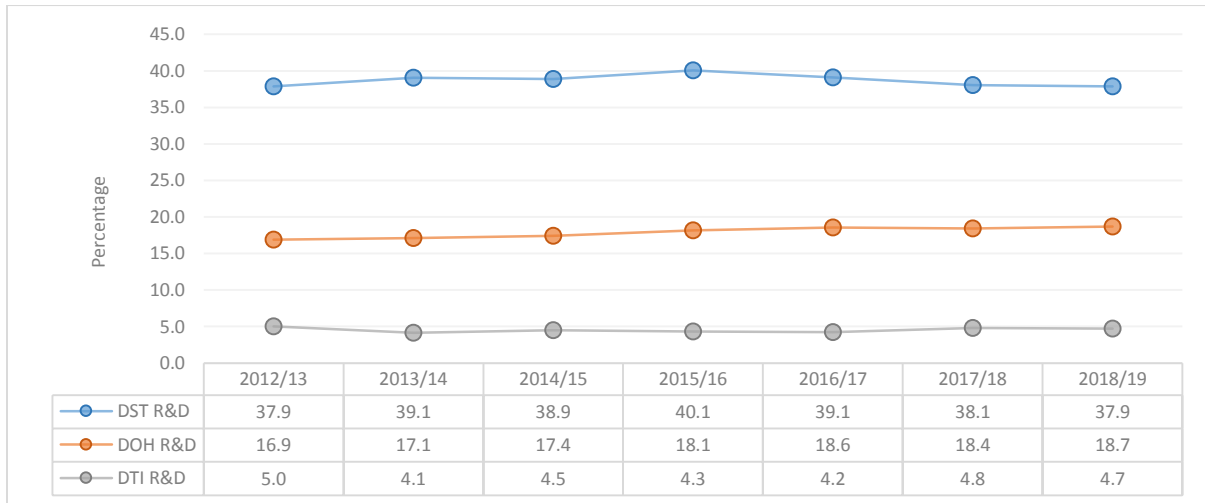


Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016

Figure 4 depicts the proportion of departmental R&D in the overall R&D expenditure in South Africa. Amongst the three departments, the DST shares the largest proportion of the overall R&D expenditure. This is followed by the DOH and then the DTI. DST R&D expenditure as the share of overall R&D increased from 37.9 percent in 2012/13 to 40.1 percent in 2015/16. However, this proportion is expected to fall to 37.9 percent over the MTEF period. The DOH share has seen a marginal increase in the overall R&D expenditure from 2012/13 to 2015/16, whilst DTI has faced a decline. The DOH share increased by

0.5 percent to 18.6 percent from 2015/16 to 2016/17, whilst on the other hand, the DTI share in the total R&D expenditure decreased from 4.3 percent in 2015/16 to 4.2 percent in 2016/17.

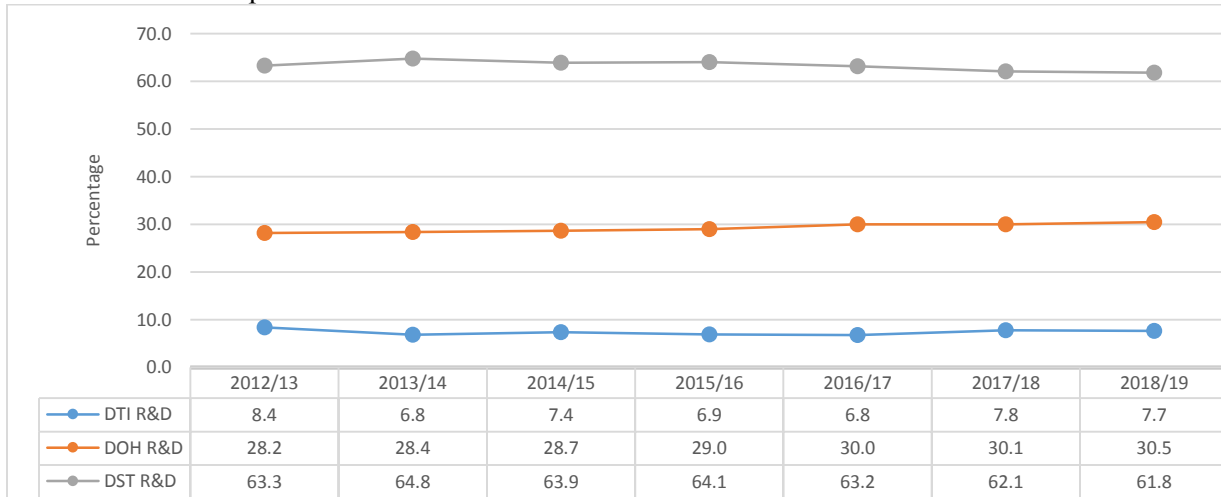
Figure 4. The share of DST, DOH, and DTI departmental R&D spending in overall R&D expenditure, 2012/13 -2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

