Department of Science and Technology | Statistics South Africa | Human Sciences Research Council

CeSTII SURVEY OF RESEARCH & EXPERIMENTAL DEVELOPMENT (R&D) INPUTS BUSINESS: 2004/05 FINANCIAL YEAR

Please correct any addressee errors.

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 (by post or email) as soon as possible, but no later than **……** to **R&D Survey, Private Bag X2, Vlaeberg 8018**

ASSISTANCE

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

Name	Contact Number	E-mail
Mr Julien Rumbelow	021-466 7834	jrumbelow@hsrc.ac.za
Mr Nkosikho Batatu	021 466 7810	nbatatu@hsrc.ac.za
Mr Stanley Ntakumba	021 466 7822	sntakumba@hsrc.ac.za

Prof. Michael Kahn
Executive Director: CeSTII/Knowledge Management
Human Sciences Research Council

DETAILS OF PERSON COMPLETING THE QUESTIONNAIRE:

Name (with title)		**Tel**	( )
Designation		**Fax**	( )
Date		**Cell**	( )
Sign		**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

1a. Registered name of Company

1b. Trading as (if applicable)

2. Company registration number

3a. If you are reporting R&D for several companies (e.g. as a head office with several subsidiary companies), please list the companies below (append a page if required).

3b. List the principal activities and/or Standard Industrial Classification (SIC) code (see Appendix A in code book) from which your company derives its <u>main income</u>.

Activities	SIC	Company Income Obtained (%)

4. Parent Company (if applicable) with % ownership

%

5. Financial year (dd/mm/yy) for which you are reporting in this survey

From to

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

R'000

7. Gross Sales Revenue or Turnover

8. Did the company perform any <u>IN-HOUSE R&D</u> during the financial year?

Yes ☐ **continue with Question 9**

No ☐ **proceed to Part 5: Question 19 on <u>Outsourced</u> R&D**

☐ **If your company does *not* do any In-House and/or any 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.

9. HEADCOUNT OF 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										

(Carry applicable totals forward to the 'headcount' column in Question 10)

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

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 x 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 9)		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							

(Carry forward total cost of R&D Personnel to item 11C below – Labour Costs of R&D)

PART 3: IN-HOUSE R&D EXPENDITURE

(Report any OUTSOURCED R&D in PART 5)

11. ALLOCATE IN-HOUSE R&D EXPENDITURE AS FOLLOWS:

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:	*Excluding:*
• Expenditure on fixed assets used in the R&D projects of your business • Acquisition of software for R&D, 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.	• Other repairs and maintenance expenses • Depreciation provisions • Proceeds from the sale of R&D assets.

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

LABOUR COSTS OF R&D

		R'000					
LABOUR COSTS of R&D personnel (from Question 10)	**C**						

OTHER CURRENT EXPENDITURE ON R&D

Including - but not limited to:	*Excluding:*
• Materials, fuels and other inputs (including all running costs) • Water, electricity and other overhead 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 your business • Commission/consultant expenses for research projects carried out by your business • Other R&D expenses and indirect costs.	• Contract R&D expenses where the research project is carried out elsewhere by others on behalf of your business • Payments for purchases of technical know-how • Payments for patent searches • Depreciation provisions.

		R'000					
Other Current Expenditure	**D**						

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

12. <u>SOURCES OF FUNDS</u> OF IN-HOUSE R&D

Provide a breakdown of the total R&D expenditure (as reported in question 12) according to sources of funds.

	R'000					
Company						
Own funds						
Government (includes Science Councils e.g. CSIR, Departments and Institutes)						
Grants (including SPII, Innovation Fund etc)						
Contracts						
Other Local Businesses						
Contracts						
Other South African Sources						
South African Sources						
Foreign						
All Sources						

	R'000						
TOTAL R&D EXPENDITURE (to correspond with Question 11)							

13. PROVINCIAL EXPENDITURE ON R&D PERFORMED BY YOUR COMPANY

Please state the location where your company 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%**

14. COLLABORATIVE R&D

With whom is R&D conducted in <u>partnerships, alliances or collaboration</u>?
Tick as appropriate.

	S A	**Foreign**
Higher Education Institutions		
Science Councils (e.g. CSIR, Mintek, MRC, ARC etc)		
Government Research Institutes		
Members of own company/ Affiliated Companies		
Other Companies (including Specialist consultants)		
Not-for-profit organisations		

PART 4: CATEGORIES OF IN-HOUSE R&D EXPENDITURE

15. SPECIFY THE PERCENTAGE OF TOTAL IN-HOUSE R&D EXPENDITURE BY 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		

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 of products, operations, methods or systems.
- Applied research develops ideas into operational form and may be published in peer-reviewed journals or subjected to other forms of intellectual property protection.

Percentage		

Experimental Development

- Systematic work using existing knowledge for creating new or improved materials, products, processes or services, or improving substantially those already produced or installed.

Percentage		

TOTAL	1	0	0

16. Classify R&D according to Standard Industrial Classification (SIC). (See Appendix A in code book) with associated % expenditure.

- SICs indicate the classification that best describes company R&D according to the intended **use** of the product.

SIC Codes					
SIC					
SIC					
SIC					
SIC					
SIC					

Percentage		

SIC Codes					
SIC					
SIC					
SIC					
SIC					
SIC					

Percentage		
Total	1	0	0

17. Classify R&D according to Research Field (RF) (see Appendix B in code book) with associated % expenditure.

- The RF Codes are based on recognised academic disciplines and emerging areas of study.

RF Codes						Percentage		
RF								
RF								
RF								
RF								
RF								

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

18. Classify R&D according to Socio-economic objective (SEO) (see Appendix C in code book) with associated % expenditure.

- The SEO classification provides an indication of the main beneficiary of your R&D activities.

SEO Codes						Percentage		
S								
S								
S								
S								
S								

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

PART 5: R&D OUTSOURCED / CONTRACTED OUT

19. State value of R&D outsourced **inside South Africa.**

R'000

20. State value of R&D outsourced **outside South Africa.**

R'000

END OF SURVEY.

WE APPRECIATE YOUR TIME, PATIENCE AND CARE.

Department of Science and Technology

Statistics South Africa

Human Sciences Research Council