300237

Department of Science and Technology

Human Sciences Research Council

CeSTII SURVEY OF RESEARCH & EXPERIMENTAL DEVELOPMENT INPUTS TO HIGHER EDUCATION: 2003 ACADEMIC YEAR

UNIT	Please modify address label if necessary

PURPOSE OF SURVEY

This survey collects information on the inputs into R&D activities of all research organisations in South Africa including the higher education institutions. This information is needed to shape policy and programmes in support of research and development. The time period of interest is Academic Year 1 January 2003 to 31 December 2003.

CONFIDENTIALITY

The Centre for Science, Technology and Innovation Indicators (CeSTII) within the Knowledge Management Programme of the Human Sciences Research Council (HSRC) conducts this Survey for the Department of Science and Technology (DST). All data gathered for this Survey will be held in the strictest confidence. The HSRC, DST or any organisation associated with this Survey will not publish, release, or disclose any information on, or identifiable with, individual companies, business units or R&D units to unauthorised parties, unless written permission is granted by the organisation concerned.

DUE DATE

Please complete and return this form as soon as possible, but no later than **30 September 2004**.

ASSISTANCE

If you have any problems in completing this form and/or in meeting the due date, please do not hesitate to contact the survey manager for assistance:

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Person completing this form (Please print)

Name	
Designation	
Signature	
Date	

Tel:	( )
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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 creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications.

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.

R&D Includes – but is not limited to:

Activities of personnel who are obviously engaged in R&D. In addition, R&D activity includes:

- 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 or assistance to those R&D activities of students undertaking postgraduate research courses
- Supervision and monitoring of postgraduate research courses, including students
- 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 includes economic, cultural, educational, psychological and sociological research
- Research work in engineering and the medical sciences
- R&D carried out as a participant in any unincorporated joint venture
- R&D projects performed on contract for other legal entities, such as businesses
- "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 in Higher Education Institutions

- Any activity classified as R&D is characterised by originality; it should have investigation as a primary objective and should have the potential to produce results that are sufficiently general for humanity's stock of knowledge (theoretical and/or practical) to be recognisably increased.
- Most research work in higher education institutions would qualify as R&D.

Scope of survey

- The survey requests data performed IN-HOUSE by your organisation on the National territory of South Africa.
- Part five asks some questions on "out-sourced R&D"

R&D Excludes:

The following specific activities are excluded, except where they are used primarily for the support of, or as part of, R&D activities performed in this department / unit:

- Preparation for teaching
- Academic development activities
- 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. **Name of Higher Education Institution**

2. **Name of reporting unit e.g. Faculty**

3. **Did the reporting unit perform any IN-HOUSE R&D during 2003 (1 January 2003-31 December 2003)?**

- In-House R&D refers to R&D performed at the reporting unit on its own behalf or on behalf of others.
- Only R&D performed **on the national territory of South Africa** should be recorded.

(please tick)

Yes ☐ **Please proceed to Part 2: Question 4**

No ☐ **Please proceed to Part 5: Question 12 on Outsourced R&D**

If your reporting unit does *not* do any In-House and/or Outsourced R&D, please check the box below and return the questionnaire as a NIL response.

☐

PART 2: R&D PERSONNEL AND STUDENTS

Report for all personnel for whom the reporting unit pays payroll tax. Also include post-doctoral fellows and postgraduate students in the boxes provided.

Researchers

- Professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.
- Managers and administrators engaged in the planning and management of the scientific and technical aspects of a researcher's work also fall into this category. Their rank is usually equal or superior to that of persons directly employed as researchers and they are often former or part-time researchers.

Excluding

- Managers and directors concerned primarily with budgets and human resources, rather than project content.

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

- Skilled and unskilled crafts workers.
- Secretarial, administrative and clerical personnel working on, or directly associated with, R&D activity.
- Executives and directors concerned primarily with budgets and human resources, rather than project content.
- Personnel working in, or supporting, library and information services.

4. Please provide the Headcount of all R&D personnel in this reporting unit and an estimate of Person Years of effort on R&D (or Full-Time Equivalents), according to the categories below.

Note: For the purpose of this survey, a person can only work one person year each 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 persons x 0.5 years = 0.2 person years 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 full time week doing only R&D would contribute 0.4 person years to the R&D effort.

Personnel Categories	Headcount		Head-count	Person Years on R&D (FTE)
	M	F	Total	
Researchers				
Technicians directly supporting R&D				
Other personnel directly supporting R&D				
TOTAL				

5. Provide or calculate (using question 4) the total cost of R&D Personnel for this repoting unit.

Personnel Categories	Person Years on R&D (FTE) (A)	Average annual cost per person R'000 (E.g.record R3 million as 3000) (B)	Calculated labour cost of R&D R'000 (A x B)
Researchers (Use Senior lecturer as the median)			
Technicians directly supporting R&D			
Other personnel directly supporting R&D			
LABOUR COST OF R&D (R' 000 Excluding VAT)			

6. Please provide the Headcount of all R&D postgraduate students in this reporting unit and an estimate of Person Years of effort on R&D (or Full-Time Equivalents), according to the categories below. Then provide the total value of salaries, stipends and external bursaries per student category.