Figure 5 below shows that DST takes the largest share of the R&D expenditure, above 60 percent, and is expected to stay the same over the MTEF. DOH takes the second largest share in the R&D expenditure and the least expenditure share is taken by DTI. It must be pointed out that the share of DOH R&D expenditure is expected to increase by 0.5 percent in 2018/19 whilst DTI and DST will see a slight decline in its share of R&D allocations in the medium term.

Figure 5. Shares of DST, DTI, and DOH R&D budget and expenditure in the three departments' 2012/13–2018/19 expenditures.

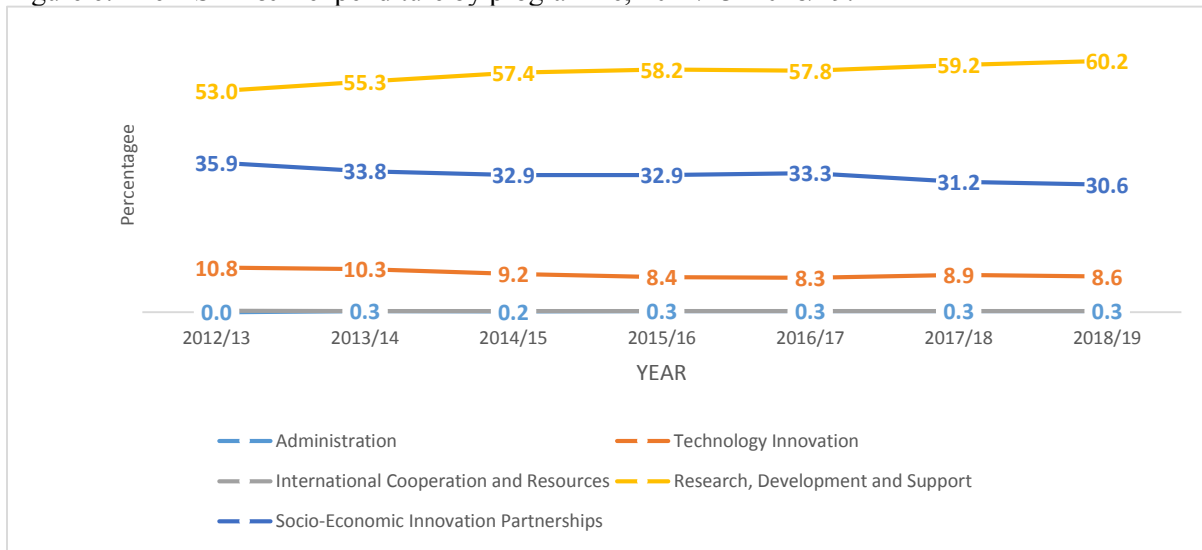


Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

7.1 Department of Science and Technology (DST) R&D specific expenditure

Figure 6 shows the R&D expenditure of the DST by programme over a seven-year period. Out of the total R&D expenditure of DST, the Research, Development and Support Programme receives more than half of the department's R&D budget. Noticeably its share in DST R&D expenditure is increasing overtime, from 53 percent in 2012/13 to 57.8 percent in 2016/17, and is expected to rise to 60.2 percent in 2018/19. The second largest share in the DST R&D budget is received by Socio-Economic Innovation Partnership which has received more than 30 percent of the budget from 2012/13. The least expenditure share is received by Administration which is below one percent and is probably spent on office administration costs. It must be noted that the share of Research, Development and Support Programme has been increasing and is estimated to continue increasing over the MTEF. This increase is happening at an expense of the Socio-Economic Innovation Partnership, which is decreasing in the same period.

