NATIONAL SURVEY OF RESEARCH & EXPERIMENTAL DEVELOPMENT

MAIN ANALYSIS AND STATISTICAL REPORT | 2013/14

NCRST
National Commission On Research Science & Technology

Namibia Statistics Agency

Republic of Namibia

ACKNOWLEDGEMENTS

Under the auspices of the Ministry of Higher Education, Training and Innovation, the National Commission on Research, Science and Technology (NCRST) and Namibia Statistics Agency (NSA) in collaboration with the University of Namibia (UNAM) conducted the first Namibian National Survey of Research and experimental Development (R&D).

The survey team extends its acknowledgement to first and foremost, Dr Eino Mvula, CEO of NCRST for providing the leadership that ensures the R&D survey is undertaken and completed. Special appreciation to New Partnership for Africa's Development (NEPAD), Africa Science, Technology and Innovation Indicators Initiative (ASTII) team and South African Department of Science and Technology (DST) through the interactions with the Centre for Science, Technology and Innovation Indicators (CeSTII), Human Science Research Council (HSRC) in particular Dr Moses Sithole, Ms Precious Mudavanhu (both CeSTII), Mr. Seke Lukovi, Prof. Luke Mumba, and Mr. Richard Lutalo (from NEPAD ASTII) for their dedication in providing training to impact skills in data collection, analysis and report writing.

The survey team also acknowledges and extends its gratitude to individuals and organisations in Namibia that participated in the 2013/14 national survey of R&D. The particular acknowledgement is the contribution of various public and private organisations in the business, government, higher education and not-for-profit sectors.

High appreciations to the University of Namibia's enumerators who transversed the country to collect the primary data of the survey. Further appreciation to NCRST, UNAM and NSA staff for their diligence and commitment to implement the survey and conduct analytical work.

CORE TEAM IN ALPHABETICAL ORDER

Nelago Indongo	Davis Mumbengegwi
Neema Isak	Ottillie Mwazi
Ebenhezer Kauhonina	Maria Nanyemba
Alfons Mosimane	Gernot Piepmeyer
Edgar Mowa	Moses Sithole
Vincentius Mughongora	Diina Shuuluka
Precious Mudavanhu	Loide Uahengo

ERF 490,
Platinum Street,
Prosperita
Private Bag 13253
Windhoek
Tel: +264 61 431 7000
Fax: + 264 61 216 531
Email: info@ncrst.na

Published 2016
Website: http://www.ncrst.na

Suggestion Citation: NCRST(2016), National Survey of Research and Experimental Development 2016. NCRST. Windhoek.

FOREWORD

MR EINO MVULA

CHIEF EXECUTIVE OFFICER

NATIONAL COMMISSION ON RESEARCH, SCIENCE AND TECHNOLOGY

This report marks an important milestone in our country's science, technology and innovation landscape and indeed in the history of our great Nation, as it presents the first ever-comprehensive set of indicators based on the Research and Experimental Development (R&D) survey (2013/14 fiscal year).

As a specialised agency of the government, responsible for promoting, coordinating and developing research, science, technology and innovation in Namibia, the National Commission on Research, Science and Technology (NCRST) is also mandated in terms of section 18 of the Research, Science and Technology Act of 2004, to coordinate the development of a National Programme for Research, Science and Technology. During the development of the National Programme for Research, Science Technology and Innovation for 2014/15 to 2016/17, effort was made to obtain information on the Research, Development and Innovation landscapes within Namibia in terms of input and output data. This was necessary to understand where we are as a country, in order for us to formulate appropriate targets and initiatives. Unfortunately, it was difficult for us to find quality data on R&D, and we are informed that the same challenge was experienced during NDP4 formulation phase. It is against this backdrop that the establishment of STI indicators was made a key priority both in the NCRST Strategic Plan (2014/15 to 2018/19) as well as the National Programme on Research, Science, Technology and Innovation (2014/15 to 206/17).

The data contained in this report is important as it helps in the understanding of the size and shape of the Namibia R&D landscape and their use in system-level planning, monitoring and evaluation. For the first time, Namibia now has reliable data ready to be utilised in formulating evidence based policy, just in time as the country embarks on the process of formulation of the fifth National Development Plan (NDP5) planning and also the next National Programme on RSTI.

A project of this magnitude requires close cooperation between the various stakeholders because of the resource constraints we are facing, not only on the financial side, but also on the human resource side. We thank all stakeholders for their support and cooperation.

Eino Mvula
Chief Executive Officer,
National Commission on Research, Science and Technology,
2016

STATEMENT

MR ALEX SHIMUAFENI

STATISTICIAN-GENERAL

NAMIBIA STATISTICS AGENCY

The Namibian Statistics Agency (NSA) is established by Section 6 of the Statistics Act No. 9 of 2011 as the central repository for all statistics produced in Namibia. The NSA also acts as a custodian for statistics in Namibia through the collection, analysing and disseminating official and other statistics in Namibia.

During 2014/15, the NSA and NCRST established a formal basis for cooperation in areas of Research & Development (R&D) and Innovation (I) surveys. This was done with the view to encourage the application and use of the data to understand the state of the National Innovation System, to support the development of evidence-based policy and the public policy debate which provides constructive feedback to government departments and other institutions such as policy research institutes, universities and industries.

As part of the implementation of the NSA/NCRST agreement, the NSA has provided technical support to the process of developing and adoption of methodology and instruments, in preparation for the 2013/14 R&D survey and throughout the survey undertaking. Following the completion of the 2013/14 R&D survey in 2015/16, the report and other relevant documentations were submitted by the NCRST to the NSA for quality endorsement in terms of Part III, section 7, sub-section 2(j) and Part VI, section 35, sub-section 10 of the Statistics Act No. 9 of 2011. An assessment performed on the results, documentations and material submitted revealed that they are in compliance with the set quality standard in the Data Quality Assessment Framework as well as international and regional best practices.

This will allow future setting up of very specific targets as well as carrying out benchmarking studies, comparing Namibia's Science, Technology and Innovation policies and performance with those of other countries.

With this assessment, I attest that the 2013/14 R&D survey results are of good quality and encourage its use by stakeholders across all sectors.

Mr Alex Shimuafeni
Statistician-General
Namibia Statistics Agency, 2016

PREFACE

It is with great pride and honour that I present Namibia's first official Research and Experimental Development (R&D) survey report for 2013/14 financial year.

The Ministry of Higher Education, Training and Innovation is pleased to note progress made in the establishment and strengthening of our national system of innovation. A programme level intervention has been developed in the form of the National Programme on Research, Science, Technology and Innovation (NPRSTI) for 2014/15 to 2016/ 17, in terms of Section 18 of Research, Science and Technology Act, 2004 (Act 23 of 2004) with the aim of providing a comprehensive framework for actualizing Namibia's Science, Technology and Innovation (STI) development aspirations.

In order for us to assess whether our efforts are yielding desired outcomes, we continue to establish systems that allow for reliable collection of Science, Technology and Innovation indicators that would eventually inform policy and the necessary strategic interventions. The fourth National Development Plan (NDP4) has set the target for increasing research and development (R&D) expenditure to 0.3% of GDP during the NDP4 period (2012-2017). This first annual R&D has revealed important information regarding the size and composition of R&D expenditure and human capital devoted to R&D. Although the NDP4 target is below the 1% of GDP as set out in the SADC Protocol for Science, Technology and Innovation, it is pleasing to note that the 2013/ 14 R&D survey shows that the gross expenditure on research and development (GERD) is 0.35%, exceeding the NDP 4 target.

I am pleased to note that the National Commission on Research, Science and Technology (NCRST) in collaboration with the Namibia Statistics Agency and the University of Namibia have joined hands to conduct this important Survey to establish core Indicators. This effort is in line with the initiative of the New Partnership for Africa's Development (NEPAD) for Africa's Science and Technology Consolidated Plan of Action (CPA), which develops Science Technology and Innovation indicators for African countries, which launched in 2007. The CPA was adopted in 2005 by the African Ministerial Council on Science and Technology (AMCOST) as the framework for

Science, Technology and Innovation to respond to the socio-economic challenges facing the continent. Namibia joined this initiative in 2008.

I would like to use this opportunity to thank all stakeholders from the private sector enterprises, government departments, government-owned trading entities, and universities for their cooperation with the enumerators, which lead the success of this exercise.

Dr Itah Kandjii-Murangi
Minister of Higher Education, Training and Innovation, 2016

ABBREVIATIONS

AMCOST	African Ministerial Council on Science and Technology
AOSTI	Africa Organisation for Science, Technology and Innovation
ASTII	African Science, Technology and Innovation Indicators
AU	African Union
BERD	Business expenditure on R&D
CEO	Chief Executive Officer
CPA	Consolidated Plan of Action
CeSTII	Centre for Science, Technology and Innovation Indicators
FTE	Full-Times Equivalent
GDP	Gross Domestic Expenditure
GERD	Gross domestic expenditure on R&D
GOVERD	Government expenditure on R&D
HERD	Higher education expenditure on R&D
HSRC	Human Science Research Council
JTC	Joint Technical Committee
NCRST	National Commission on Research, Science and Technology
NDP4	The fourth National Development Plan
NEPAD	New Partnership for Africa's Development
NFP	Not for Profit
NSA	Namibia Statistics Agency
NPRSTI	National Programme on Research, Science, Technology and Innovation
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
RSTI	Research, Science, Technology and Innovation
SEO	Socio-Economic Objective
SIC	Standard Industry Classification
STI	Science, Technology and Innovation
UNAM	University of Namibia
UNESCO	United Nations Education, Cultural Organisation

DEFINITION OF TERMS

Research and Experimental Development (R&D)	comprises creativity work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.
R&D	covers three activities: basic research, applied research and experimental research.
Applied Research	is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific aim or objective.
Basic Research	is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view.
Experimental Research	is systematic work, drawing on knowledge gained from research and practical experience that is directed to producing new materials, products and devices to installing new processes, system and services; or to improve substantially those already produced or installed.
BERD	refers to Business Expenditure on Research and Development
GOVERD	refers to Government Expenditure on Research and Development
HERD	refers to High Education Expenditure on Research and Development
Capital expenditure	is the annual gross expenditure on fixed assets used in the R&D programmes of statistical units. Such expenditures is reported in full in the period in which it took place and is registered as an element of depreciation. Capital expenditure included expenditure on land, buildings, instruments and equipment.
Full-Time equivalent (FTE)	refers to the number of hours (person years of effort) spend on R&D activities.
Gross domestic products (GDP)	is the total market value of all final goods and services produced in a country in a given year, equal to total consumers, investment and government spending, plus the value of exports, minus the value of imports (Namibia statistical Agencies).
Gross expenditure on research and experimental development (GERD)	covers all expenditure for R&D performed on national territory in a given year. It thus includes domestically performed R&D which is financed from abroad but excludes R&D funds paid abroad, notable to international agencies.
Headcount	refers to the actual number of people directly involves in or supporting R&D (i.e. the total number of R&D personnel).

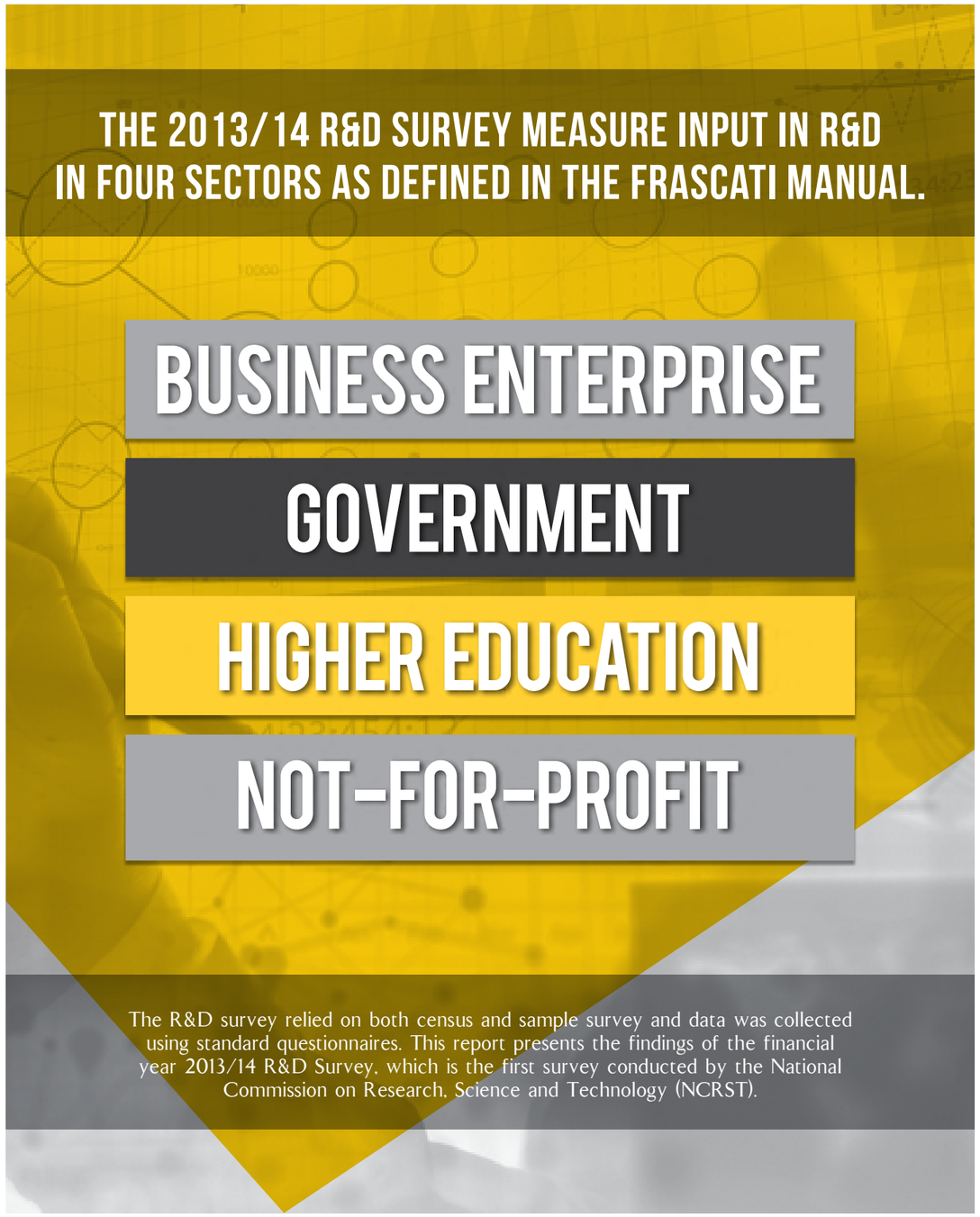
In-house or intramural R&D	refers to R&D performed by the unit or entity itself (i.e. by the personnel of the unit or entity). This is R&D performed within the borders of Namibia, even if funded by foreign sources.
Labour costs of R&D personnel	comprise annual wages and salaries and all associated costs or fringe benefits, such as bonus payment, holiday pay, and contributions to pension funds and other social security payments, and payroll taxes. The labour costs of persons providing indirect services that are not included in the personnel data (such as security and maintenance personnel or the staff of central libraries, computer departments or head offices) are excluded from labour costs and include in the current expenditure.
Other current expenditure	comprises non-capital purchases of materials, supplies and equipment to support R&D performed by the statistical unit in a given year.
Other support staff (OSS)	include skilled and unskilled craftsman, secretarial and clerical staff participating in R&D projects or directly associated with such projects.
Outsourced R&D	refers to R&D done by another entity on behalf of the reporting unit and paid for by the reporting unit.
Researchers	are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and in the management of the projects concerned.
R&D intensity	refers to gross expenditure on R&D as a percentage of GDP
R&D personnel	include all persons employed directly on R&D activities, as well as those providing direct services such as R&D managers, administrators and clerical staff.
R&D performing sector	comprises of government, higher education, business and not-for-profit sectors
Standard Industrial Classifications (SIC)	is a system for classifying industries by a four-digit code and this R&D survey used codes as published by the NEPAD ASTII for classification of economic activities of industrial
Socio-economic objectives (SEO)	The SEO classification provides an indication of the main beneficiary (ies) of R&D activities
Technicians and equivalent staff	are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, physical and life sciences, or social sciences and humanities.
Total employment	is the total employment in the economy. This statistics is obtained from Namibia Statistics Agency (NSA) labour force (2014), where employed persons are those 15 years and above.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY



KEY R&D INDICATORS

Results of the 2013/14 R&D Survey indicate that Namibia's Gross Domestic Expenditure on R&D (GERD) as percentage of GDP is 0.34 percent. Table S.1 shows a summary of the key results.

TABLE S.1 KEY R&D INDICATORS, 2014

INDICATOR	N$ (000)
Gross domestic expenditure on R&D (GERD (N$ 000)	471 733
Gross domestic product (GDP) at current prices (N$ 000)	139 331 618
GERD as a percentage of GDP	0.34
Total R&D personal (HC)	1132
Total Researchers (HC)	749
Total Technicians (HC)	255
Total Support Staff (HC)	128
Total R&D personal (FTE)	570
Total Researchers (FTE)	351
Total Technicians (FTE)	150
Total Support Staff (FTE)	69
Total R&D personnel per 1000 total employment (FTE)	0.8
Total Researchers per 1000 total employment (FTE)	0.5
Female researchers as a percentage of total researchers (HC)	38.7
Female researchers as a percentage of total researchers (FTE)	38.7
Total Namibian researchers as percentage of total researchers (HC)	73.3
TOTAL EMPLOYMENT (1000)	**713**

Government was the biggest spender for R&D in 2013/14 financial year. The government sector spent N$ 216.6 million on in-house R&D activities in 2014. This accounted for 45.9% of the GERD, making it the largest contributor to R&D expenditure. The not-for-profit sector had the lowest expenditure on R&D (7.6%) in the reference period (Table S. 2).

