



Department of Science and Technology



Statistics South Africa



Human Sciences Research Council

**CeSTII SURVEY OF RESEARCH & EXPERIMENTAL DEVELOPMENT (R&D) INPUTS
SCIENCE COUNCILS/ GOVERNMENT/ NOT-FOR-PROFIT 2004/5 FINANCIAL YEAR**

Organisation	Modify address label if necessary

AUTHORITY

The Centre for Science, Technology and Innovation Indicators (CeSTII), within the Knowledge Management Programme of the Human Sciences Research Council (HSRC), conducts the Survey of Inputs into Research and Experimental Development (R&D) for the Department of Science and Technology (DST). The Survey is a component of Official Statistics, as defined in the Statistics Act No. 6 of 1999, and all data gathered for this survey is confidential. The HSRC and DST will not disseminate any information identifiable with an organisation without their consent.

PURPOSE AND SCOPE OF SURVEY

The R&D survey collects data on the inputs into R&D activities performed **IN-HOUSE** in South Africa by all organisations (Including Business, Government, Science Councils, Not-for Profit and Higher Education). The data is used for planning and monitoring purposes and for measuring international competitiveness. Previous survey results may be viewed at www.hsrc.ac.za/RnDSurvey. This survey covers the Financial Year 1 March 2004 to 28 February 2005 (or your nearest complete financial year).

DUE DATE

Kindly complete and return this form as soon as possible, but no later than **7 October 2005** to **R&D Survey, Private Bag X2, Vlaeberg 8018**.

ASSISTANCE

To assist you with queries kindly contact one of the survey managers:

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Person completing this form:

Name (Print please)	
Designation	
Signature	
Date	

Tel	()
Fax	()
Cell	()
E-mail	

**THE FOLLOWING DEFINITIONS ARE IMPORTANT IN THE COMPLETION OF THE SURVEY
QUESTIONNAIRE: WHAT IS R&D?**

Definition

This survey follows the approach of the Organisation for Economic Co-operation and Development (OECD), which defines Research and Experimental Development (R&D) as:

- **Research** is creative work and original investigation undertaken on a systematic basis to gain new knowledge, including knowledge of humanity, culture and society.
- **Development** is the application of research findings or other scientific knowledge for the creation of new or significantly improved products, services or processes.

The basic criterion for distinguishing R&D from related activities is the presence in R&D of an appreciable element of novelty and the resolution of scientific and/or technological uncertainty, i.e. when the solution to a problem is not readily apparent to someone familiar with the basic stock of commonly used knowledge and techniques in the area concerned.

For example investigating electrical conduction in crystals is basic research; application of crystallography to the properties of alloys is applied research. New chip designs involve development. Investigating the limiting factors in chip element placement lies at the border between basic and applied research. Much business R&D involves development.

R&D Includes – but is not limited to:

Activities of personnel who are obviously engaged in R&D. In addition include:

- The provision of professional, technical, administrative or clerical support and/or assistance to personnel directly engaged in R&D
- Management of personnel who are either directly engaged in R&D or are providing professional, technical or clerical support to those performing R&D
- Software development where the aim of the project is the systematic resolution of a scientific or technological uncertainty
- Research work in the biological, physical and social sciences, and the humanities
- Social science research including economic, cultural, educational, psychological and sociological research
- Research work in engineering and the medical sciences
- R&D projects performed for other parties
- “Feedback R&D” directed at solving problems occurring beyond the original R&D phase, for example technical problems arising during initial production runs.

R&D Excludes:

The following ROUTINE activities are excluded, except where they are an essential part of in-house R&D activity:

- Scientific and technical information services
- Engineering and technical services
- General purpose or routine data collection
- Standardisation and routine testing
- Feasibility studies (except into R&D projects)
- Specialised routine medical care, for example routine pathology services
- The commercial, legal and administrative aspects of patenting, copyrighting or licensing activities
- Routine computer programming, systems work or software maintenance where there are no technological uncertainties to be resolved.

PART 1: GENERAL INFORMATION

1. Parent Organisation / Department

2. Name of Organisation / Unit

3. Number of employees (include staff on contract for six months or longer)

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4. Did the Organisation perform any IN-HOUSE R&D during the financial year?