Figure 6. The DST R&D expenditure by programme, 2012/13–2018/19.

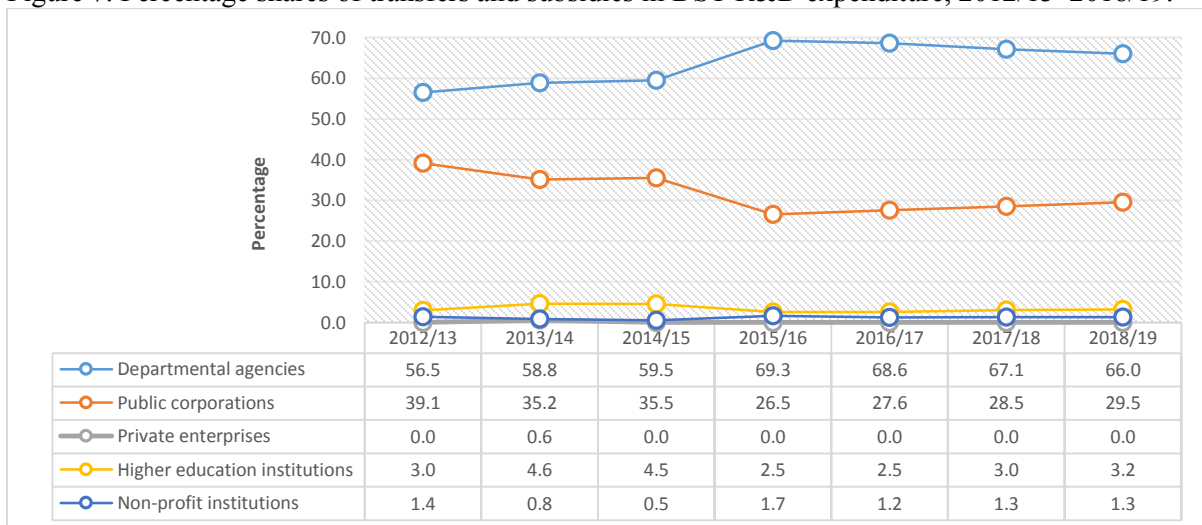


Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

Note: The Administration and International Cooperation and Resources lines are combined in the graph above, as they have similar values.

Figure 7 illustrates the DST R&D expenditure by transfers and subsidies they make to their research spending agencies and other institutions that get R&D grants. The figure shows that the department makes most of its R&D expenditure allocation to their own research agencies. Private enterprises receive the least of DST R&D budget allocations, which seem to fade away as the department is increasing its spending through its own agencies.

Figure 7. Percentage shares of transfers and subsidies in DST R&D expenditure, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

7.1.1 Additional information from the DST

The department's mandate of implementing the national research and development strategy aims at making science and technology a driving force in enhancing productivity, economic growth, and socioeconomic development. Over the medium term, the department is assigned to focus on a number of activities, which are aligned to the NDP. To achieve its mandate, a modelling exercise has been undertaken by the department in an effort to work toward achieving the government target of raising gross expenditure on R&D to 1.5 percent of GDP by 2019. The department is cognisant of the fact that more resources are needed to reach the set target. Thus, an additional investment of R115 billion is required to increase R&D from the current level of 0.76 percent to the set target. However, the cabinet has approved budget reductions in the Technology Innovation programme, the Research, Development and Support programme, and the Socio-Economic Innovation Partnerships programme, totalling an amount of R414 million over the MTEF as part of national government's decision to reduce national aggregate expenditure ceiling. In a much needed boost of the financial resources to reach the NDP target of 1.5 percent, the department will contribute R13.2 billion over the medium (2016/17–2018/19).ⁱ

When asked about the implications of the reduction of the budget for R&D programmes, the department's representative responded, stating that:

According to the 2017 MTEF Guidelines sent to all departments by National Treasury, the 2017 Budget is being prepared within tight fiscal constraints, with no additional resources available for allocation. Therefore, institutional priorities will be funded within current aggregate expenditure ceilings.