TABLE S.2 IN-HOUSE R&D EXPENDITURE BY SECTOR, NAMIBIA, 2013/2014

SECTOR	N$ .000	PERCENTAGE
Business enterprise	53.9	11.4
NFP	36.1	7.6
Government	216.6	45.9
Higher Education	165.2	35.0
TOTAL GERD	**471.7**	**100**

BUSINESS R&D INDICATORS

Table S. 3 indicates that Business Expenditure on Research and Development (BERD) as a percentage of GDP in 2014 was 0.04%. More than two-thirds of the BERD was financed from business enterprises' own funds at 92.2% and 4.8% sourced from Government. The total business sector R&D personnel (HC) and Full-time equivalent (FTE) personnel were 82 and 24.5 respectively.

TABLE S.3 BUSINESS SECTOR INDICATORS, 2014

INDICATOR	VALUE
BERD (N$ 000)	53 884
BERD as % of GDP	0.04
BERD financed by Business enterprise (%)	92.2
BERD financed by government (%)	4.8
BERD financed by higher education	0
BERD financed by private not-for -profit%	0
BERD financed from abroad (%)	0
BERD financed from other national sources (%)	2
Total business sector R&D personnel (HC)	82
Total business sector researchers (HC)	44
Total business sector R&D personnel (FTE)	41.9
Total business sector researchers (FTE)	24.5

GOVERNMENT R&D INDICATORS

The results of the R&D Survey indicates that, in 2014 the Government Expenditure on Research and Development (GOVERD) expressed as a percentage of GDP was 0.16% with 99.5% of this expenditure being financed from government's own funds. The total government sector headcount (HC) and full-time equivalent (FTE) R&D personnel were 343 and 134.6 respectively (Table S.4).

TABLE S.4 GOVERNMENT SECTOR INDICATORS, 2014

INDICATOR	VALUE
GOVERD (N$ 000)	216 614
GOVERD as % of GDP	0.16
GOVERD financed by business enterprise (%)	99.5
GOVERD financed by government (own fund) (%)	0.3
GOVERD financed by higher education (%)	0
GOVERD financed by not -for-profit (%)	0
GOVERD financed by other National sources (%)	0
GOVERD financed from abroad (%)	0.2
Total Government sector R&D personnel (HC)	343
Total Government sector researchers (HC)	174
Total Government sector R&D personnel (FTE)	253.1
Total Government sector researchers (FTE)	134.6

HIGHER EDUCATION R&D INDICATORS

Table S.5 provides a snapshot of key indicators within the higher education sector. Survey results indicate that Higher Education Expenditure on Research and Development (HERD) as a percentage of GDP was 0.13% in 2014. Much of the HERD was financed from Government at 43.9%, followed by foreign sources at 35.4% and high education's own funds at 18%. The total higher education sector R&D personnel (excluding postgraduate students and post – doctoral fellows) in terms of HC and FTE stood at 500 and 167.4 respectively.

TABLE S.5 HIGHER EDUCATION SECTOR INDICATORS, 2014

INDICATOR	VALUE
HERD (N$ 000)	165 153
HERD as % of GDP	0.13
HERD financed by business enterprise (%)	0.4
HERD financed by government (%)	43.9
HERD financed by higher education (own fund) (%)	18.4
HERD financed by not -for-profit (%)	0
HERD financed by other National sources (%)	1.8
HERD financed from abroad (%)	35.4
Total HE sector R&D personnel (HC)	615
Total HE sector researchers (HC)	500
Total HE sector R&D personnel (FTE)	211.8
Total HE sector researchers (FTE)	167.4

NOT-FOR-PROFIT R&D INDICATORS

Not-for-Profit Expenditure on Research and Development (NFPERD) as a percentage of GDP was 0.03% in 2014, with more of it financed from foreign sources at 41.9% and not-for profit's own funds at 33.5%. As shown in Table S.6, the 2014 survey results reveal that not for profit R&D personnel (FTE) and researchers (FTE) stood at 92 and 24.8 respectively.

TABLE S.6 NOT-FOR-PROFIT SECTOR INDICATORS, 2014

INDICATOR	VALUE
PNPERD (N$ 000)	36 081
PNPERD as % of GDP	0.03
PNPERD financed by business enterprise (%)	4
PNPERD financed by government (%)	14.3
PNPERD financed by Higher education (%)	0
PNPERD financed by not -for-profit (own fund) (%)	33.5
PNPERD financed by other National sources (%)	6.3
PNPERD financed from abroad (%)	41.9
Total private non-profit sector R&D personnel (HC)	92
Total private non-profit sector researchers (HC)	31
Total private non-profit sector R&D personnel (FTE)	63.5
Total private non-profit sector researchers (FTE)	24.8

1 R&D IN CONTEXT

1.1 BACKGROUND

The National Commission on Research, Science and Technology (NCRST) annually conducts the National Survey of Research and Experimental Development (R&D) to measure inputs within the R&D in the country. The 2013/14 R&D Survey was conducted in collaboration with the Namibian Statistics Agency (NSA) and the University of Namibia (UNAM).

Generally, surveys generate data that enable the design and implementation of interventions to address national, sectorial and local needs.

The R&D surveys are valuable sources of information that facilitate effective planning and policy formulation with respect to Science, Technology and Innovation (STI) by both the public and private sector.

The indicators provided in the report consist of the main subset of Science and Technology (S&T) indicators; and data tables specified for R&D Surveys by the Organisation for Economic Co-operation and Development (OECD).

1.2 THE IMPORTANCE OF R&D STATISTICS

R&D indicators are aimed to develop Science, Technology and Innovation (STI) indicators. These indicators are vital in benchmarking and informing policy decisions on what interventions to take for STI to substantially contribute to socio-economic development.

R&D contributes to innovation, competitiveness and economic growth through the creation and diffusion of new knowledge. Countries that appreciate the importance of R&D and Innovation acknowledge increased investments in R&D and other activities such as education lead to technology progress, innovation and skilled human resources, which in turn leads to improved productivity, economic growth and employment.

The R&D survey provides statistics on R&D expenditure and human resources devoted to R&D. In many countries, R&D statistics have been utilized to provide an overview of the status of R&D activities. R&D data serves as the basis for the development of science policy related to the setting up of research priorities, government research funding level, human development and R&D and innovation incentive schemes.

R&D statistics are also widely used to determine R&D personnel with a focus on researchers, who are critical to the creation of new knowledge.

1.3 METHODOLOGY

The 2013/14 R&D Survey was conducted according to the OECD guidelines presented in the Frascati Manual.

The Frascati Manual is the proposed Standard Practices for Surveys of Research and Experimental Development and defines R&D as follow:

Research and Experimental Development (R&D) is creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of human, culture and society, and the use of this stock of knowledge to devise new application. (OECD 2002). The Frascati Manual proposes several approaches to surveying R&D -performing entities, including a census based survey of all large R&D performers and a sample survey of the remaining R&D performer entities.

An advertisement was placed in the media to call for R&D performers (government, institutions of higher learning, not-for-profit organisations, and business enterprises) to register with NCRST from November 2014- January 2015 for inclusion in the R&D census. Additionally, letters were written to various organisations/institutions to register.

The R&D Survey covered the business enterprise, government, higher education and not -for -profit institutions as defined in the Frascati Manual.

The Namibian R&D Survey was conducted using the census based survey approach for the not for profit sector, government sector and higher education sector. Due to unavailability of a business registry and unconfirmed R&D performers for businesses in the country, a purposive sample of the R&D performing entity was surveyed for business sector. On the onset of the survey, more than 140 entities were identified as potential R&D performers and target population in the business sector but only 71 entities were actually covered in the survey as sample. The response rate of the R&D survey was 67.8

The sectors were surveyed during the period of October-November 2015.

The data was collected using the standardised questionnaires across the four (4) sectors, a model questionnaire by UNESCO Institute for Statistics adapted to Namibian circumstances. The questionnaires were pretested on selected entities for consistency, chronology and clarity of questions. Questionnaires were administered to respondents by a team of trained enumerators. Press releases and telephonic calls were made to respondents to publicise the survey. Field supervision visit were undertaken to support the enumeration exercise.

The full and detailed methodology is contained in annex II with the R&D Statistical Report.

1.4 R&D INDICATORS

The Gross Domestic Expenditure on R&D (GERD) is one of the most common and most often quoted R&D indicators, as it shows how much a country spends on research and experimental development.

The 2013/2014 R&D Survey indicates that Namibia's GERD as a percentage of GDP is 0.34 percent. Table 1.1 shows a summary of key results that combine data for the four sectors surveyed.

TABLE 1.1 KEY R&D INDICATORS, 2013/14

INDICATOR	VALUE 2013/14
Gross domestic expenditure on R&D (GERD (N$ 000)	471 733
Gross domestic product(GDP) at current prices (N$ 000)	139 331 618
GERD as a percentage of GDP	0.34
Total R&D personal (HC)	1132
Total researchers (HC)	749
Total technicians (HC)	255
Total support staff (HC)	128
Total R&D personal (FTE)	570
Total researchers (FTE)	351
Total technicians (FTE)	150
Total support staff (FTE)	69
Total R&D personnel per 1000 in total employment (FTE)	0.8
Total researchers per 1000 in total employment (FTE)	0.5
Female researchers as a percentage of total researchers (HC)	38.7
Female researchers as a percentage of total researchers (FTE)	38.7
Total Namibian researchers as percentage of total researcher(HC)	73.3
Total employment (1000)	713
Data Sources - Total employment value: NSA labour force Survey. 2014	

2 R&D EXPENDITURE

2.1 GROSS DOMESTIC EXPENDITURE ON R&D

Gross Domestic Expenditure on (GERD) comprises Research and experimental Development (R&D) undertaken by business enterprises, not-for-profit, government and the higher education sectors in the country.

The 2013/14 R&D expenditure was at N$ 471.73 million in 2014. GERD includes R&D funded from abroad, but excludes domestic funds for R&D performed outside the domestic economy.

2.2 GERD AS A PERCENTAGE OF GDP

Funding for R&D has increased since the 1990s.

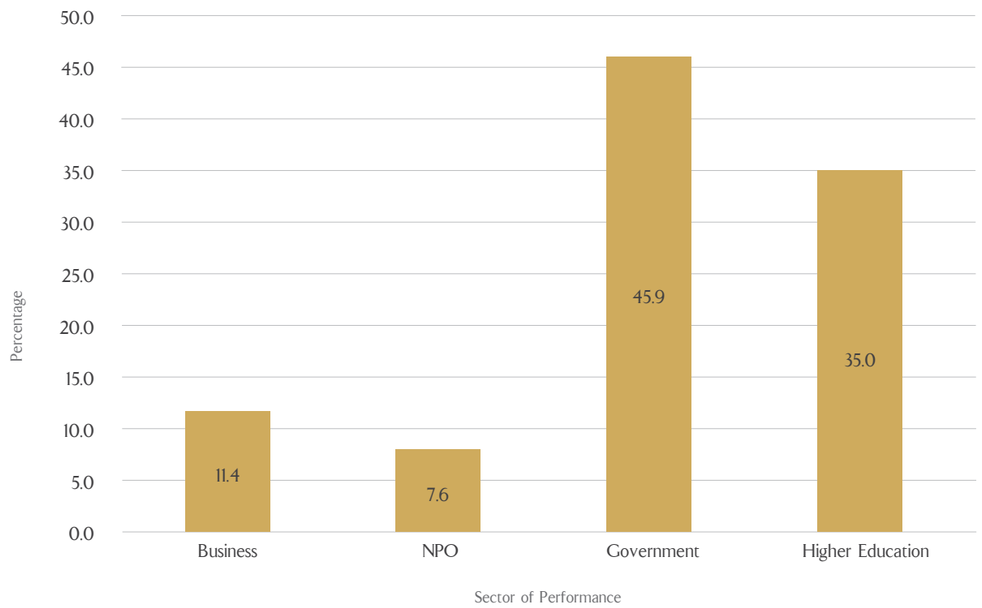
GERD as percentage of GDP has increased from below 0.02% in the 1990 to 0.18 in 2010 (AIO: 2014). The R&D Survey indicates GERD accounted for 0.34% of GDP in 2013/14 for Namibia. GERD expressed as a percentage of GDP indicates the concentration or intensity of R&D in an economy, an important aspect of national competitiveness internationally in terms of research efforts.

2.3 GERD BY SECTOR

Government expenditure on R&D amounted to N$ 216.6 million, equivalent to 45.9% of GERD.

Government was the largest performer of R&D in Namibia. Higher education expenditure on R&D was N$ 165.2 million, equivalent to 35.0%, making higher education the second largest performer of R&D in the country. Business enterprise expenditure on R&D amounted to N$ 53.9 million and not-for profit expenditure on R&D amounted to N$ 36.1 million, equivalent to 7.6%, making not-for profit (NFP) the lowest R&D performer in 2013/14 in Namibia.

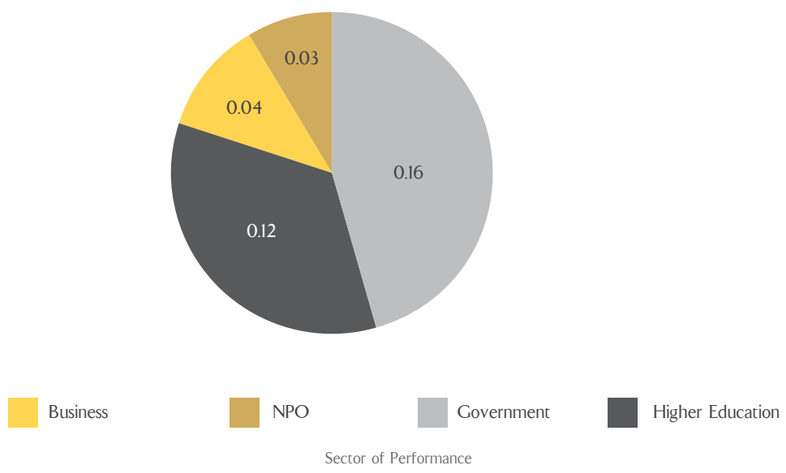
FIGURE 2.1 R&D EXPENDITURE PER SECTOR (N$ 000), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

Figure 2.2 shows the R&D expenditure as percentage of GDP per sector. The government R&D expenditure as percentage of GDP was 0.16% in 2014 and for Higher education was 0.12%.

FIGURE 2.2 GERD AS PERCENTAGE OF GDP PER SECTOR FOR (PERCENTAGE), NAMIBIA, 2014



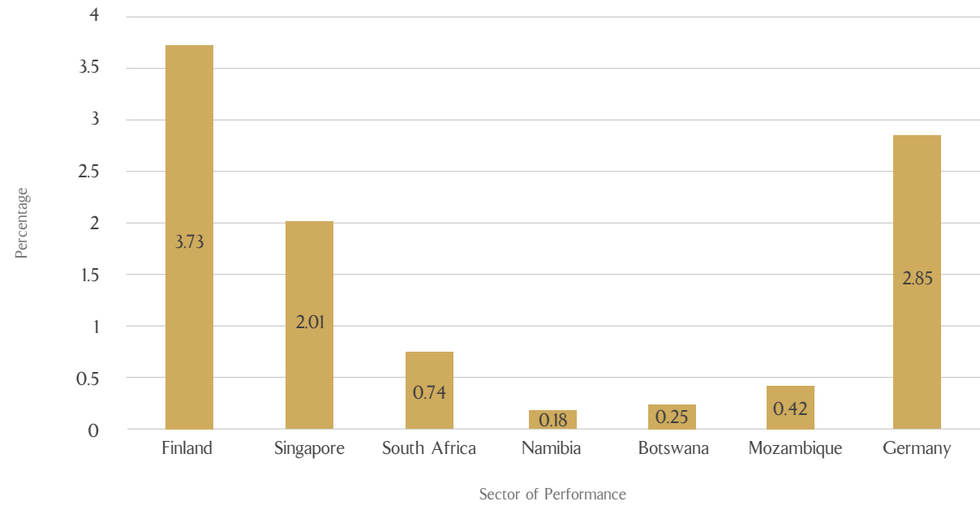
Data Sources - National Survey of Research and experiment Development 2013/14
GDP values of N$ 139 331 618 000.: NSA NA National Account time series 1980-2015

2.4 INTERNATIONAL COMPARISON

The Africa Innovation outlook (AIO) 2014 present R&D data for some of the African countries, which make it possible to determine the level of research intensity in these countries (AU-NEPAD 2010) and be able to compare Namibia's competitiveness with its neighbouring countries.

GERD as percentage of GDP varies from country to country. Botswana and South Africa spend approximately 0.25 and 0.74%, respectively, of GDP on R&D.

FIGURE 2.3 GERD AS PERCENTAGE OF GDP, INTERNATIONAL COMPARISON, 2010



Data Sources - UNESCO Institute of Statistics 2014 and NEPAD/AIO 2014

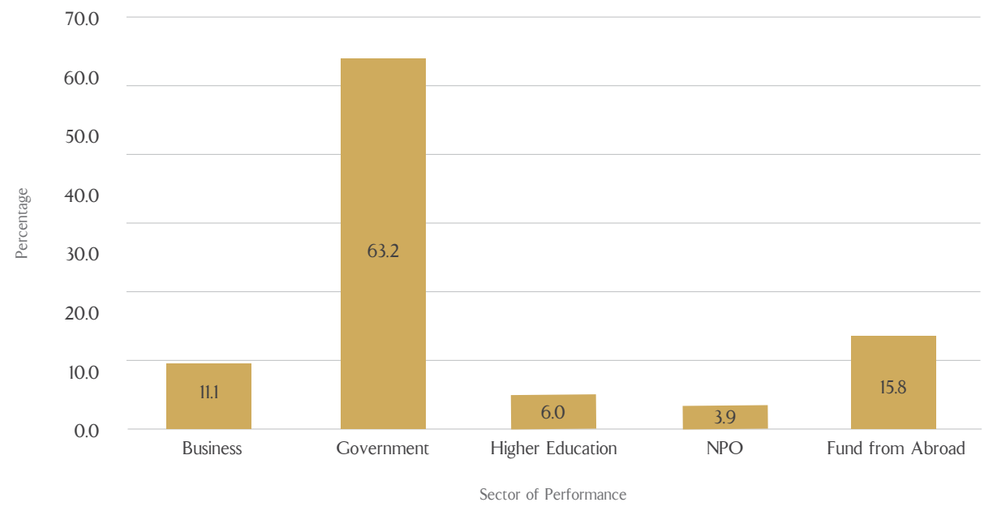
FUNDING FOR R&D

3.1 GERD BY SOURCES OF FUND

Figure 3.1 shows that government funded the largest proposition of R&D in Namibia at 63.2% followed by funding from abroad.