Postgraduate Student Categories	Headcount		Head-count	Person Years on R&D (FTE)	Total value of salaries, stipends & external bursaries R'000
	M	F	Total		
Post-doctoral fellows					
Doctoral students					
Masters students (only research masters, not taught masters)					
TOTAL					

problem

PART 3: IN-HOUSE R&D EXPENDITURE

PLEASE REPORT ANY OUTSOURCED R&D IN PART 5

7. Compile expenditure on IN-HOUSE R&D during the academic year 2003 (1 January 2003-31 December 2003). Include expenditure funded from all sources: internal and external (contracts and grants) and undertaken by the reporting unit on its own behalf or for other parties.

Depts dont have.

CAPITAL EXPENDITURE ON R&D

- The full price of capital expenses 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 only 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 this reporting unit
- 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 and modifications on land and building

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 COSTS OF R&D – TOTAL COST TO INSTITUTION

- If the costs have been incurred for more than one activity, include only an estimate of the portion used for R&D

		R'000 Excluding VAT					
Total cost of R&D personnel (carried over from Question 5)							
Total cost of R&D postgraduate students (carried over from Question 6)							
TOTAL	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 and 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. Please provide a breakdown of the total R&D expenditure (as reported in question 7) according to sources of funds.

- Sources should be the original sources providing funds.
- Funds received from other intermediary sources that are funded from several sources should be reported under "Other domestic sources".

Including - but not limited to:

- Funding from grants, contracts, commissions, donations, etc.

Higher Education	R'000 Excluding VAT					
Own Funds (excluding the Higher Education Vote, which is accounted for below)						

Government						
Higher Education Vote allocated to research						
National and Provincial government						
Science Councils and Agency Funding (e.g. THRIP, Innovation fund)						

Business						
Business (Domestic only)						

Domestic						
Other domestic sources						

Foreign						
Foreign sources (all sources including foreign business)						

	R'000 Excluding VAT					
TOTAL R&D EXPENDITURE (to correspond with Question 7)						

PART 4: CATEGORIES OF R&D EXPENDITURE

9. Please specify the percentage of total IN-HOUSE R&D expenditure by type of R&D.

Pure Basic Research

- Work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without a specific application in view.
- Analyses of properties, structures, and relationships with a view to formulating and testing hypotheses, theories or laws.
- The results of basic research are not generally sold but are usually published in scientific journals or circulated to interested colleagues.
- Work carried out without looking for long-term economic or social benefits other than the advancement of knowledge.

Percentage		

Strategic Basic Research

- Basic research directed into specific broad areas in expectation of useful discoveries.
- Basic research providing the broad base of knowledge necessary for the solution of recognised practical problems

Percentage		

Applied Research

- Original investigation to acquire new knowledge with a specific application in view.
- To determine the possible uses for the findings of basic research.
- To determine new methods or ways of achieving specific and pre-determined objectives.
- 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.
- The knowledge or information derived from it is often patented but may also be kept secret.

Percentage		

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		

TOTAL	1	0	0

10. Please classify your R&D activities according to the most appropriate Research Fields (RF) code (see Codes book) and indicate the percentage of R&D expenditure associated with each RF

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

RF Codes						Percentage			RF Codes						Percentage	
RF									RF							
RF									RF							
RF									RF							
RF									RF							
RF									RF							

TOTAL	1	0	0

11. Please classify your R&D expenditure according to the most appropriate Socio-Economic Objectives (SEO) (See Codes book) and indicate the percentage of R&D expenditure associated with each SEO

- The SEO classification provides an indication of the sector of the national economy which will be the main beneficiary of the R&D you are practising
- More than one SEO code may be provided, together with an associated percentage split.
- The classification of R&D using SEO codes is a generally accepted international convention.

SEO Codes						Percentage			SEO Codes						Percentage	
S									S							
S									S							
S									S							
S									S							
S									S							

TOTAL	1	0	0

PART 5: R&D OUTSOURCED / CONTRACTED OUT

Outsourced R&D refers to:

- Extramural expenditures paid or committed to another unit, organisation or sector for the performance of R&D
- This includes acquisition of R&D performed by other units and grants given to others for performing R&D

12. Please state the amount spent on R&D outsourced outside South Africa.

R'000 (excl. VAT)

13. Please state the amount spent on R&D outsourced inside South Africa.

R'000 (excl. VAT)

14. It would assist the Survey if you could advise of some/all organisations that performed your outsourced R&D inside South Africa along with approximate expenditure at each organisation.

Outsourced to:	Approximate Value R'000 (excl. VAT)

THANK YOU FOR YOUR TIME AND EFFORT