The private sector must actively play its part, and should invest more in R&D—including health R&D—to realise the NDP target.

With innovation being one of the game changers in long term economic growth, the department emphasises the importance of more investment on its Technology Innovation programme, which funds energy, security, poverty alleviation, and health care activities. Over the medium term (2016/17–2018/19), R436 million is allocated for bio-innovation in health, industrial, and agricultural sectors. In addition, the South African National AIDS Council is allocated R45 million to support its HIV/AIDS research activities over the medium term.ⁱⁱ

7.2 Department of Health (DOH) R&D specific expenditure

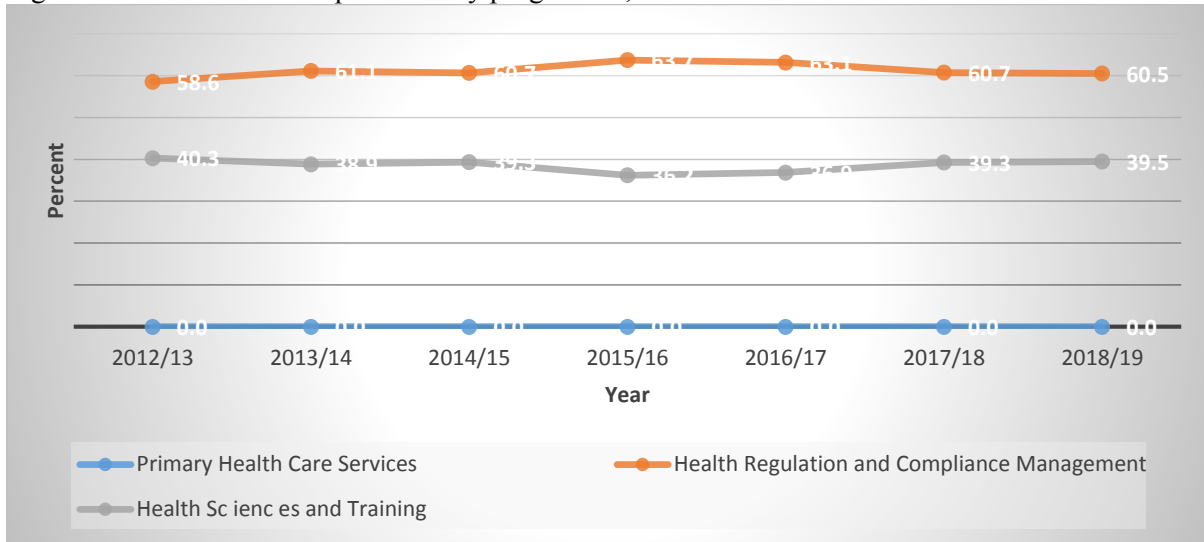
Figure 8 shows the DOH R&D expenditure by programme in the 2012/13–2018/19 period. Amongst the three DOH R&D programmes, Health Regulation and Compliance Management takes the largest proportion of DOH R&D expenditure. The second largest share is taken by Health Science and Training and the smallest amount (about R500 000 per year) supports research in the Primary Health Care Services programme. The proportion of Health Regulation and Compliance Management has increased by 5.1

ⁱ Information from an R&D Manager at the Department of Science and Technology, July 2016.

ⁱⁱ Ibid.

percent to 63.7 percent in 2015/16; however, it is expected to fall slightly over the MTEF as the Health Sciences and Training share picks up slightly from a decline in 2015/16 and 2016/17.