Business sector is not supporting government to fund R&D in the country, as their contribution to R&D was a mere 11.1%. Higher education funding for R&D was also relatively low. Not for profit funding toward R&D in the country was the lowest at 3.9% in 2013/14.

FIGURE 3.1 GERD BY SOURCE OF FUNDS (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

3.2 MAJOR FLOWS OF R&D FUNDING

Figure 3.2 indicates that government funded the largest proposition of R&D in Namibia for 2013/14, accounting for N$ 296 million or 70 % of fund allocated for R&D expenditure.

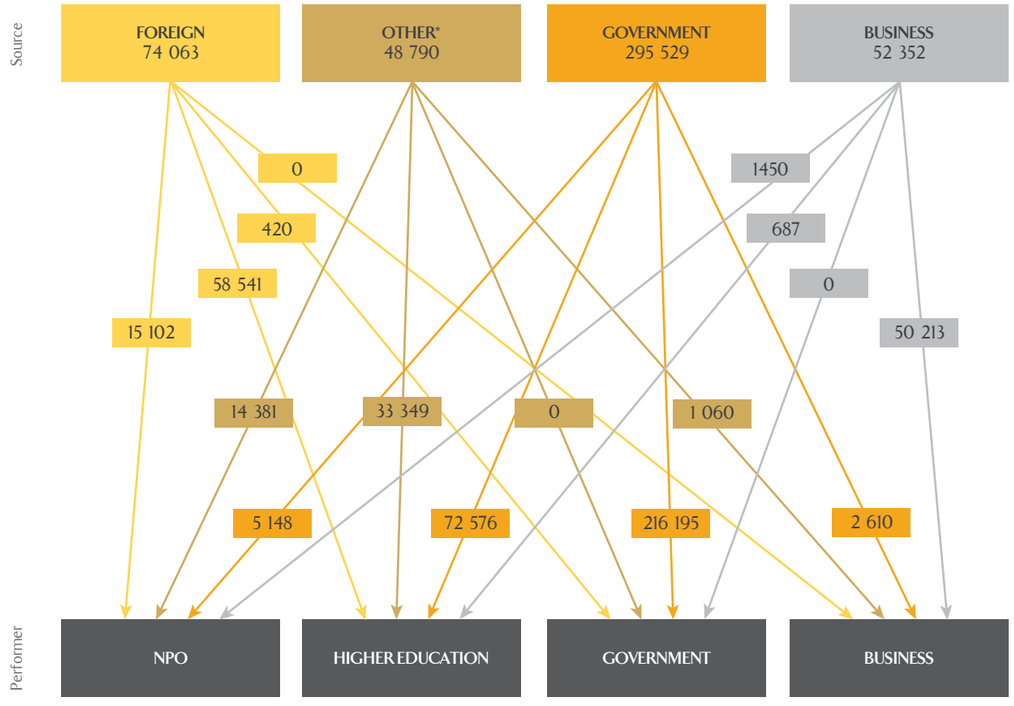
Government spent the largest 63.2% or N$ 216 million of their fund on its own R&D expenditure and 24% or N$ 72 million of its fund on higher education. Not-for-profit at 1.7% or N$ 5 million and business sector at 0.8% or N$ 2.6 million were the smallest recipients of R&D funding from the government.

The same is true for business sector, which was the second funder of R&D in the country at N$ 52 million or 11.1%. The business sector spent 95 % of business funding on business R&D, and 2.8 % was spent on not-for-profit R&D and 1.3% on higher education. Government was not a recipient of R&D funding from business.

Figure 3.2 also shows that higher education was the largest recipient of funding from foreign source, receiving 79% or N$ 58 million and not-for-profit was the second largest recipient receiving 20% or N$ 15 million of foreign R&D funding. Government received a merely 0.6% and business sectors did not receive funding for R&D from foreign sources.

Higher education and not-for-profit received the largest of R&D funding from other sources at 68% or N$ 33 million and 29 % or N$ 14 million respectively.

FIGURE 3.2 MAJOR FLOW OF R&D FUNDING (N$ 000), NAMIBIA, 2013/14



*Other national sources include contributions from higher education, not for profit organisation and individual donations.

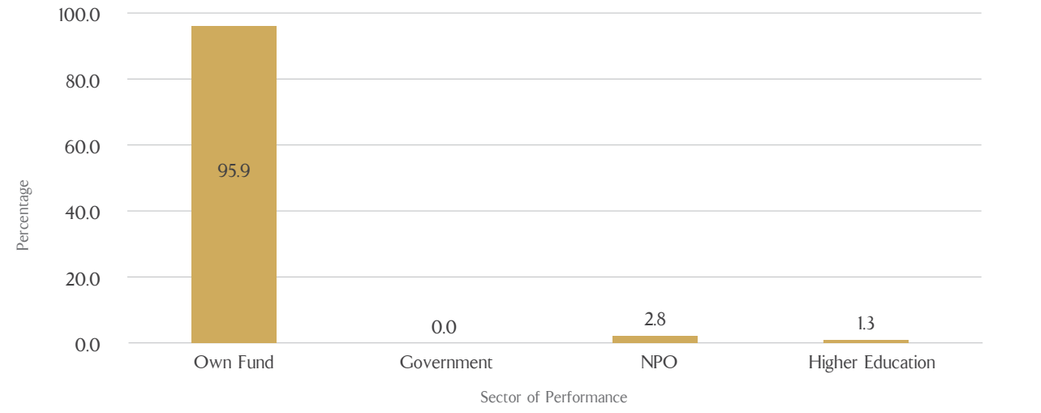
Data Sources - National Survey of Research and experiment Development 2013/14

3.3 BUSINESS-FUNDED R&D

Figure 3.3 show the R&D funding for R&D from the business sector.

The Business sector also most exclusively funded its own R&D in 2013/14 as 95%. Government was not a recipient of business funding for R&D. Higher Education received 1.3% of business funding.

FIGURE 3.3 BUSINESS–FUNDED R&D BY SECTOR OF PERFORMANCE (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

3.4 INTERNATIONAL COMPARISON

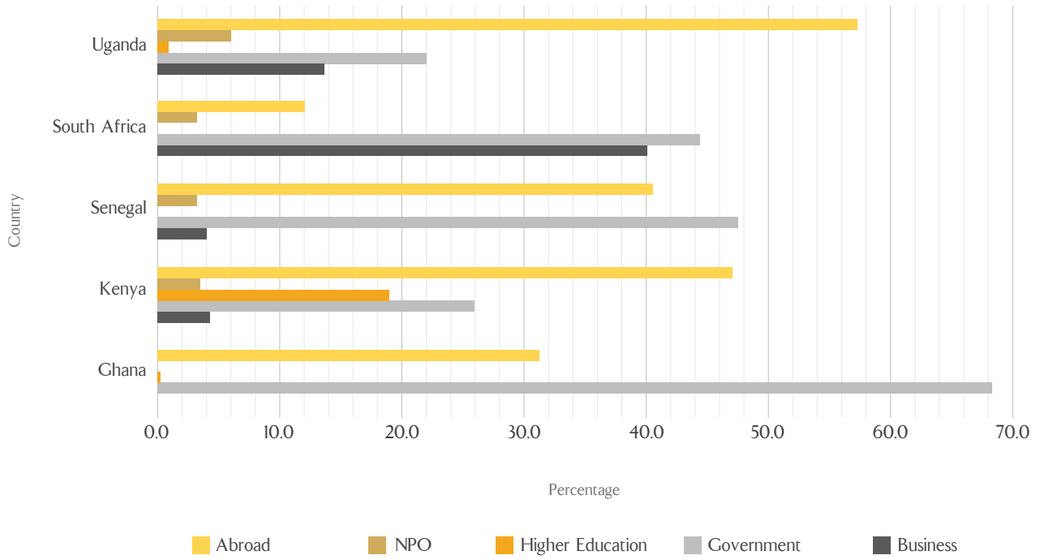
Government, private business, foreign sources and other national sources finance R&D, including the higher education institutions and not-for-profit organisations. As indicated in figure 3.4 and figure 3.5, the sources of funds for R&D and the proportion of funding from the various sources, vary among countries.

In Africa, the AIO (2014) report that R&D expenditure in the business enterprises is usually funded by the business sector. The same is true for government sector although in many developed countries a high proportion of funding may be from foreign donors. Government generally provides a large amount of funding for higher education sector.

In many African countries, R&D expenditures were funded with funds from abroad, the largest was in Uganda at 57%. Ghana, Senegal, South Africa and Namibia reported that more than 40% of their R&D funding came from Government.

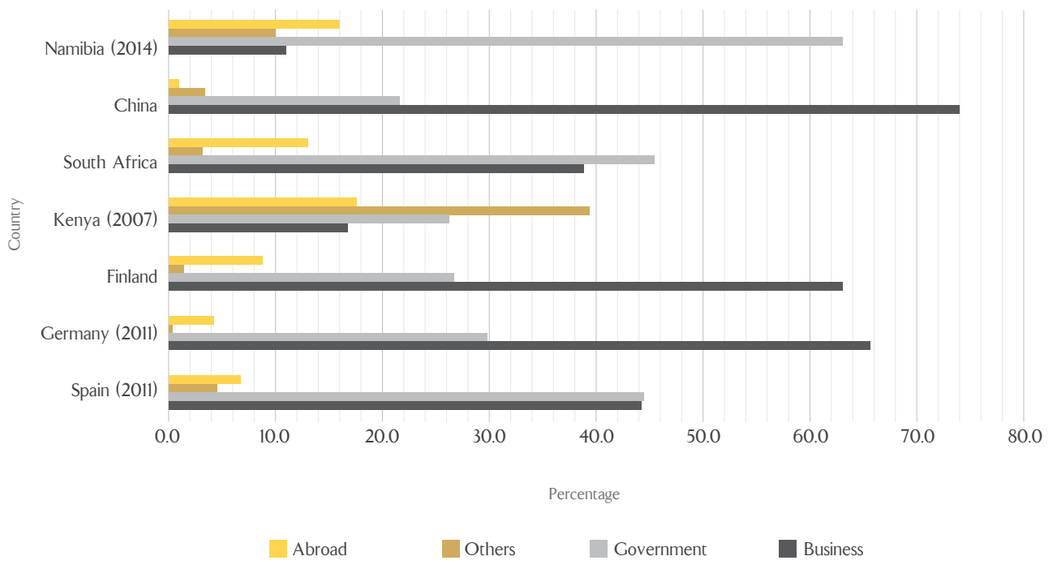
According to the OECD (2014) government general provides a largest amount of funding for R&D in the developing countries while R&D in the business enterprise sector is the largest funder of R&D in developed countries. Finland, Germany, and China reported that more that 60% of R&D funding came from business and China had the largest funding for R&D from business sector at 74%.

FIGURE 3.4 GERD BY SOURCES OF FUNDING (PERCENTAGE), SELECTED AFRICA COUNTRIES, 2010



Data Sources - The Africa Innovation outlook (AIO) 2014

FIGURE 3.5 GERD BY SOURCE OF FUNDS OF SELECTED COUNTRIES (PERCENTAGE), 2012/13 OR AVAILABLE YEAR



Data Sources - Namibia National Survey of Research and experimental Development, 2013/14
Finland, China, Spain and Germany: OECD 2014
Kenya and South Africa: AIO 2014

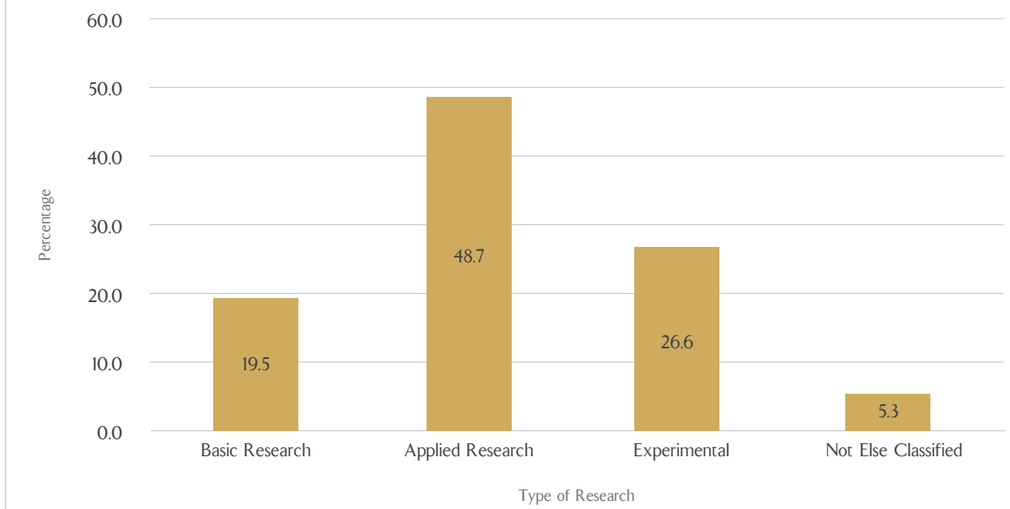
4.1 GERD BY TYPE OF RESEARCH

As shown in figure 4.1 R&D expenditure on applied research accounted for the largest proportion of R&D expenditure in 2013/14 at 48.7% of total GERD.

R&D expenditure on experimental development was 26.6% and basic research stood at 19.5%. The unclassified R&D expenditure to the type of research was 5.3% and this was due to lack of knowledge to distinguish between the three types of research by some of the respondents in the country.

Figure 4.1 shows that applied research accounted for the major share of R&D expenditure in Namibia for 2013/2014.

FIGURE 4.1 TOTAL GERD BY TYPE OF RESEARCH (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

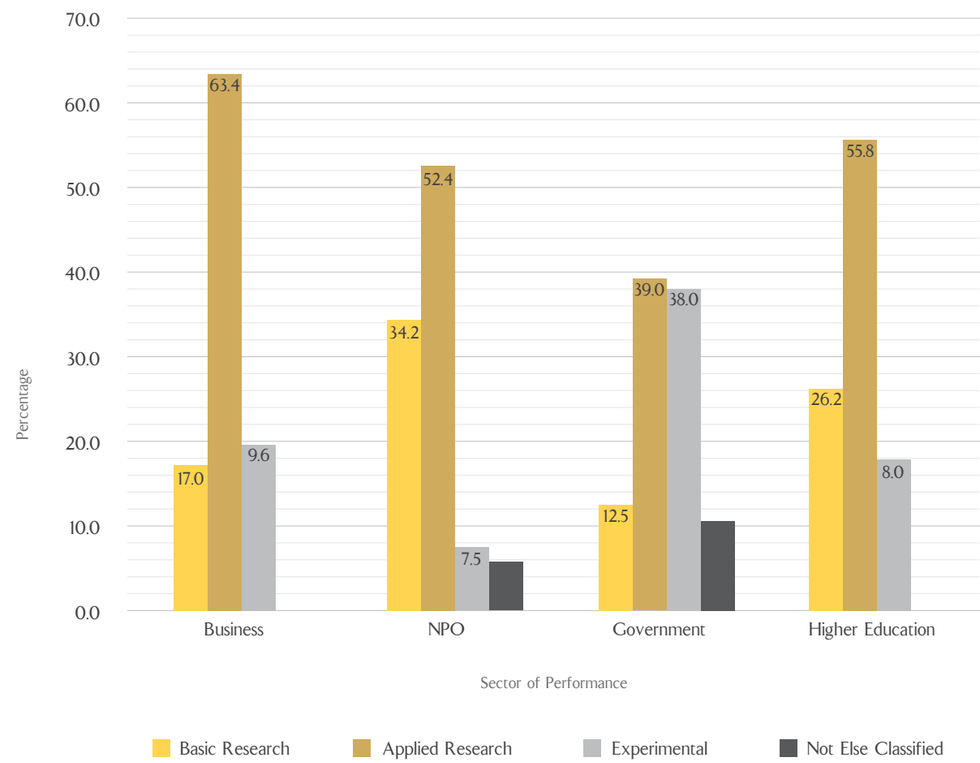
4.2 GERD BY TYPE OF RESEARCH AND SECTOR OF PERFORMANCE

Figure 4.2 shows the R&D activities in the business sector were towards experimental research, with 52.4% of expenditure devoted to this type of research. Experimental research is systematic work, drawing on knowledge gained from research and practical experience that is directed to producing new materials, products and devices to installing new processes, system and services; or to improve substantially those already produced or installed.

R&D in the government sector towards applied research is at below 40%.

The higher education sector and not-for -profit sector were the highest performers of applied research, with higher education devoted 56% of the R&D expenditure and not-for profit devoted 52% to this type of research.