- In-house R&D refers to R&D performed at this organisation/department/unit/museum on its own behalf or on behalf of others.
- Only R&D performed in **South Africa** should be recorded.

(Please tick)

Yes

Proceed to Part 2: Question 5

No

Proceed to Part 5: Question 13 on Outsourced R&D

If your organisation does *not* do any In-House and Outsourced R&D, tick this box and return the questionnaire as a NIL response.

PART 2: R&D INHOUSE PERSONNEL

Report for all R&D personnel, permanent and contract (6 months or longer).

Researchers

- Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.

Technicians directly supporting R&D

- Persons doing technical tasks in support of R&D, normally under the direction and supervision of a Researcher.

Other personnel directly supporting R&D

- Other supporting staff includes skilled and unskilled crafts persons, secretarial and clerical staff participating in R&D projects or directly associated with such Projects.

Note: Do not include personnel **indirectly** supporting R&D: Typical examples are transportation, storage, cleaning, repair, maintenance and security activities, as well as administration and clerical activities undertaken not exclusively for R&D (such as the activities of central finance and personnel departments).

Allowance for these should be made under overheads in R&D expenditure (current expenditure – Question 11 D) but such persons should not be included as R&D Personnel.

5. HEADCOUNT OF R&D PERSONNEL

Provide the average headcount of all R&D personnel.

Personnel Categories and Qualifications	African		Coloured		Indian		White		TOTAL	
	M	F	M	F	M	F	M	F	M	F
RESEARCHERS										
Doctorates										
Masters/Hons/Bachelors or equivalent										
Diplomas										
Researcher Total										
TECHNICIANS										
Doctorates										
Masters/Hons/Bachelors or equivalent										
Diplomas										
Technicians Total										
OTHER PERSONNEL DIRECTLY SUPPORTING R&D										
Doctorates										
Masters/Hons/Bachelors or equivalent										
Diplomas										
Other										
Other Personnel Total										
TOTAL ALL R&D PERSONNEL										

6. FULL-TIME EQUIVALENTS AND LABOUR COST OF R&D PERSONNEL.

Provide an estimate of Person Years of effort on R&D (or Full-Time Equivalents), according to the categories below.

CALCULATING 'FULL TIME EQUIVALENT' (FTE) PERSONS

Note: For the purpose of this survey, an employee can work a maximum of 1 FTE in a year. For example, a full time employee spending 40% of his/her time on R&D during half of the survey year would contribute $0.4 \times 0.5 = 0.2$ FTE to the R&D effort, even if his/her average time per week was, for example 60 hours. A part-time employee working 40% of a year doing only R&D would contribute 0.4 FTE to the R&D effort.

Personnel Categories	Head count (From Question 5)		Full time equivalent		Total FTE M&F (A)	Average annual labour cost/ personnel category R'000 (B)	Labour cost of R&D R'000 (A x B)
	M	F	M	F			
Researchers							
Technicians directly supporting R&D							
Other personnel directly supporting R&D							
TOTALS							

(Total to be carried over to Q 7C)



PART 3: IN-HOUSE R&D EXPENDITURE

7. ALLOCATE R&D ACTIVITIES

CAPITAL EXPENDITURE ON R&D

- The full value of capital expenditure must be reported in the year of purchase (do not depreciate).
- If the asset has been/will be used for more than one activity, include an estimate of the portion used for R&D.

Including - but not limited to:

- Expenditure on fixed assets used in the R&D projects of your business
- Acquisition of software, including fees, expected to be used for more than one year
- Purchase of databases expected to be used for more than one year
- Major repairs & improvements on land & buildings used for R&D.

Excluding:

- Other repairs and maintenance expenses
- Depreciation provisions
- Proceeds from the sale of R&D assets.

		R'000 Excluding VAT					
Vehicles, plant, machinery and equipment	A						
Land, buildings and other structures	B						

LABOUR COST OF R&D – TOTAL COST TO INSTITUTION

		R'000 Excluding VAT					
Labour Costs of R&D personnel (carried over from Question 6)	C						

OTHER CURRENT EXPENDITURE ON R&D

Including - but not limited to:

- Materials, fuels and other inputs
- Water, electricity and other overheads
- Rent, leasing and hiring expenses
- Repair and maintenance expenses
- Payments to outside organisations for use of specialised testing facilities
- Payments to outside organisations for analytical work, engineering or other specialised services in support of R&D projects carried out by this department/unit
- Commission/consultant expenses for research projects carried out by this department / unit
- Other R&D expenses & indirect costs.