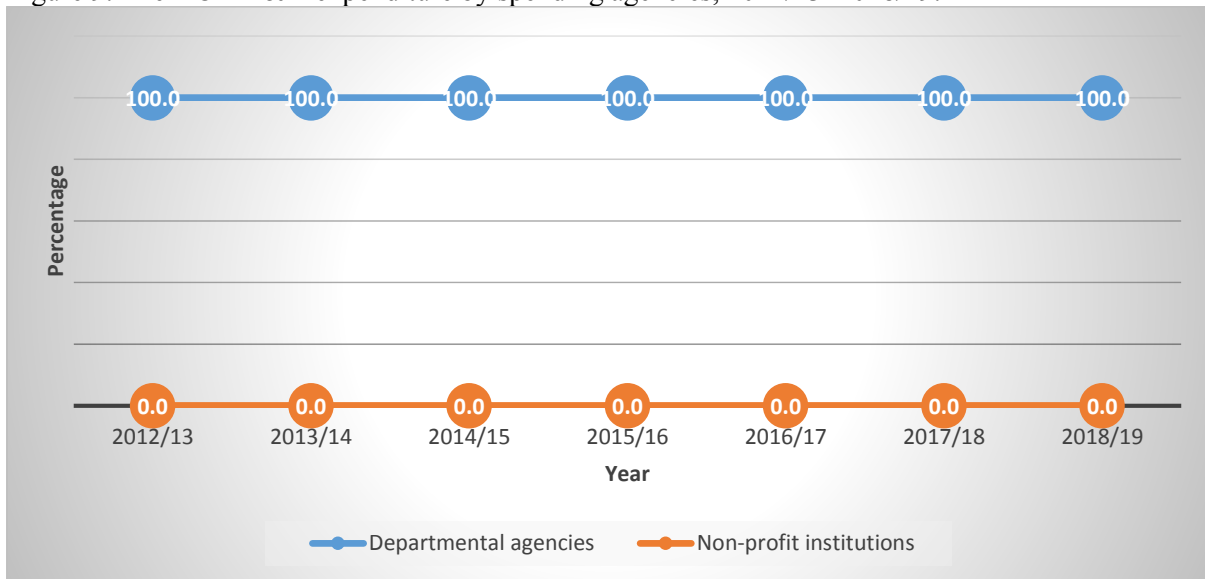
Figure 8. The DOH R&D expenditure by programme, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

Figure 9 depicts the DOH R&D expenditure by their departmental transfers and subsidies. Noticeably, almost all of their R&D expenditure transfers and subsidies are received by their departmental agencies. There is less than 0.1 percent transfers and subsidies that are made to nonprofit institutions, which is not a significant share in the DOH R&D expenditure. The same patterns are expected over the MTEF period. The South African Medical Research Council (MRC) and the National Health Laboratory Services (NHLS) receive almost all the R&D transfers from the DOH.

Figure 9. The DOH R&D expenditure by spending agencies, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; EPRE 2015/16 and 2016/17; Budget Review 2016.

7.2.1 Review of the 2014/15 NDOH Annual Performance Report

Attempts were made to gather additional information through interviews with the Research Office of the National Department of Health. However, this exercise coincided with the 2016 International AIDS Conference period, and senior managers of R&D in the health department were not available to respond. Instead, the 2014/15 DOH Annual Report (AR) was sought and analysed to identify health R&D trends and updates. The AR indicated that various R&D activities were taking place through government and its research partners. The Health Information Management, Monitoring and Evaluation subprogramme of the National Health Insurance, Health Planning and Systems Enablement Programme develops and maintains a national health information system; commissions and coordinates research; develops and implements disease surveillance programmes; and monitors and evaluates strategic health programmes to inform planning and resource allocation.

Reportedly the National Health Research Committee (NHRC) has led the development of the draft National Research Strategic Plan for 2015–2030. In addition, the 2014/15 AR outlined the key functions of the National Research Strategic Plan for 2015–2030 as sustainable financing of health research; strengthening human resources capacity; the development of infrastructure to conduct health research at all levels of the national health system; and effective translation of research findings into policy, programmes, and practice. This is important in that the health department’s research provides good direction and implementable recommendations to advance quality health service delivery.