FIGURE 4.2 TOTAL GERD BY TYPE OF RESEARCH AND SECTOR OF PERFORMANCE (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

4.3 GERD BY MAJOR RESEARCH FIELD

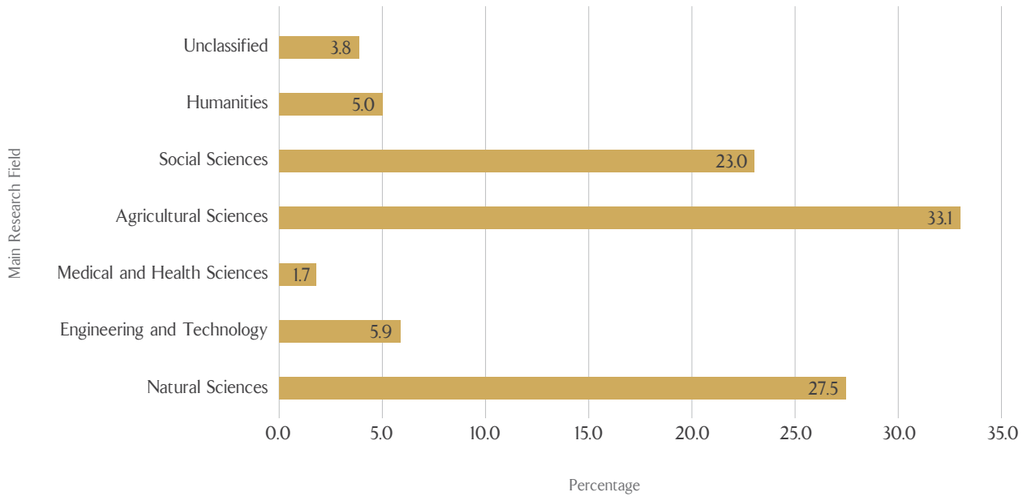
The agriculture science accounted for the largest share of GERD in 2013/14 at 33.1 % amounting to N$ 149.6 million (see Figure 4.3).

Figure 4.4 shows the breakdown on GERD for the agriculture sciences. Agriculture, forestry and fisheries and animal science accounted for largest share of GERD within agriculture sciences at 45.1% and 42% respectively.

R&D expenditure in the natural sciences was N$ 124.3 million or 27.5% of GERD in 2013/2014. R&D expenditure on social sciences was N$ 104.2 million or 23%.

The lowest research field were medical and health science, humanities and engineering and technology. Medical and health sciences were lowest due to the fact that there were no clinical trials conducted in Namibia during the reporting period. Engineering and technology accounted for 13.6% to GERD.

FIGURE 4.3 GERD BY RESEARCH FIELD (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

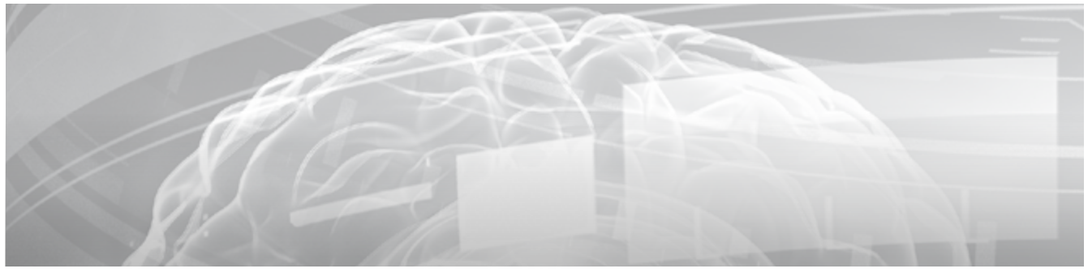
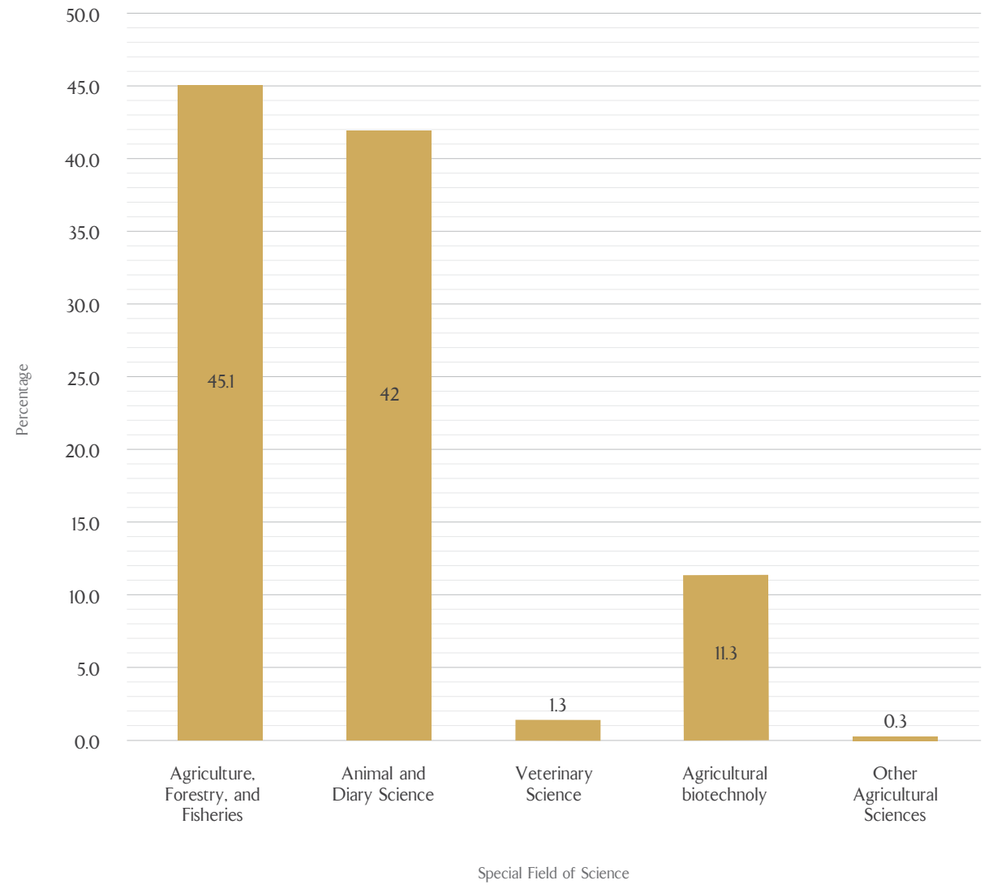


FIGURE 4.4 GERD BY SPECIAL FIELD OF SCIENCE (PERCENTAGE), NAMIBIA, 2013/14



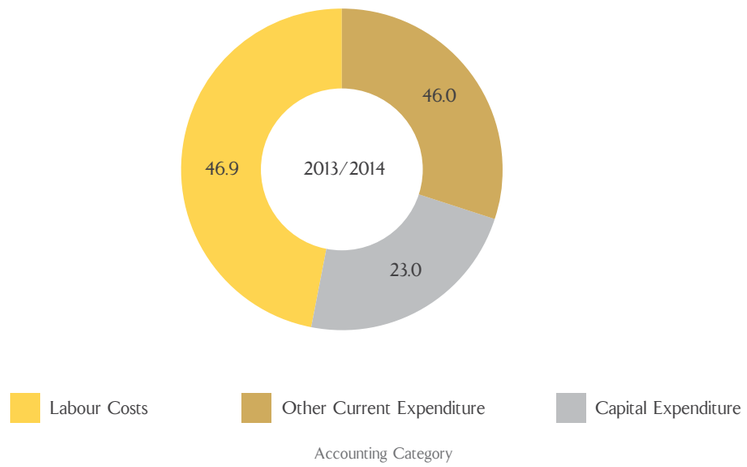
Data Sources - National Survey of Research and experiment Development 2013/14

4.4 GERD BY ACCOUNTING CATEGORY

The proposition of R&D allocated to labour cost was the largest in Namibia at N$ 221.2 million or 47%, in 2013/14, translated to closer to half of the R&D expenditure was spent on labour cost.

Figure 4.5 indicates that the percentage of R&D expenditure allocated to other current cost was 30%. The R&D expenditure on capital items mainly vehicle, plant, machinery and equipment, land, building and other structure and software stood at N$108.2 million or 23%.

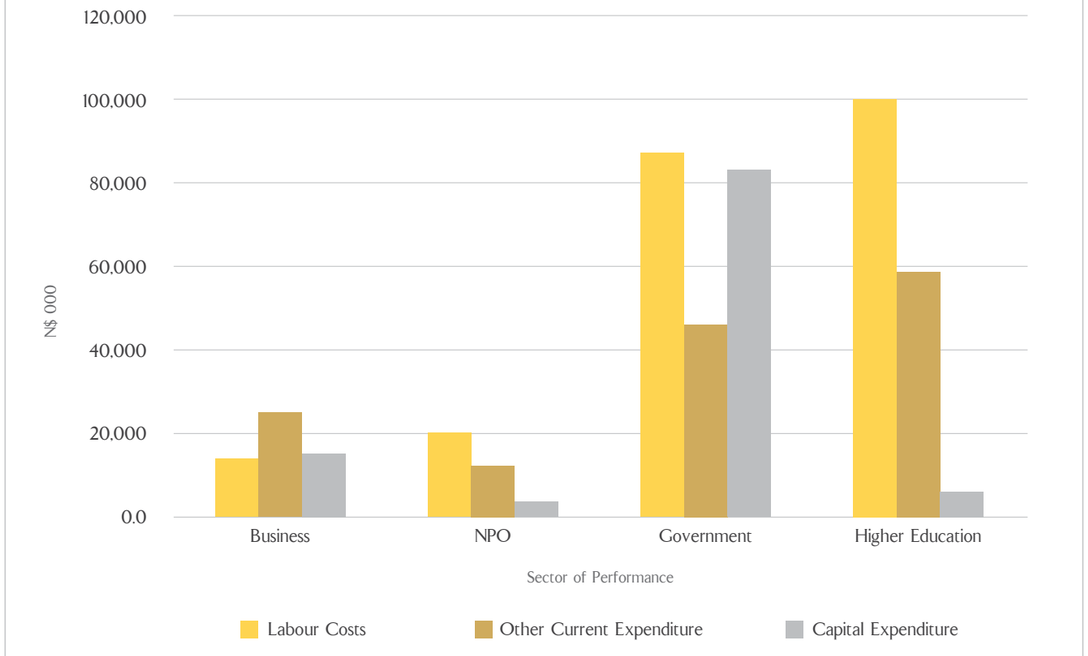
FIGURE 4.5 GERD BY ACCOUNTING CATEGORY (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

Figure 4.6 shows R&D expenditure by accounting category and sector of performance. The proposition of labour cost for R&D was largest in the government sector and higher education.

FIGURE 4.6 GERD BY ACCOUNTING CATEGORY (N$ 000), NAMIBIA, 2013/14



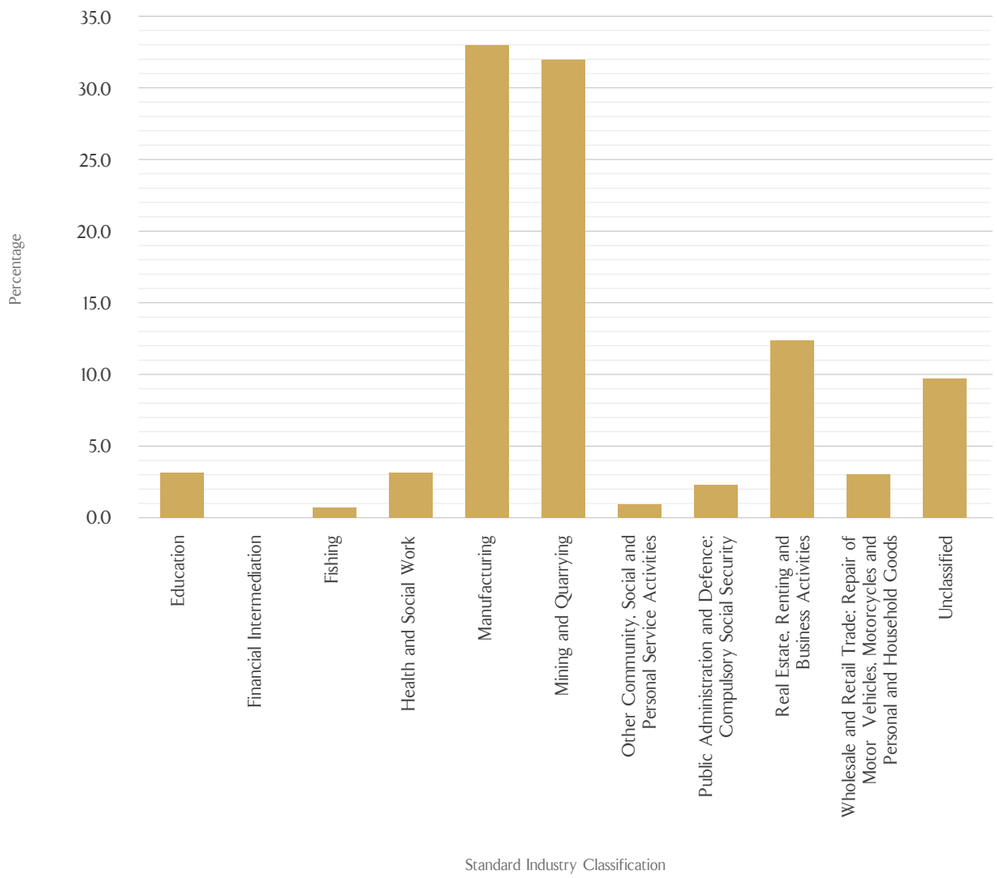
Data Sources - National Survey of Research and experiment Development 2013/14

4.5 BUSINESS SECTOR R&D EXPENDITURE BY STANDARD INDUSTRY CLASSIFICATION

In the 2013/14 R&D Survey, the manufacturing sector, mining and quarry accounted for the largest share of R&D business expenditure (BERD), spending N$ 17.8 million or 33.1% individually.

Real estate was the second largest contributor to BERD, with expenditure of N$ 6.6 million.

FIGURE 4.7 BUSINESS SECTOR R&D EXPENDITURE BY STANDARD INDUSTRY CLASSIFICATION (SIC) (PERCENTAGE), NAMIBIA, 2013/14



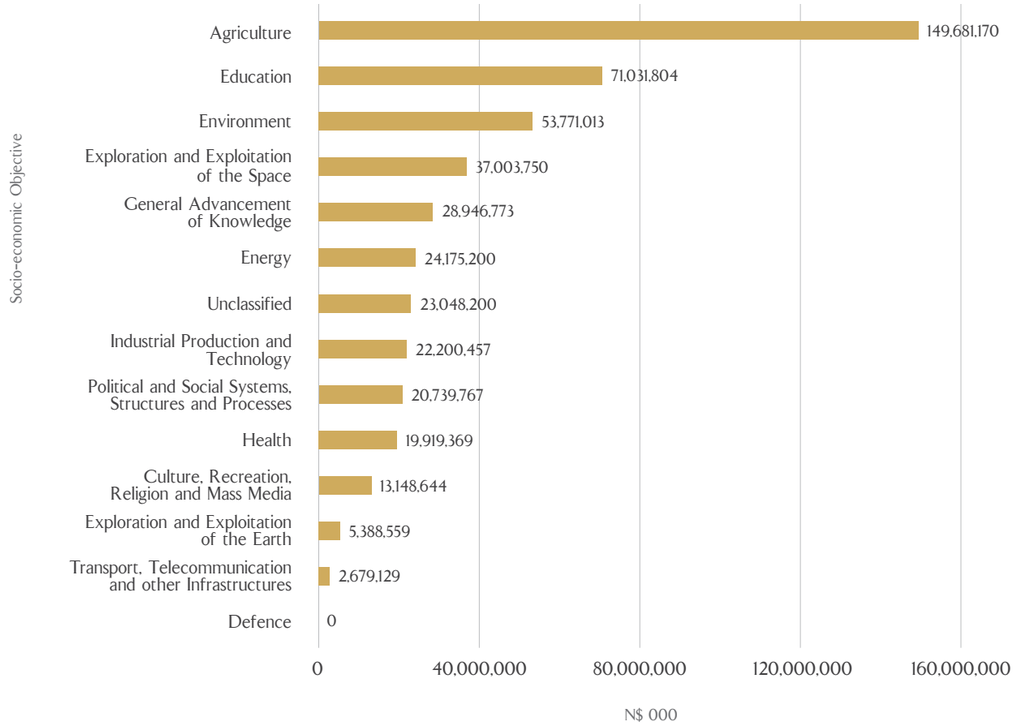
Data Sources - National Survey of Research and experiment Development 2013/14

4.6 GERD BY SOCIO-ECONOMIC OBJECTIVES

Figure 4.8 shows that agriculture accounted for the largest share of R&D spending in 2013/14, for overall socio-economic objectives followed by education and environment.

There was no R&D expenditure accounted for defence in 2013/14.

FIGURE 4.8 GERD BY SOCIO-ECONOMIC OBJECTIVES (N$ 000), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

4.6.1 GERD BY SOCIO-ECONOMIC OBJECTIVES AND SECTOR OF PERFORMANCE

Table 4.1 below indicates that business enterprises spent the largest R&D expenditure on the environment with N$ 18.7 million or 34.8% and industry production and technology with N$17.3 million or 32%.

Not-for-profit spent the largest R&D expenditure on the environment with N$ 15 million or 41% and on agriculture with and political and social system, structures and processes with about N$ 7 million or 19% and 18% respectively.

Agriculture accounted for the largest GERD from Government with N$ 131 million or 60% and on exploration and exploitation of space with 16%. The table shows that government R&D spending for energy was either not captured or it was really low.

Education took the largest share of R&D standing for higher education with N$69 million or 40% and energy accounted for second largest with N$23 million or 14%.

There were no data reported for defence, as data were not provided by the relevant organisation.