Excluding:

- Contract R&D expenses where the research project is carried out elsewhere by others on behalf of this department
- Payments for purchases of technical know-how
- Payments for patent searches
- Depreciation provisions.

		R'000 Excluding VAT					
Other Current Expenditure	D						

		R'000 Excluding VAT					
TOTAL R&D EXPENDITURE (A + B + C + D)							

8. SOURCES OF FUNDS FOR IN-HOUSE R&D

- Funds received from other intermediary sources that are funded from several sources should be reported under "Other South African sources".

Including - but not limited to:

Funding from grants, contracts, commissions, donations, annuities & subscriptions, etc.

R'000 Excluding VAT

Organisation

Own Funds (from own budget)							
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Government

Grants (including SPII, Innovation Fund etc)							
Contracts							
Sub - total							

Business

Business (Domestic only)							
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Higher Education

Universities, Technikons, Colleges							
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Other South African

Other South African Sources							
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Foreign

Foreign Sources (all sources including foreign business)							
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R'000 Excluding VAT

TOTAL R&D EXPENDITURE (to correspond with Question 7)							
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9. PROVINCIAL EXPENDITURE ON R&D PERFORMED BY YOUR ORGANISATION/UNIT

State the location where your organisation/ reporting unit carried out R&D activities and the percentage of the total R&D expenditure.

- Specify where R&D activities actually take place, rather than where they are managed/financed from.

Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	

Mpumalanga	
Northern Cape	
North-West	
Western Cape	
TOTAL	100%

PART 4: CATEGORIES OF INHOUSE R&D EXPENDITURE

10. SPECIFY TYPE OF R&D

Basic Research

- Work undertaken primarily to extend the boundaries of disciplinary knowledge.
- The analysis of properties, structures and relationships with a view to formulating and testing hypotheses, theories or laws.
- The results of basic research are usually published in peer-reviewed scientific journals.

Percentage		

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Applied Research

- Original investigation to acquire new knowledge with a specific application in view.
- Activities that determine the possible uses for the findings of basic research.
- The results of applied research are intended primarily to be valid for a single or limited number

Percentage		

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Experimental Development

- Systematic work using existing knowledge gained from research and/or practical experience for the purpose of creating new or improved materials, products, processes or services, or improving substantially those already produced or installed.

Percentage		

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TOTAL	1	0	0
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1	0	0
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11. CLASSIFY R&D ACCORDING TO RESEARCH FIELD (RF) (see Code Book) WITH ASSOCIATED % EXPENDITURE

- The RF Codes are based on recognised academic disciplines and emerging areas of study.
- The classification of R&D using RF codes is a generally accepted international convention.
- More than one RF code may be provided, together with an associated percentage split.

RF Codes						Percentage			RF Codes						Percentage											
RF									RF									RF								
RF									RF									RF								
RF									RF									RF								
RF									RF									RF								
RF									RF									RF								
									Total						1	0	0									

12. CLASSIFY R&D ACTIVITIES ACCORDING TO SOCIO-ECONOMIC OBJECTIVE (SEO) CODES (see Code Book) WITH % EXPENDITURE

- The SEO classification provides an indication of the main beneficiary of your R&D activities.
- The classification of R&D using SEO codes is a generally accepted international convention.
- More than one SEO code may be provided, together with an associated percentage split.

SEO Codes						Percentage			SEO Codes						Percentage											
S									S									S								
S									S									S								
S									S									S								
S									S									S								
S									S									S								
									Total						1	0	0									

PART 5: R&D OUTSOURCED / CONTRACTED OUT

13. STATE VALUE OF R&D OUTSOURCED INSIDE SOUTH AFRICA.

R'000

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14. STATE VALUE OF R&D OUTSOURCED OUTSIDE SOUTH AFRICA.

R'000

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END OF SURVEY.

WE APPRECIATE YOUR TIME, PATIENCE AND CARE.



Department of Science and Technology



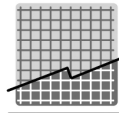
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