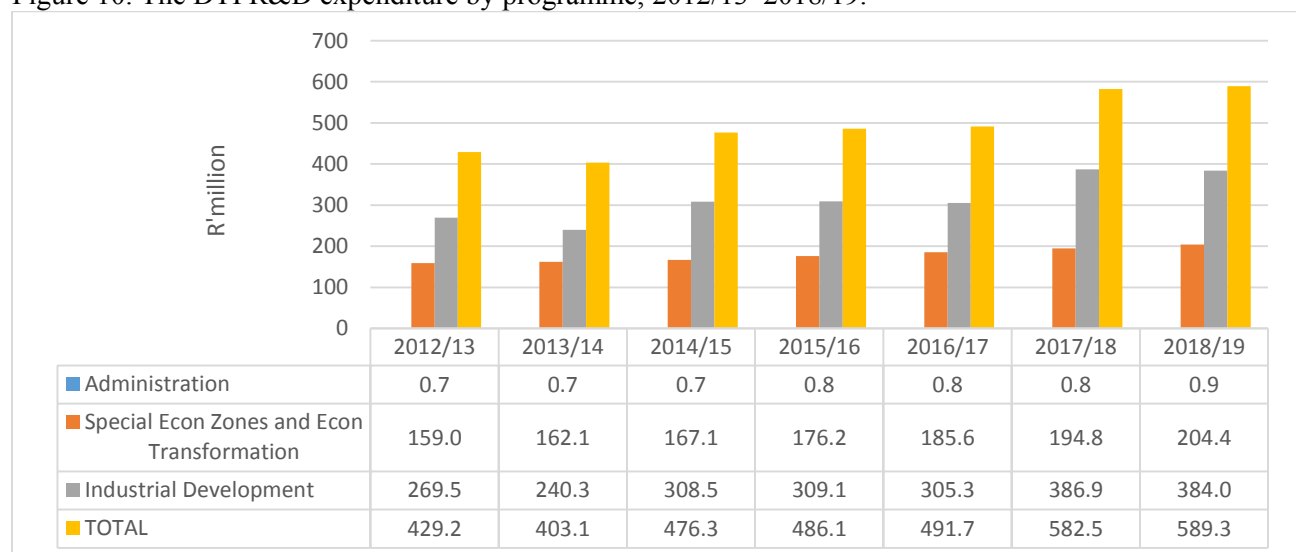
The 2014/15 AR also reports that a concept paper and business plan for the establishment of the National Health Research Observatory (NHRO) was developed. This plan creates a structure and a platform that provides knowledge and intelligence on health research conducted in South Africa. It seeks to map out health research trends by disease and geography; monitor funding and impact; and assist in identifying gaps, inequities, and priorities. It is also reported that as part of the NHRO development, the National

Health Research Database (NHRD) was launched on 29 October 2014. The NHRD is a single-source database for all health research conducted in South Africa. It generates knowledge and understanding of health and disease-related research in South Africa in terms of researchers' details, where the research is conducted, the allocated budget, and alignment with national health priorities. The information is reportedly used to monitor national research trends; map health research types, expenditures, and funding; as well as identify research gaps and inefficiencies in research. The Observatory is quite new and requires to be closely monitored to ensure regular updating and use of its contents for decision-making around health R&D planning, financing, and implementation. Further research work is needed to examine the contents of the NHRD especially with regard to spending on health R&D in South Africa.

7.3 Department of Trade and Industry (DTI) R&D specific expenditure

Figure 10 illustrates the DTI R&D expenditure across three departmental programmes. The Industrial Development Programme takes the largest share of the DTI R&D expenditure, followed by the Special Economic Zones and Economic Transformation Programme. The least funded programme is Administration, which understandably should cater to the administration costs of running the R&D activities. Notably the Industrial Development Programme budget fluctuates from year to year. The opposite trend has been realised in the Special Economic Zones and Economic Transformation Programme where the budget has increased year to year.

Figure 10. The DTI R&D expenditure by programme, 2012/13–2018/19.