TABLE 4.1 GERD BY SOCIO-ECONOMIC OBJECTIVES AND SECTOR OF PERFORMANCE (PERCENTAGE), NAMIBIA, 2013/14

SOCIO-ECONOMIC OBJECTIVE	BUSINESS ENTERPRISE	NOT-FOR-PROFIT	GOVERNMENT	HIGHER EDUCATION
Exploration and Exploitation of the earth	4.3	0.9	0.0	1.6
Environment	34.8	41.6	0.3	11.7
Exploration and Exploitation of the Space	0.0	0.0	16.9	0.3
Transport, Telecommunication and other infrastructures	0.0	0.8	0.7	0.6
Energy	0.0	0.9	0.0	14.4
Industrial Production and technology	32.1	0.0	1.5	1.0
Health	2.3	5.7	0.3	9.7
Agriculture	6.3	19.1	60.7	4.8
Education	1.7	2.9	0.9	40.7
Culture, recreation, religion and mass media	1.7	2.4	3.5	2.4
Political and social systems, structures and processes	2.7	17.9	2.8	4.1
General Advancement of Knowledge	1.9	4.9	5.4	8.7
Defence	0.0	0.0	0.0	0.0
Unclassified	12.4	2.8	7.1	0.0
TOTAL	100.0	100.0	100.0	100.0

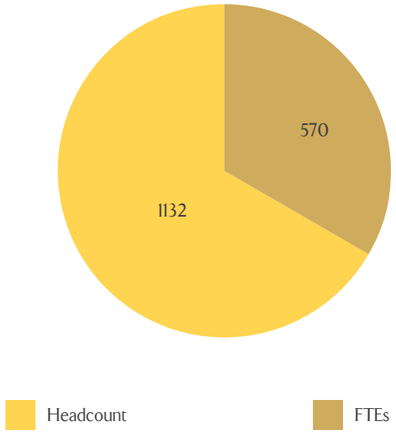
5.1 R&D PERSONNEL

R&D personnel headcount totalled 1,132 in 2013/14 while R&D personnel (FTEs) totalled 570.3 in 2013/14.

Figure 5.1 shows that out of 1132 R&D personnel, only 570 were devoted to R&D on full time equivalent.

The AIO (2014) estimated Namibia R&D personnel in 2010 at 949. R&D personnel increased by 16.2%, from 2010 to 2013/14.

FIGURE 5.1 R&D PERSONNEL (HEADCOUNT AND FTES), NAMIBIA, 2013/14



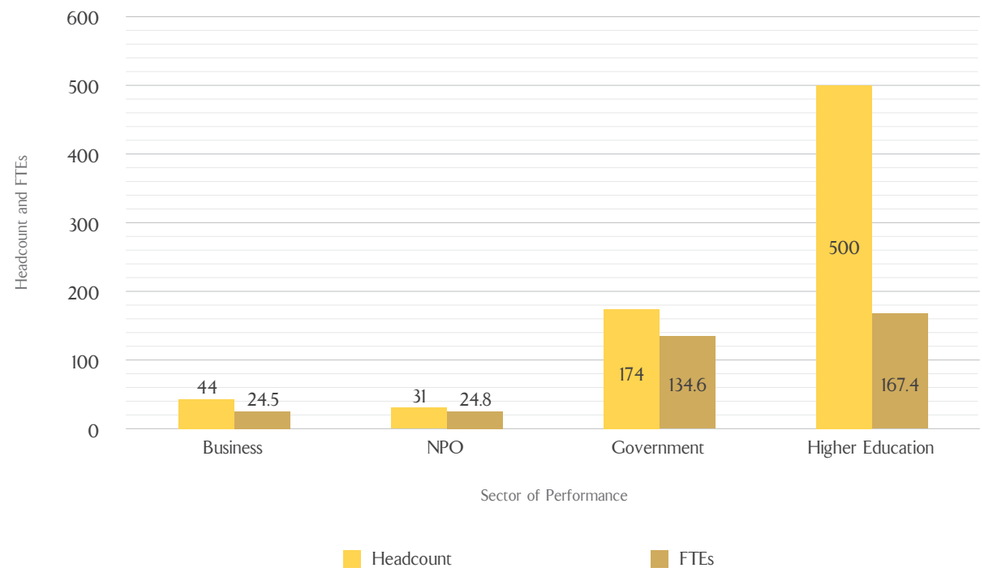
Data Note - Doctoral students and post-doctoral fellows are excluded as researchers

5.1.1 R&D PERSONNEL HEADCOUNT AND FULL-TIME EQUIVALENT BY SECTOR OF PERFORMANCE

In 2013/14, the higher education recorded the highest number of R&D personnel of 615, followed by government at 343 as shown in Figure 5.2. The business sector accounted for the lowest R&D personnel of only 82 or 7.51%.

In the 2013/14 R&D Survey, the highest sector of performance with the highest number of FTEs was government at 253.1 followed by high education at 211.8. The higher education sector has the highest number of R&D personnel but recorded the lowest number of personnel full-time equivalent in comparison to the government, which has the sector highest R&D personnel. The number of R&D personnel (FTEs) per thousand in total employment was 0.8 in 2013/14.

FIGURE 5.2 R&D PERSONNEL BY SECTOR (HEADCOUNT AND FTES), NAMIBIA, 2013/14



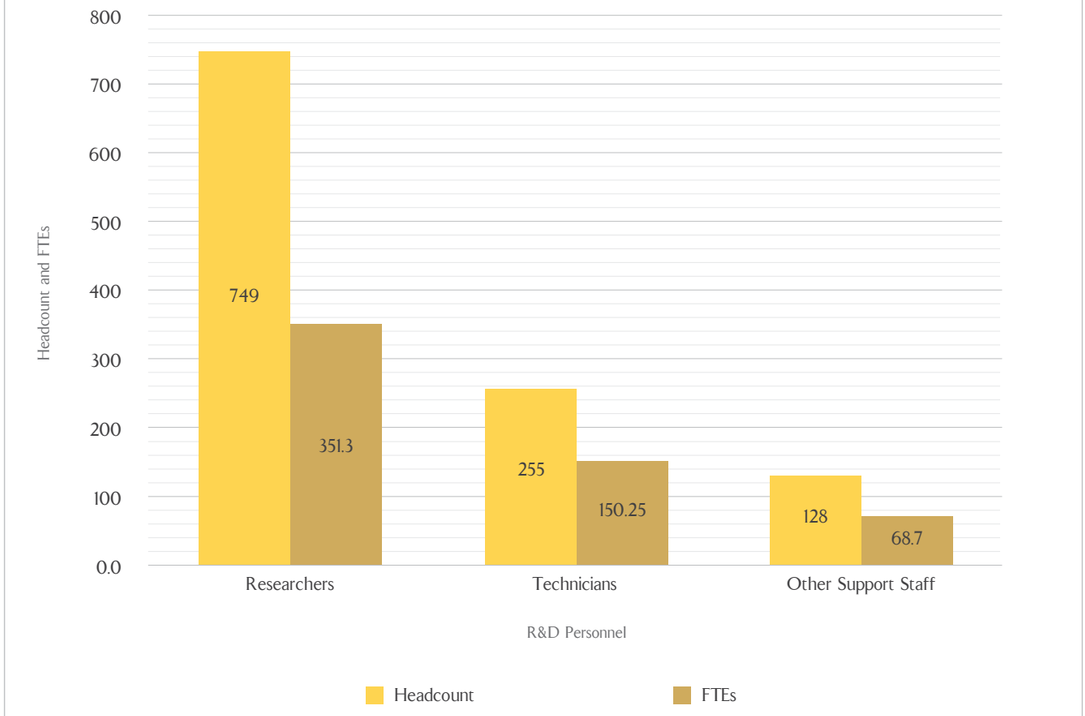
Data Note - Doctoral students and post-doctoral fellows are excluded as researchers

5.1.2 R&D PERSONNEL BY OCCUPATION

The majority of R&D personnel consisted of researchers, who accounted for 66.2% or 749 of the total, followed by technicians at 22. 5% and other supporting staff directly supporting R&D.

Researchers accounted for the highest R&D personnel, however the total number of researchers dedicated to research full-time equivalent only represent 46% as shown in Figure 5.3.

FIGURE 5.3 R&D PERSONNEL (HEADCOUNT AND FTES) BY OCCUPATION, NAMIBIA, 2013/14

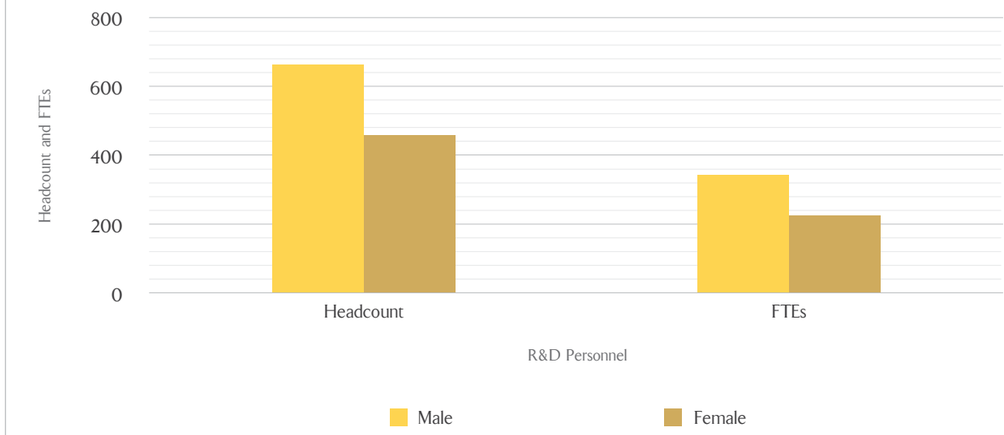


Data Note - Doctoral students and post-doctoral fellows are excluded as researchers

5.1.3 R&D PERSONNEL BY GENDER

The majority of R&D personnel in Namibia are male accounting for 59% of total R&D personnel in the country (see Figure 5.34).

FIGURE 5.4 R&D PERSONNEL (HEADCOUNT AND FTES) BY GENDER, NAMIBIA, 2013/14



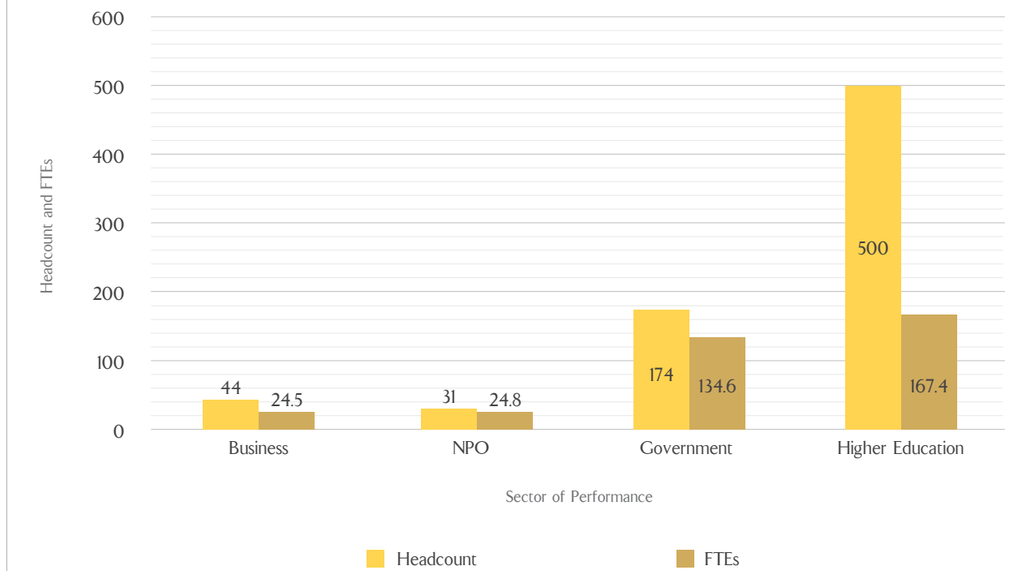
Data Note - Doctoral students and post-doctoral fellows are excluded as researchers

5.2 RESEARCHERS

5.2.1 RESEARCHERS HEADCOUNT BY SECTOR OF PERFORMANCE

The Higher education sector accounted for the largest number of researchers, with headcount of 500 in 2013/14 and full-time equivalent of 167.4 followed by government sector at 174 headcount and 134 fulltime equivalent. The business sector and not-for profit sector had the lowest number of researcher headcount and full-time equivalent as shown in Figure 5.5.

FIGURE 5.5 R&D RESEARCHERS BY SECTOR OF PERFORMANCE (HEADCOUNT AND FTES), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

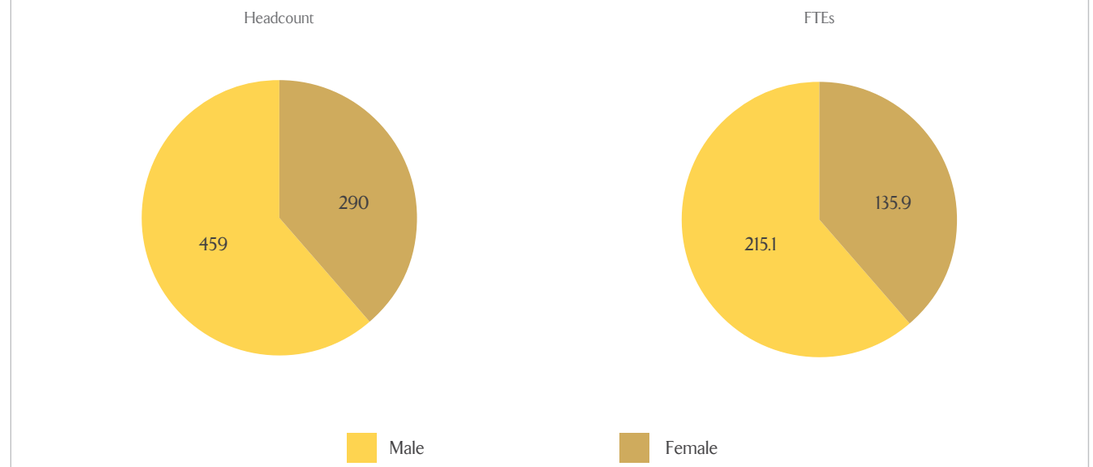
Figure 5.5 recorded the total number of researchers' headcount and full-time equivalent. The total number of researchers (full-time equivalent as a percentage of headcount) for higher education was 33.5%. This translates to higher education having researcher spending only 33.5% of their time doing research.

5.2.2 RESEARCHERS HEADCOUNT GENDER

As shown in Figure 5.6, in 2013/14, Namibia had more male researchers at 459 compared to 290 female researchers. Percentage of female share of total researchers was 38.7% while percentage of male share of total researcher was 61.3%. The AIO, 2014, reported that Namibia had 327 female researchers in 2010, which represent a decrease of 11% in 2013/14.

Similarly, Namibia had a higher number of male full-time equivalent at 215.1 compare to female full-time equivalent at 135.9.

FIGURE 5.6 R&D RESEARCHER (HEADCOUNT AND FTES) BY GENDER, NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

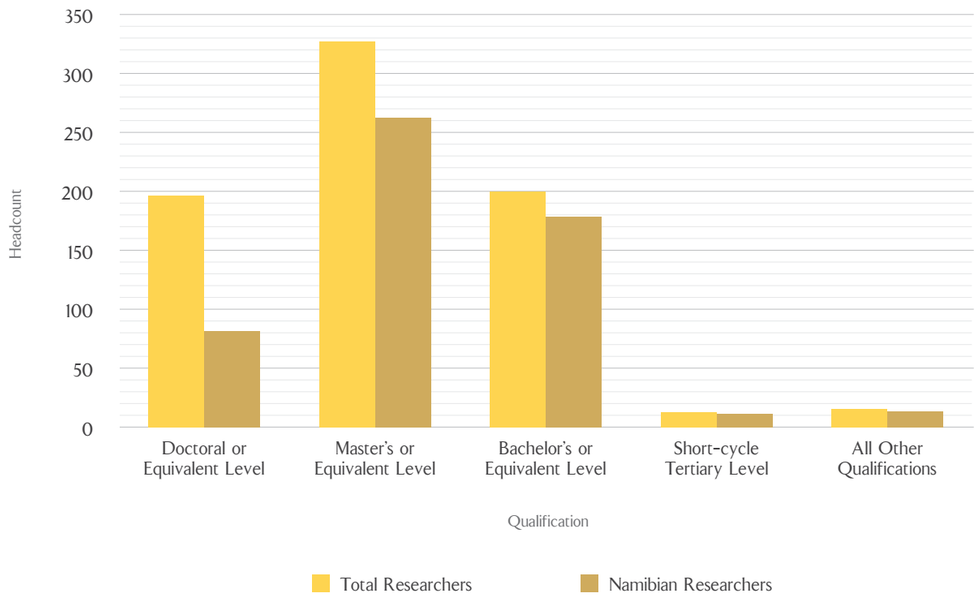
5.2.3 RESEARCHERS BY QUALIFICATION AND NATIONALITY

In 2013/14, the researcher workforce by nationality consisted of 73% Namibian researchers (headcount) and 27% foreign researchers (headcount). In total, Namibia had a higher number of researchers with Master degree or equivalent qualification at 43% followed by doctoral and bachelor's qualification at about 30% each.

The proportion of Namibian researchers with doctoral degree was 41% whilst with master degrees was 19% and bachelors degrees were 12%.