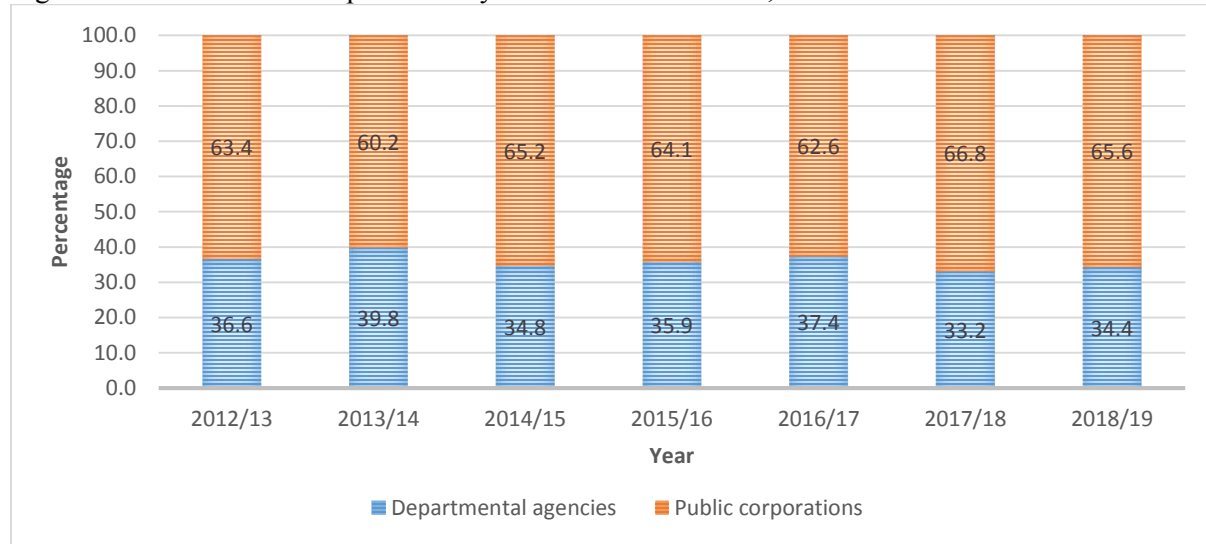
Source: ENE 2015/16 and 2016/17; Budget Review 2016.

Note: The Administration bar is not visible as it amounts to less than one.

Figure 11 below shows the DTI R&D expenditure by spending agencies. The largest share of the departmental transfers and subsidies is taken by public corporations while departmental agencies receive a relatively low share in transfers and subsidies. The public corporations share has seen slight increases

from 2012/13 to 2015/16 and it is expected to continue to rise over the MTEF. Departmental agencies receive a decreasing share in the DTI R&D budget over the years.

Figure 11. The DTI R&D expenditure by transfers and subsidies, 2012/13–2018/19.



Source: ENE 2015/16 and 2016/17; Budget Review 2016.

7.4 Additional information from the Department of Trade and Industry (DTI)

The DTI has various programmes aimed at advancing R&D work in South Africa. However, almost 95 percent of the available R&D funding is spent through commissioned studies. Very little money is spent by the department directly. As part of its overall mandate, the department spends on four key priorities: increased manufacturing incentives, industrial spatial development, investment facilitation, and supporting exports. Various departmental agencies support the work of the department through carrying out education, research, and policy development to achieve national priorities. Unfortunately, the key informant on behalf of DTI could not answer most questions and indicated that various units in the department have their own research agendas and budgets. These agendas need to be followed up on in order to have a clear picture of this department’s spending trends and implementation of its R&D agenda.

8. Conclusion and recommendations

The South African government has demonstrated its commitment to innovation through nominal financial allocations in different ministries and programmes—at both national and provincial levels. Despite the fluctuating allocations for R&D in some ministries and programmes, overall R&D spending in the public sector will increase from R11.7 billion in 2016/17 to R12.7 billion in 2018/19, having seen a promising increase from R8.5 billion four years ago. Health R&D has also seen a minimal increase overall from

R1.4 billion in 2012/13 to R2.2 billion in 2016/17, as well as some fluctuations between DOH R&D programmes. However, it is concerning that there is no real increase in the health R&D spending in the medium term. The DOH R&D allocation increases by a mere four percent on average, which is below a six percent inflation rate, and thus reduces the purchasing power of the Rand.

Moving forward, the government should assess its budget commitment to R&D and calculate if the allocations meet the R&D needs of the public sector. Additional resources should be made available to enhance evidence generation and innovation in order to design and implement sound policies and effective programmes. The government should also measure contributions of other sectors, such as donors and the private sectors, in R&D to ensure that its investments cover the high priority needs and plan to sustain R&D efforts should the other sources of R&D funding run dry.

Additional in-depth assessments are needed to get a deeper understanding of where R&D funding is spent in the South African public sector, what drives such spending, and what are the results of such spending. Additional research is required specifically within the three focus departments of this R&D resource tracking exercise (i.e., DOH, DTI, and DST) with the DOH needing a further examination of its National Health Research Observatory and Database (NHRO and NHRD).

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10. Appendix 1

Below please find descriptions of R&D activities funded by various government ministries and departments.

10.1 Department of Communication and Postal Services

The *Policy and Research Programme* conducts research to assess how the government should address the public's information needs, monitors media coverage of issues affecting government and the country, provides analyses on how the media interprets government policies and programmes, formulates policy proposals where they are required, and assesses public perceptions in relation to government performance.

10.2 Department of Cooperative Governance and Traditional Affairs

The *Research and Information Management Programme* provides anthropological research for the department and entities, research support for entities, and develops and maintains the traditional affairs information management system.

10.3 Department of National Treasury

The *Research Programme* promotes economic research institutions through the funding of economic research in the public interest, as well as more dedicated research on behalf of the department. This includes promoting the research capacity of local academic researchers in areas such as economic growth, job creation, macroeconomic stability, poverty alleviation, retirement reform, and financial sector development.

10.4 Department of Planning, Monitoring and Evaluation

The *Evaluation and Research Programme* conducts evaluation and policy research in support of the government-wide monitoring and evaluation system. The *Research and Policy Services* subprogramme manages and facilitates research and policy processes on long-term developmental issues and provides technical support to the National Planning Commission.

10.5 Department of Public Service and Administration

The *Research and Analysis Programme* researches and reports on national and international trends and best practices related to public administration and analyses performance in sector departments.

10.6 Statistics South Africa

The *Programme Management for Methodology, Standards and Research* provides strategic direction and leadership to the programme. The *Policy Research and Analysis* programme provides integrated statistical advice and support for policy planners and development practitioners and participates in knowledge research and innovation on key development themes.

10.7 Department of Woman

Research and Policy Analysis manages the research agenda and conducts policy analysis to intervene and influence the socioeconomic empowerment of women and the promotion of gender equality.

10.8 Department of Social Development

Social Policy Research and Development provides strategic guidance in terms of evidence-based social policy development, coordination, and evaluation.

10.9 Office of the Chief Justice and Judicial Administration

Judicial Policy and Research provides advisory opinions on policy development, undertakes research, and offers legal support services to enhance the functioning of the judiciary.

10.10 Department of Agriculture, Forestry and Fisheries

Agriculture Research manages monthly transfers to Agricultural Research Council. *Fisheries Research and Development* ensures the promotion of the sustainable development of fisheries resources and ecosystems by conducting and supporting appropriate research.

10.11 Department of Energy

Policy Analysis and Research develops key indicators and monitors the impact of energy sector policies, planning, and interventions; analyses all energy policies and their impact on access to energy and security of energy supply; conducts research and analyses policies in relation to other countries; and conducts research and analysis on national and international trends or developments that impact on the demand and supply of energy.

10.12 Department of Environmental Affairs

Oceans and Coastal Research monitors and undertakes scientific investigations on marine and coastal ecosystems, ocean dynamics, ecosystem functioning, and marine biodiversity to improve the understanding and management of ocean and coastal ecosystems.

10.13 Department of Labour

Research, Policy and Planning researches and monitors working conditions and policies affecting labour markets in South Africa.

10.14 Department of Small Business Development

Policy, Research and Legislation produces reliable information for policy formulation on SMMEs and cooperatives support.

10.15 Department of Telecommunication and Postal Services

Research is responsible for understanding the information and communications technology (ICT) landscape and delivering a national ICT strategy. *Economic and Market Analysis* conducts economic analyses of the telecommunications, postal, and information technology sectors to determine trends and make growth projections. This subprogramme also undertakes market research to explore areas that require policy intervention and is responsible for the reduction of the cost to communicate.

10.16 Department of Tourism

Research and Knowledge Management monitors and evaluates tourism policies and strategies and the projects carried out by the department; and facilitates research, information, and knowledge management in the tourism sector.

10.17 Department of Public Works

Construction Policy Development Programme creates an enabling environment for transforming the construction industry by developing appropriate legislation and implementing monitoring mechanisms for the sector. This subprogramme aims to facilitate the transformation and regulation of the construction industry for economic growth and development. *Property Policy Development Programme* provides leadership and guidance on the transformation of the property industry.