The 2013/14 R&D Survey revealed that the majority of researchers with doctoral degrees were foreign nationals. The actual headcount of researchers by qualification nationality is given in Figure 5.7

FIGURE 5.7 RESEARCHERS BY QUALIFICATION AND NATIONALITY (HEADCOUNT), NAMIBIA, 2013/14

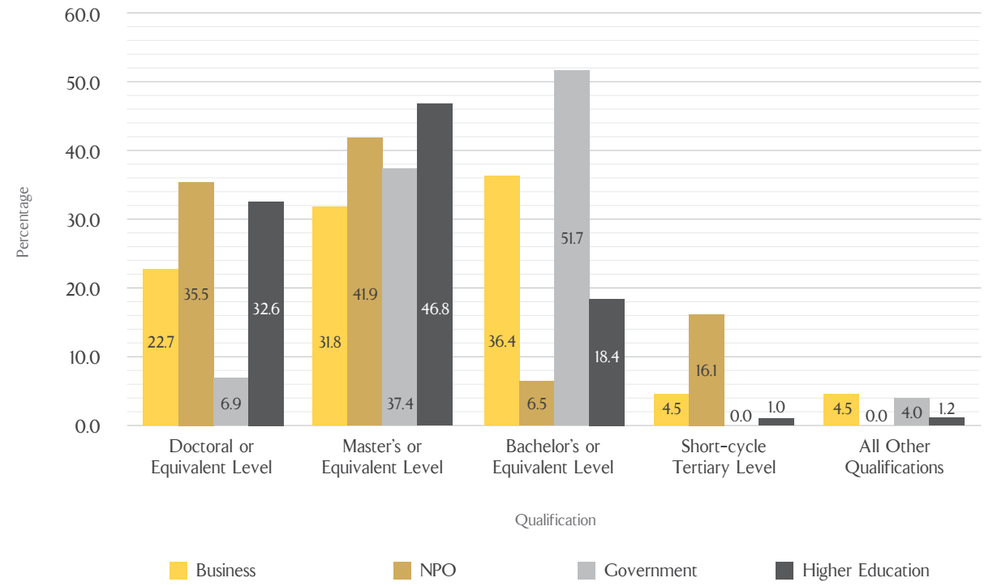


Data Note - Doctoral students and post-doctoral fellows are excluded as researchers

5.2.4 RESEARCHERS BY SECTOR AND QUALIFICATION

As depicted in figure 5.8, in 2013/14, the business enterprise had a relative high number of researchers with doctoral, master and bachelor's qualifications at 22.7%, 31.8% and 36.4% respectively. Government sector had a highest number of researchers with bachelors at 41% and master's qualifications at 37%. Not-for-profit had the highest number of researcher with masters 41.9% and doctoral qualification at 35.5%

FIGURE 5.8 RESEARCHERS BY SECTOR AND QUALIFICATION (PERCENTAGE), NAMIBIA, 2013/14

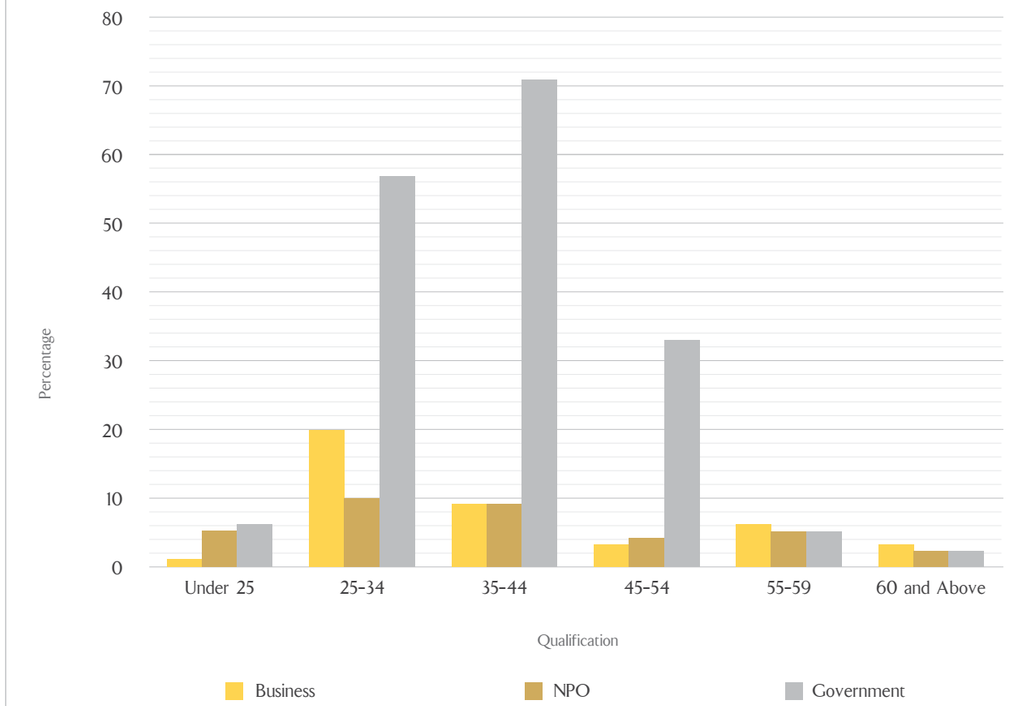


Data Sources - National Survey of Research and experiment Development 2013/14

5.2.5 RESEARCHER BY SECTOR AND AGE

The R&D Survey indicated higher number of researchers between the age of 25 -54 at 36%. Government had the highest number of researchers between 25-54 years.

FIGURE 5.9 RESEARCHERS BY SECTOR AND AGE (HEADCOUNT), NAMIBIA, 2013/14



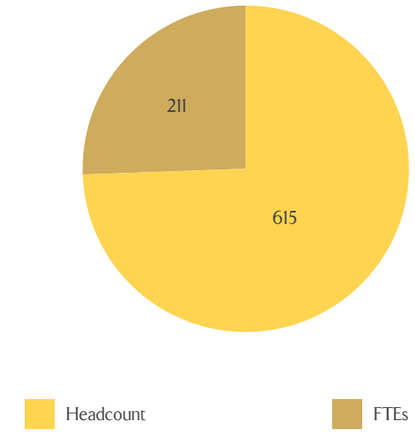
Data Sources - National Survey of Research and experiment Development 2013/14

5.3 HIGHER EDUCATION R&D PERSONNEL

5.3.1 HIGHER EDUCATION R&D PERSONNEL: HEADCOUNT AND FTES

The higher education sector accounted for the highest R&D personnel at 615 (headcount). Higher R&D personnel spent 34.3% of their time on research in 2013/2014 as shown in Figure 5.10.

FIGURE 5.10 HIGHER EDUCATION PERSONNEL (HEADCOUNT AND FTES), NAMIBIA, 2013/14

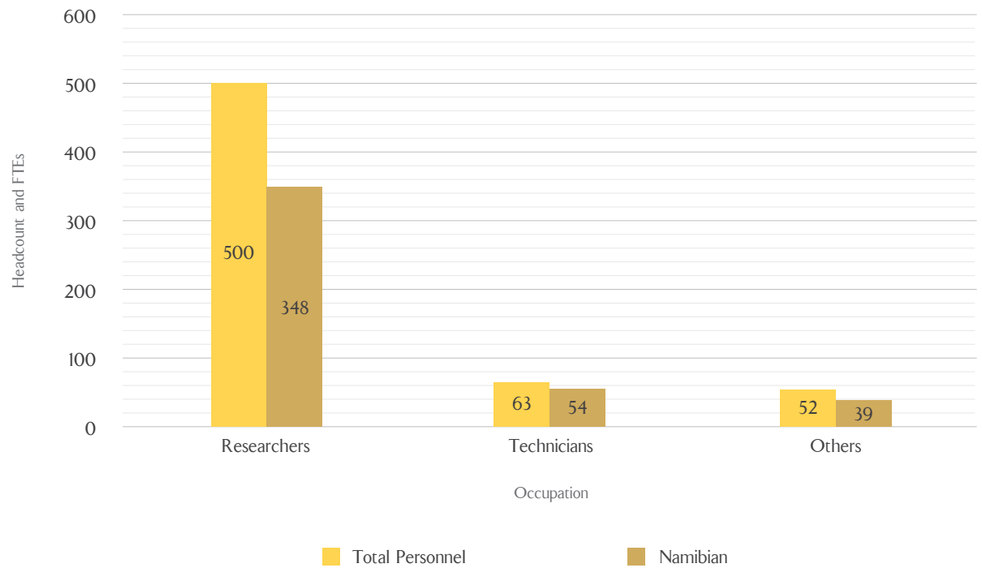


Data Sources - National Survey of Research and experiment Development 2013/14

5.3.2 HIGHER EDUCATION RESEARCHERS

As shown in figure 5.11, in 2013/14, higher education sector had the largest number of researchers at 500 headcount representing 70% were Namibians.

FIGURE 5.11 HIGHER EDUCATION RESEARCHERS (HEADCOUNT AND FTES), NAMIBIA, 2013/14

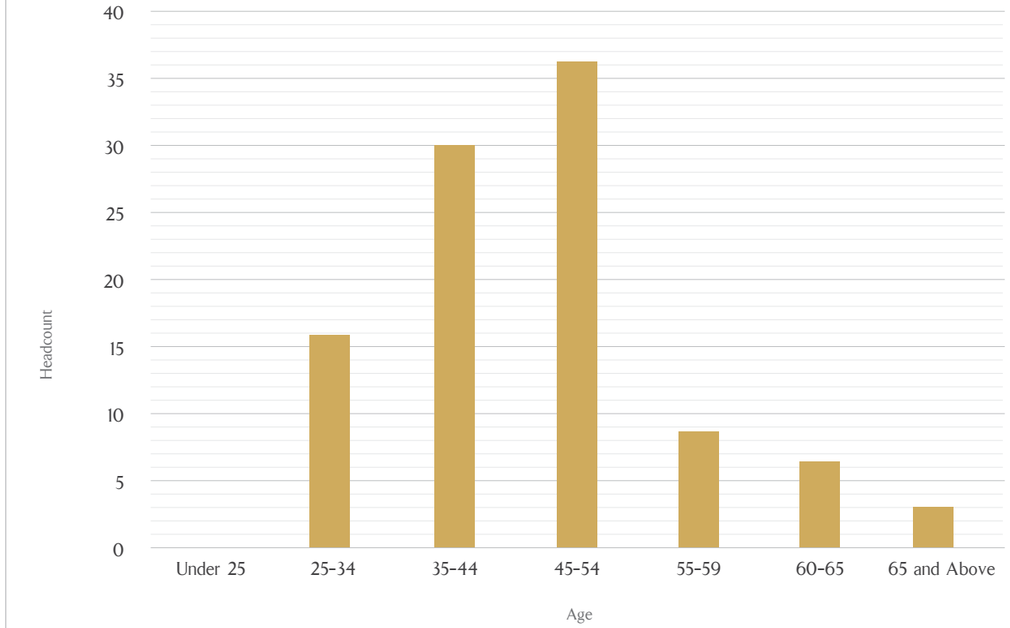


Data Sources - National Survey of Research and experiment Development 2013/14

5.3.3 HIGHER EDUCATION RESEARCHERS BY AGE

As shown in figure 5.12, the higher education sector had more researchers at the age of 45-54 at 36% followed by researchers of the age 35-44 at 30 %. The Higher education sector was the only sector which recorded researcher at above the age of 65 who represented 3%.

FIGURE 5.12 HIGHER EDUCATION RESEARCHERS BY AGE (HEADCOUNT), NAMIBIA, 2013/14



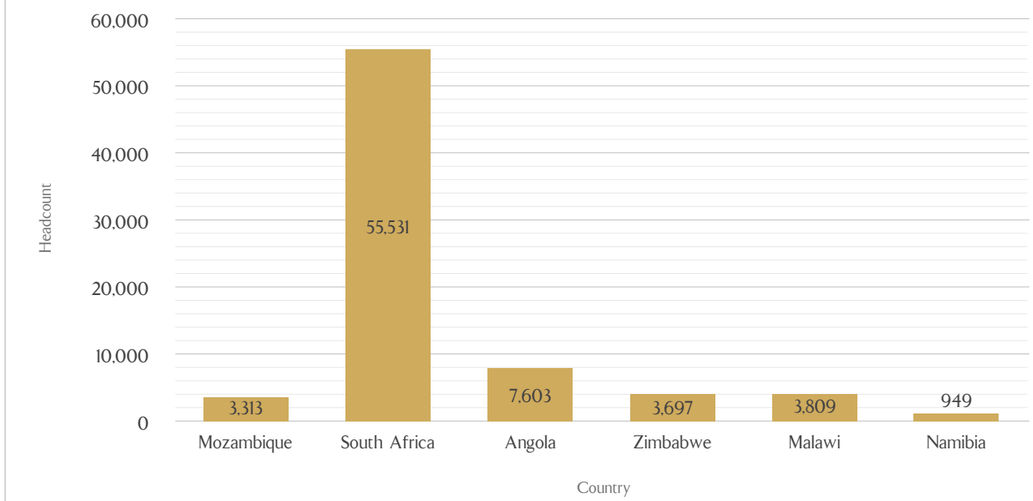
Data Sources - The Africa Innovation outlook (AIO) 2014

5.4 INTERNATIONAL COMPARISONS: PEOPLE IN R&D

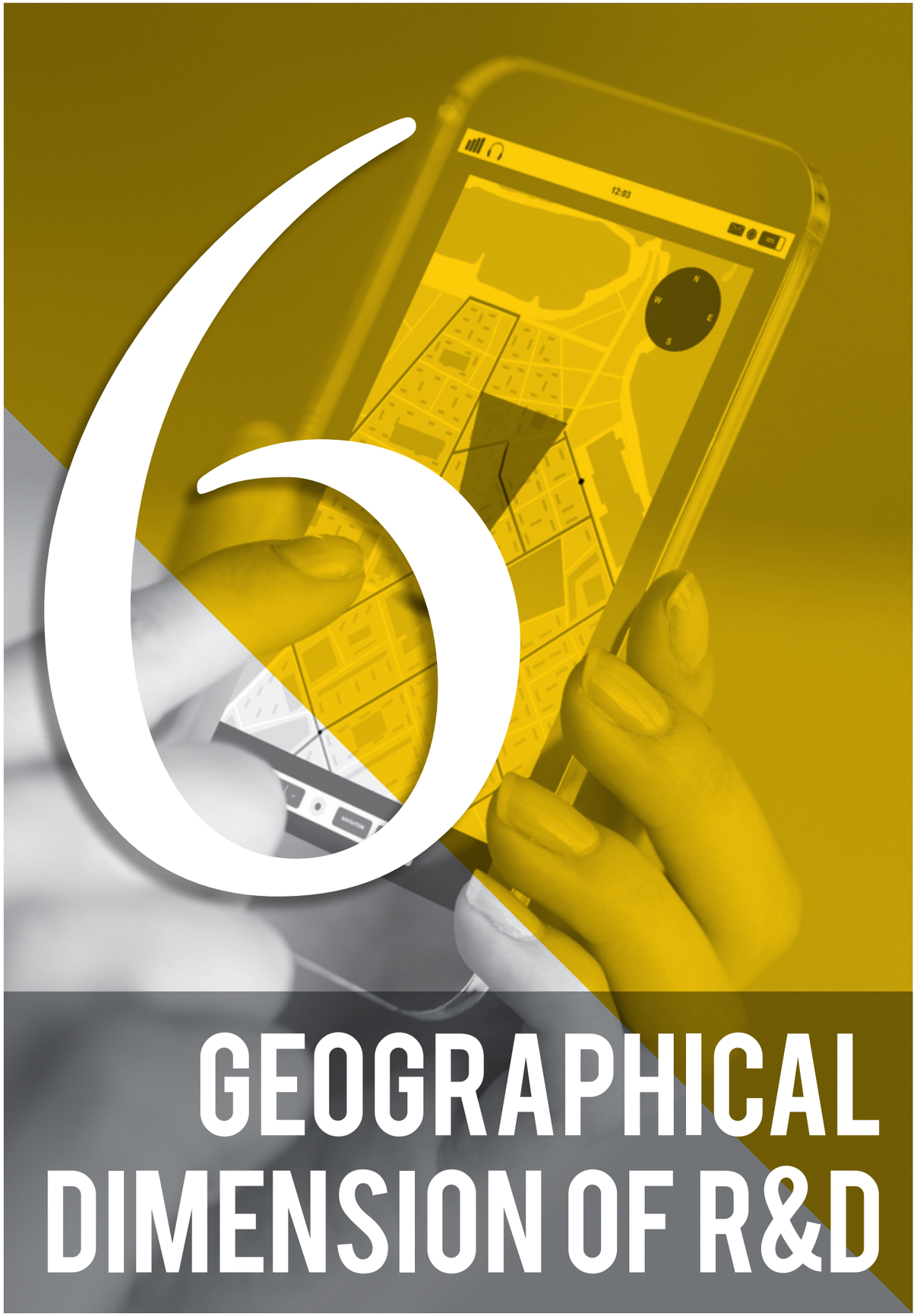
Namibia has 949 R&D personnel in 2010, (AIO: 2014) Namibia's human resource base for R&D is much smaller than that of its reference countries.

Fig 5.13 shows that South Africa had almost fifty nice (59) times R&D personnel than Namibia.

FIGURE 5.13 REGIONAL R&D PERSONNEL (HEADCOUNT), 2010



Data Sources - The Africa Innovation outlook (AIO) 2014



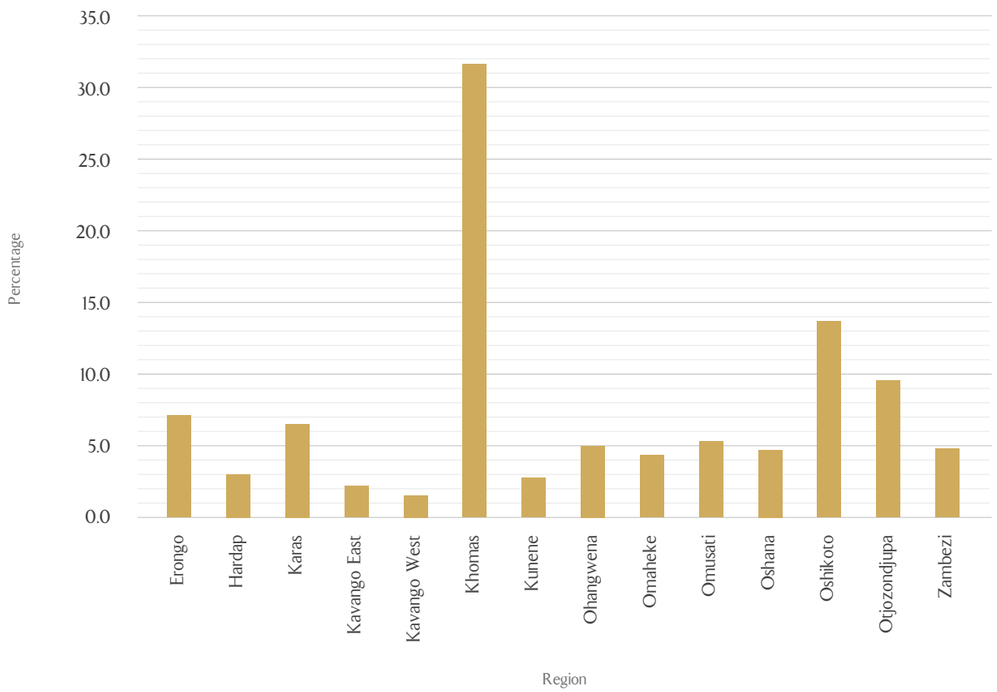
6 GEOGRAPHICAL DIMENSION OF R&D

6.1 R&D EXPENDITURE BY REGION

R&D expenditure in Namibia is concentrated in Khomas, Oshikoto and Otjozondjupa regions.

Khomas was responsible for about N$148.5 million (31.5%) of total GERD followed by Oshikoto region with N& 63.4 million (13.4%) and Otjozondjupa region with N$ 44.5 million (9.4%). Together these three regions accounted for 54.3% of total GERD in 2013/14. Kavango West and Kavango East and Hardap regions accounted for the lowest GERD at merely 6.3% (see Figure 6.1).

FIGURE 6.1 R&D EXPENDITURE BY REGION (PERCENTAGE), NAMIBIA, 2013/14



Data Sources - National Survey of Research and experiment Development 2013/14

6.2 R&D EXPENDITURE BY REGION AND SECTOR OF PERFORMANCE

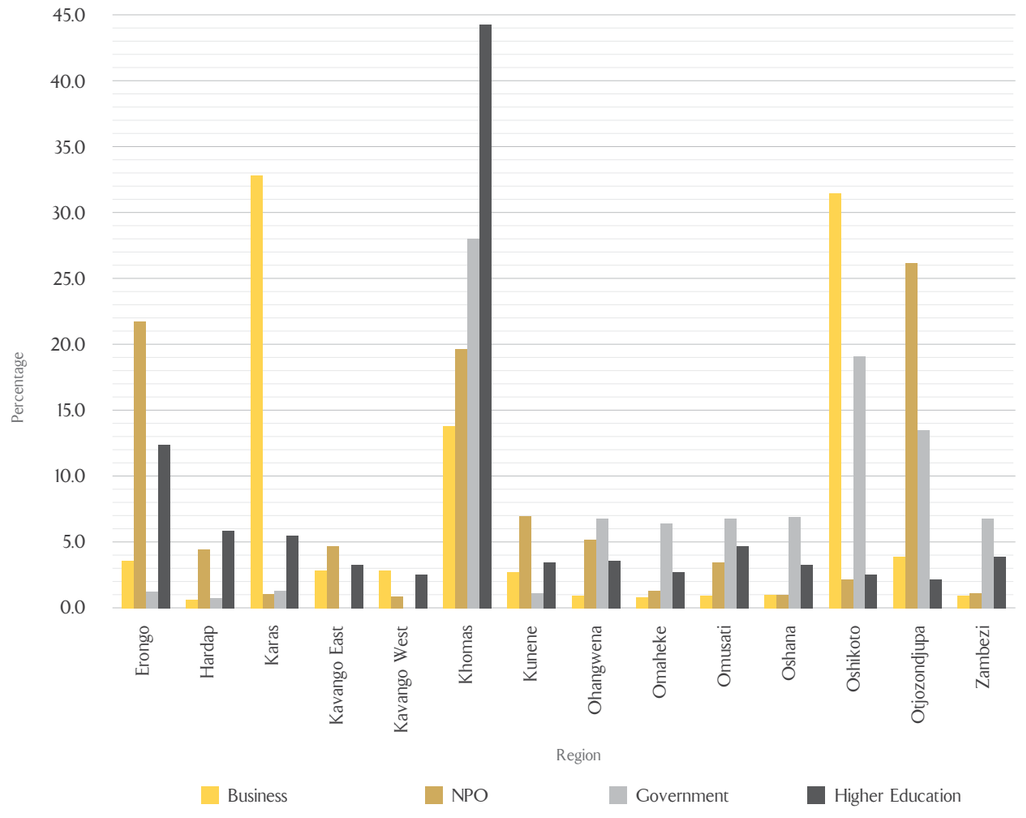
The regional R&D expenditure differed among the 14 R&D performing sectors.

Figure 6.2 and figure 6.3 shows that the contribution of the business enterprises sector as a proportion of R&D expenditure was predominantly in the Oshikoto and Karas regions. The proportion of R&D expenditure by higher education was higher in Khomas region at 44.3% and Erongo region.

Figure 6.4 shows that the proportion R&D expenditure by the government sector was highest in Khomas region at 28%, Oshikoto at 19.1% and Otjozondjupa at 13.5%.

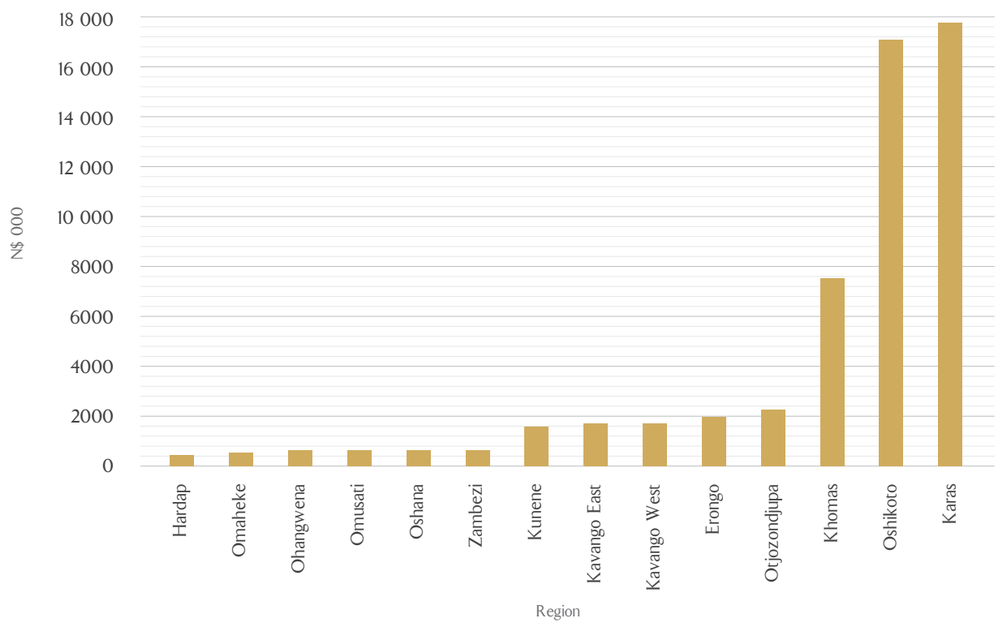
Not for profit contribution to R&D was highest in Otjozondjupa at 26.2% Erongo at 21.7% and Khomas at 19.6%.

FIGURE 6.2 R&D EXPENDITURE BY REGION AND SECTOR OF PERFORMANCE (PERCENTAGE), NAMIBIA, 2013/14



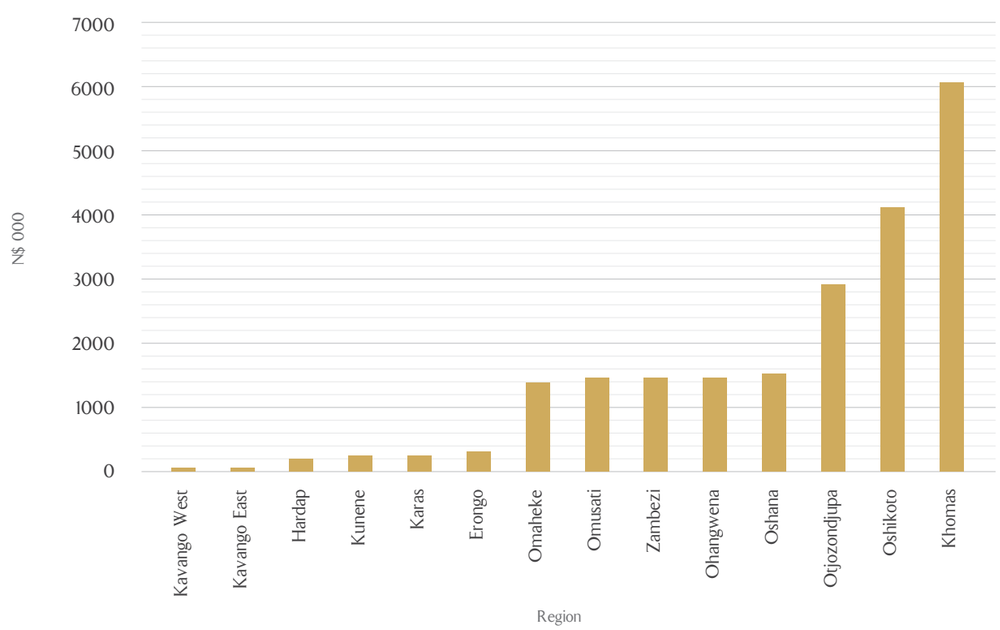
Data Sources - National Survey of Research and experiment Development 2013/14

FIGURE 6.3 R&D BUSINESS SECTOR EXPENDITURE BY REGION (N$ 000), 2013/14, NAMIBIA



Data Sources - National Survey of Research and experiment Development 2013/14

FIGURE 6.4 R&D GOVERNMENT SECTOR EXPENDITURE BY REGION (N$ 000), 2013/14, NAMIBIA



Data Sources - National Survey of Research and experiment Development 2013/14

BIBLIOGRAPHY

AU-NEPAD (African Union-new Partnership for Africa's Development). 2014. Africa Innovation Outlook 2014. Pretoria: AU-NEPAD.

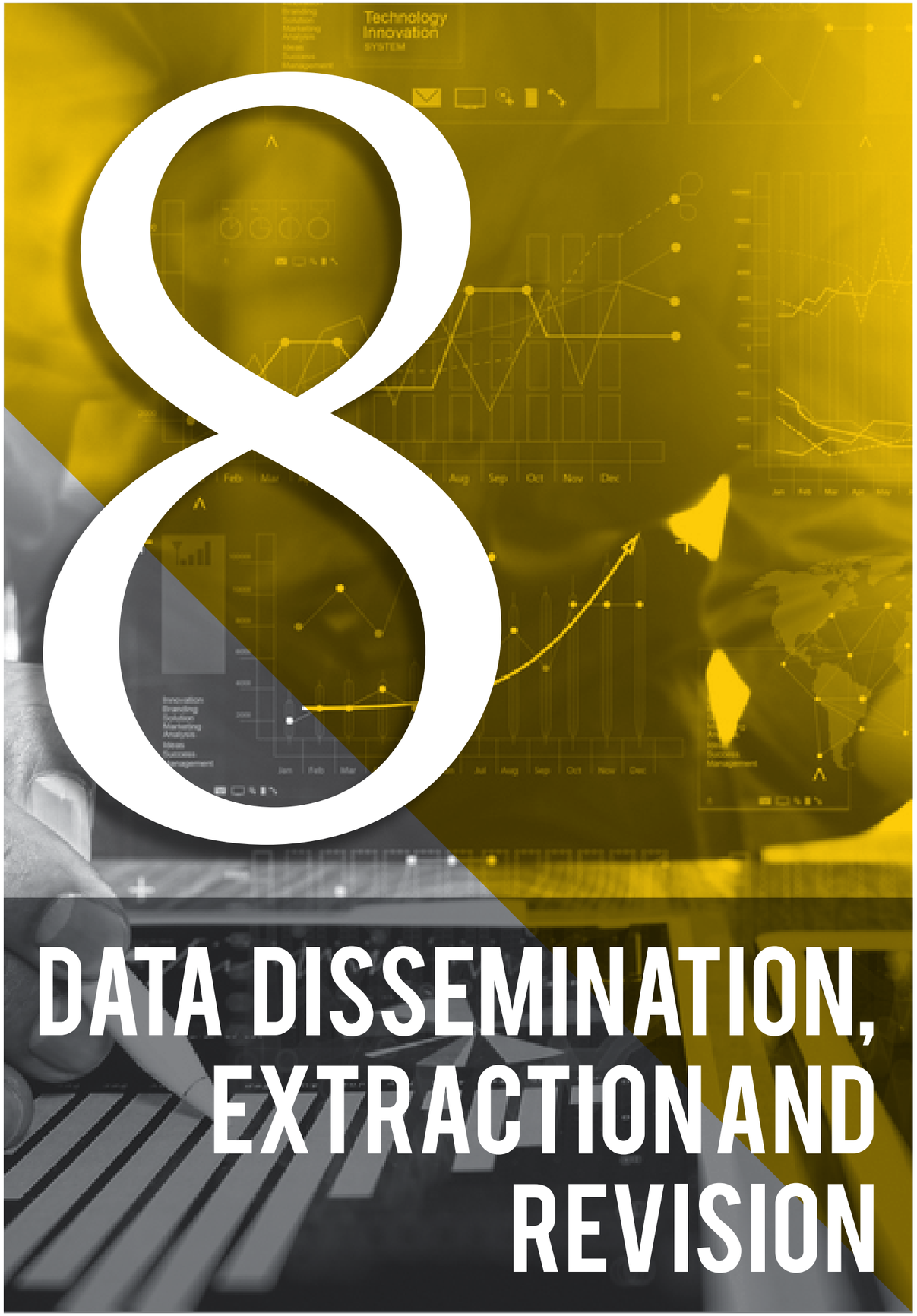
DST (2012-13) National survey of research and experimental development: main analysis report Pretoria. SA

Namibia Statistical Agency (2015) Gross domestic Products: NA_series_1980-20154. Windhoek: NSA.

OECD (2002) the Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys on Research and Experimental Development (Frascati Manual). Paris: OECD Publishing.

UNCST (2012) National Survey of Research and Development report. Kampala: UNCST

UIS (UNESCO Institute for Statistics) 2014: online model Questionnaire. (online) Available at http://www.uis.unesco.org/ScienceTechnology/Pages/research-and-development-statistics.aspx. Accessed 21 September 2015



8.1 DISSEMINATION

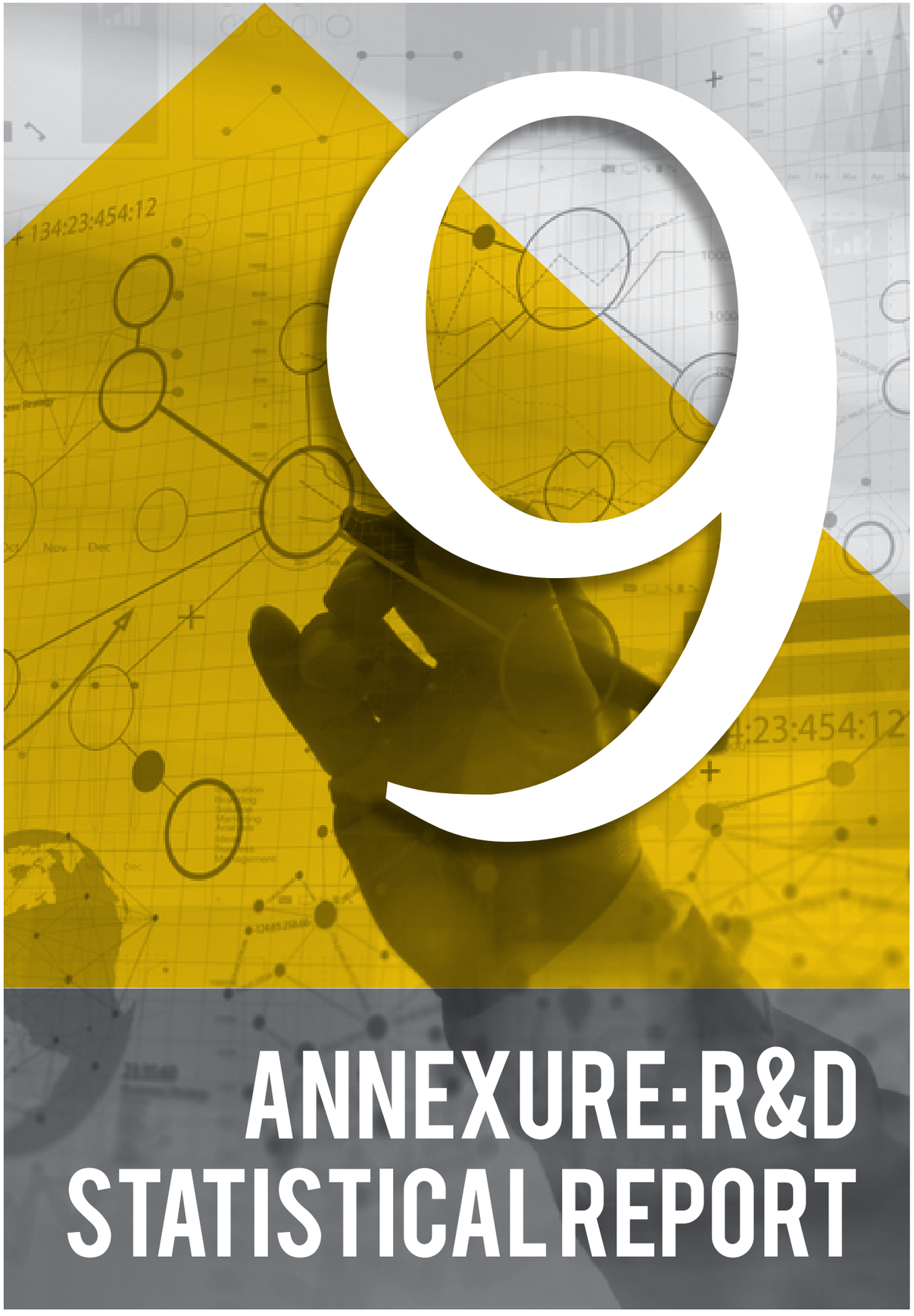
This may be downloaded free of charge from our website: www.ncrst.na.

8.2 DATA EXTRACTION

Data extraction in response to user's special data request is provided free of charge, unless further analytical work is required to meet nay such request. Data extractions are done in accordance with approved data access by the CEO and requests should be send to the office of the CEO.

8.3 REVISION

The National Commission on Research, Science and Technology (NCRST) and the Namibian Statistical Agency (NSA) jointly reserve the right to reserve the data, indicators and analysis contained in this report. Such revision may result from revisions by NSA of socio-economic indicators such as the gross domestic product (GDP) or employment member or amendments in terms of response to internal and external data quality and consistence monitoring such as that carried out by NEPAD.



9 ANNEXURE: R&D STATISTICAL REPORT

1 METHODOLOGY

1.1 INTRODUCTION

The surveys were conducted according to the OECD guidelines presented in the Frascati manual. The Frascati Manual (OECD, 2002) defines research and development as "the creation of new knowledge or the application of existing knowledge to improve products, processes and/or services to affect economic outcomes".

The R&D survey was targeted at the higher education sector, the private non-profit sector, the government sector and business enterprises, as defined in the Frascati manual. The business enterprises also participated in the Innovation survey. The Namibian R&D survey was conducted using the census based survey approach for the not for profit sector, government sector and higher education sector. Due to unavailability of a business registry, a purposive sample of the R&D performing entity was surveyed for business sector. On the onset of the survey, more than 140 entities were identified as potential R&D performers in the business sector but only 71 entities were actually covered in the survey as sample.

The sectors were surveyed during the period of October-November 2015.

A total of 231 organizations participated from the different sectors, the allocations were Government 27, Higher education 34, not for profit 24 and business 71 entities.

The response rate for the R&D survey was 67.5% although questions where distributed to more than 231 organisations available in the NCRST database.

1.2 USERS AND USES

The results of the R&D and I surveys are relevant to direct the development agenda of Namibia. Governments in Africa have noted the importance of conducting R&D and I surveys to obtain basic /core indicators to formulate evidence based policies and allow benchmark policies based on engines of economic growth.

Key users of the R&D and Innovation survey are policy makers who are generally government officials who need trustworthy indicators to benchmark and monitor these policies. Researchers in business, higher education, not-for-profit organisations and governmental sectors are to monitor investment in research and development, while measuring the research output in terms of publications and creations of new knowledge. Other users are stakeholders who need R&D data to answer questions such as do I need to invest in R&D or higher education, which areas should I invest predominantly, which areas am I already making investments, what economic sectors are important, in mining, agriculture, industry, services, what are national and regional peculiarities (health, environment, utilities, defence...) and are there sufficient links of universities & research institutes to industry and most importantly what are the factors hampering STI in the country.

At the international level, NEPAD, African Science Technology and Innovation Indicators Initiative (ASTII) use the STI indicators to compare Namibia's performance in R&D and Innovation with the rest of Africa and globally by UNSECO to compare Namibia's level of R&D and Innovation performance with the rest of the world.

1.3 STRENGTHS AND LIMITATIONS

The studies provide baseline national indicators for R&D and innovation. The list of enterprises and institutions provided in the database may not be exhaustive. There was need to consider allocation more time to data collection process (say 6 months).

1.4 ORGANISATION AND PREPARATION

1.4.1 LEGAL BASIS

National R&D Survey 2013/14 was conducted by NCRST under the RST Act, 2004(Act No.23 of 2004), which mandated the Commission, among other, to develop a National Programme on Research, Science, Technology and Innovation to review the state of research, science and technology in Namibia for the previous three years.

Before the commencement of the R&D and I surveys, NCRST and NSA signed a memorandum of understanding for NSA to conduct a survey on behalf of NCRST. During the 2013/14 survey a Joint Technical Committee (JTC) was established to oversee the surveys and regular meetings of the JTC with minutes had been conducted to coordinate and facilitate the activities of the surveys. Therefore in order to have public confidence and trust in official statistics of the R&D and I surveys, the Namibia Statistics Act 2011(Act No 9 of 2011) is the basis of authority for the survey. Therefore the survey was carried out under confines of the Namibia Statistics Act 2011, specifically following its code of practice requirements (Section 34 Act No 9 of 2011). Through this collaboration, all information collected that could be linked to identify individual organisations were kept strictly confidential as per the Statistical Act, 2011 (Act No, 9 2011).

The survey was conducted in close collaboration with key stakeholders:

- NEPAD/ASTII and UNESCO_UIS to ensure that the result of the survey is used for international comparability.
- Collaboration with the University of Namibia (UNAM) for data collection, data analysis and writing of the statistical report.

1.4.2 STAKEHOLDER WORKSHOP

The filed operation was preceded by various stakeholder workshops with resources persons and facilitators form both the NEPAD Agency STI hub and from the Centre of STI indicators at the South African Human Sciences Research Council (CeSTII/HSRC).

The first workshop was conducted on the 11-14 August 2014 targeted governments official who are the users of STI indicators in terms of policy development and the aim of the in-country training workshop was to impart skills for conducting R&D and Innovation surveys among government officials dealing with scientific research and innovation programmatic activities and experts who are actively involved in STI matter and national surveys.

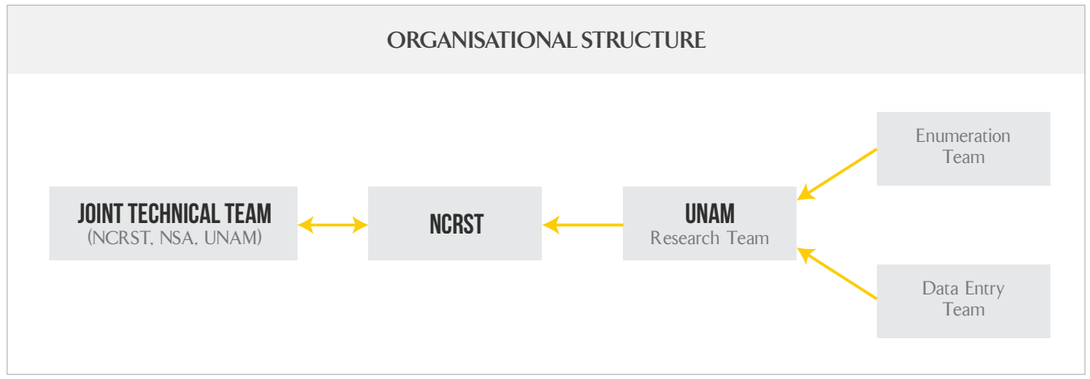
The second workshop was conducted on the 2-4 December 2014 as trainer for trainer workshop, which targeted officials from NCRST and NSA to build human and institutional capacities to support the national implementation of sustainable and coordinated data gathering methodologies as well as development and using STI indicators. The training aims to impart skills and acquire knowledge on conducting R&D and Innovation surveys among NCRST/NSA officials who are actively involved in conducting the R&D survey in Namibia and potential trainers, who are expected to conduct trainings on STI matter and national surveys.

The third stakeholder workshop was conducted on the 14-17 July 2015 targeting the enumerators and stakeholders from the business, not for profit, high education and government who were the target population on the surveys.
The training of enumerators and Stakeholders and trainer of trainers was conducted by NEPAD resources person. The Frascati and Oslo Manuals were used for training. In terms of localising the manuals, the AOSTI and NEPAD Agency (ASTII) has put in place a harmonised mechanism that will support African Members States to collect standardized data in order to allow for international comparability and for the indicators to be based on common standards across the continent. The UNAM received a copy of the manuals for references.

Stakeholders who were directly involved in the surveys were trained in R&D and Innovation survey procedures and methodologies instruments as per international standards and also gather inputs from stakeholder to improve the surveys instruments and share experience from other Africa countries who have successfully conducted the R&D and I surveys, in this case South Africa and Uganda and obtain a Buy in from stakeholders on the surveys and create awareness on the importance of participating in the R&D and I survey for economic development.

In overall, all the workshops were well attended and the methodology of the workshop involved presentations and discussions. Proceedings of the workshop were also made available to the participants after the workshop.

1.4.3 FIELD SURVEY SUPERVISORY STRUCTURE



1.4.4 RECRUITMENT AND TRAINING

Ten enumerators were recruited to participate in the pilot survey and the actual surveys.

Together with the researchers, they received training from a team of international consultants from the African Union Office as well as from Uganda and South Africa (CeSTII) on data collection using the Frascati and Oslo manuals as well as on data analysis and report writing. The pilot survey was completed within two weeks and was useful in finalising the questionnaires and preparing for the rollout of the R&D and Innovation Censuses.

It was during the piloting review meeting between NSA, NCRST and UNAM that a decision was made to target all the institutions in the database, as a sample survey was not possible due to the small size of the total population.

1.5 PUBLICITY AND COMMUNITY MOBILISATION

On the onset of the R&D and I surveys, an advertisement was placed in the media to call for R&D performers (government, institutions of higher learning, non-profit organisations, and businesses) to register with NCRST from November 2014 - January 2015 for inclusion in the survey.

Additionally, individual letters were written to various organizations/institutions to register. The individual letters clearly explained the objectives of the survey, when it will be conducted and the survey methodology, organisation unit that was expected to provide information.

A media announcement was also placed in the newspaper to invite stakeholder R&D performers and Innovators to attend the training workshop where the survey instruments were reviewed with the respondents.

The surveys was launched to roll out the data collection and the Minister of Higher Education, Training and Innovation delivered a key note speech which was reported on the national broadcasting Cooperation (NBC) and One Africa Television.

Further, during the data collection period, a TV advertisement was aired for two weeks on the Television where the Minster of Higher Education, Training and Innovation Dr Muragi Kandjii called on stakeholders to participate in the surveys and emphasised the importance of developing STI indicators for the country.

1.6 FIELD ORGANISATION AND SUPERVISION

Field organisation plays a crucial role in any survey. A research team consisting of two senior researchers and team leader worked together to ensure that field operations started and ended without bottlenecks. Some of the processes that were addressed during planning included:

- Establishing contacts with focal persons in institutions and enterprises;
- Recruitment and remuneration of enumerators;
- Logistical arrangements in terms of transport and communication; and
- Overall coordination of all other function associated with fieldwork such as continuous monitoring enumerators progress and challenges.

1.6.1 FIELD SUPERVISIONS AND CONSISTENCY CHECK

Enumerators were trained to probe until they were satisfied with the response given by respondents before they recorded them in the questionnaire. Questionnaires that required further clarification were identified and handed back to enumerators for follow-up.

Field data capture and transcription: The R&D and Innovation censuses used the traditional method of recording respondents' answers on the questionnaire. The questionnaires included codes for specific items like Field of Science (FoS) and Socio Economic Objectives (SoEs).

Enumerators were also trained on reconciling collected information especially percentages and headcount.

Data collection commenced in Windhoek based on logistical and operational arrangements, each enumerator was assigned a specified number of enterprises to interview in Windhoek. This ensured oversight by supervisors and effective communication with respondents especially at the beginning of the two censuses. The enumerators made appointments and developed a time schedule for interviews at participating enterprises. During the interviews, the purpose of the census was explained as well as the questionnaires with guidance on how to complete them. In instances where interviews were not completed, questionnaires were left with the focal persons in the organizations, to collect and verify information required. Focal persons requesting electronic questionnaires were sent the forms via email. Weekly follow up was conducted with focal persons, where necessary to further explain the questionnaire. Researchers intervened where enumerators were not able to make contact with the focal persons to facilitate the interviews or where responses were not forthcoming by further explaining the importance of the census data in national planning.

1.7 DATA PROCESSING AND QUALITY ASSURANCE

1.7.1 QUESTIONNAIRE RECEIPT AND HANDLING

This is the process of receiving the questionnaires from enumerators.

Each enumerator was assigned to a supervisor who manually checked for consistency and completeness of entries before the specific interview is recorded as complete. Supervisors also reconciled the number of questionnaires dispatched with records in the office. Incomplete questionnaires due to refusals were returned to be accounted for. Questionnaires, which were completed electronically, were printed, checked for consistency and completeness. All completed questionnaires were sorted according to sectors and kept in a safe private office.

1.7.2 DATA CAPTURE

Data capture involves the transformation of data from the hard copies (questionnaires) to an electronic format.

A data entry template was designed using Microsoft access for each interview tool (for each sector on R&D census and for Innovation census). Ten data entry clerks were trained to capture information from the questionnaires and they entered all data under the supervision of the researchers. The various Micro soft Access data sets were then transferred to SPSS and merged as per sector. The entered data was cleaned and analysed using SPSS. The data cleaning process involved mainly consistency edit checks. Errors were corrected through a verification process and data verification was mainly done during data analysis.

Analysis involved creation of new variables with some variables being computed using existing variables. Data were presented in the form of tables and graphs with frequencies, averages and percentages expressed as shown in the statistical report. Once complete, the cleaned data sets were saved in SPSS.

1.7.3 DATA VALIDATION AND DATA EDITING

The main purpose of data validation process was to ensure that data were error free, valid and useful for analysis.

Data validation included checking against missing data values and incorrect data values. All these checks were done manually and data were corrected before the consistency checks process. All the data values were checked for validity and accuracy before analysis and tabulation.

1.7.4 DATA SECURITY AND PRIVACY

To maintain data security, all data entry clerks were given unique usernames and passwords for computers, which they were using in the MRC data entry room. Access to the data entry room was only limited to authorize personnel.

1.7.5 QUALITY ASSURANCE

Data quality assurance is one of the cornerstones of a good statistical data system.

In this survey, efforts were made during the conduct of the survey to minimize the non-responses, incompleteness and inaccuracy that may affect the quality of data. In additional, the raw data of the R&D and I Surveys were submitted to NEPAD and UNSCO-UIS for quality check and consistency and CeSTII assisted NCRST in the writing up of the main R&D Main analysis report using the raw data and making comparison with survey results produce by UNAM and those of NEPAD.

1.7.6 R&D AND I TECHNICAL SUPPORT

The NEPAD ASTII, who gave training on data collection, provided training and financial support.

The training provided technical skills to NCRST and NSA and UNAM staff to be able to conduct the survey in future as the R&D survey is expected to be conduct on annual basis. The training covered the following aspects:

- Understanding of R&D and Innovation definitions and concepts in relation to STI Indicators;
- Methodology and procedures for data collection;
- Methodologies and frameworks for the measurement of Research and Experimental Development (R&D) and Innovation;
- R&D and Innovation Survey instruments: Standard questionnaires; and
- Processing R&D and innovation survey data and analysis and dissemination.

The Centre for Science, Technology and Innovation Indicators (CeSTII), South Africa, provide training on data analysis and report writing.

2 TABLES OF STATISTICAL ANALYSIS OF THE R&D DATA

TABLE A1 TOTAL IN-HOUSE R&D EXPENDITURE PER SECTOR 2013/14

SECTOR	N$	%
Business	53 884 800	11.4
NFP	36 081 270	7.6
Government	216 614 457	45.9
Higher Education	165 153 307	35.0
TOTAL GERD	**471 733 834**	**100.0**

TABLE A2 HEADCOUNT OF R&D PERSONNEL BY SECTOR (2013/14)

SECTOR	RESEARCHERS	TECHNICIANS	OTHER SUPPORTING STAFF	TOTAL	%
Business	44	26	12	82	7.2
NPOs	31	23	38	92	8.1
Government	174	143	26	343	30.3
Higher Education	500	63	52	615	54.3
TOTAL	**749**	**255**	**128**	**1 132**	**100.0**

TABLE A3 FTE OF R&D PERSONNEL BY SECTOR (2013/14)

SECTOR	RESEARCHERS	TECHNICIANS	OTHER SUPPORTING STAFF	TOTAL	%
Business	24.5	10.9	6.5	41.9	7.3
NPOs	24.8	18.0	20.7	63.5	11.1
Government	134.6	98.1	20.4	253.1	44.4
Higher Education	167.4	23.3	21.1	211.8	37.1
TOTAL	**351.3**	**150.2**	**68.7**	**570.2**	**100.0**

TABLE A4 CURRENT COST BY RESEARCH FIELD 2013/14

TYPE OF RESEARCH	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
Basic Research	2 296 000	5.9	1 014 635	3.1	5 637 707	4.2	41 713 162	26.3	50 661 504	13.9
Applied Research	20 546 920	53.0	550 635	1.7	9 667 012	7.3	89 436 257	56.3	120 200 824	33.1
Experimental	4 011 880	10.3	0	0	5 380 800	4.0	27 757 002	17.5	37 149 682	10.2
Not Else Classified	11 948 000	30.8	30 842 000	95.2	112 644 998	84.5	0	0.0	155 434 998	42.8
TOTAL	**38 802 800**	**100.0**	**32 407 270**	**100.0**	**133 330 517**	**100.0**	**158 906 421**	**100.0**	**363 447 008**	**100.0**

TABLE A5 TOTAL GERD BY TYPE OF RESEARCH 2013/14

TYPE OF RESEARCH	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
Basic Research	9 162 800	17.0	12 336 300	34.2	27 031 063	12.5	43 257 939	26.2	91 788 102	19.5
Applied Research	34 145 780	63.4	18 909 350	52.4	84 466 814	39.0	92 094 423	55.8	229 616 367	48.7
Experimental	10 576 220	19.6	2 706 150	7.5	82 294 800	38.0	29 800 945	18.0	125 378 115	26.6
Not Else Classified	0	0.0	2 129 470	5.9	22 821 780	10.5		0.0	24 951 250	5.3
TOTAL	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A6 R&D EXPENDITURE BY ACCOUNTING CATEGORY 2013/14

TYPE OF EXPENDITURE	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$ 000	%
LABOUR COST										
Total cost of R&D personnel	*13 779 800*	*25.6*	*20 118 070*	*55.8*	*87 265 338*	*40.3*	*100 103 384*	*60.6*	*221 266 592*	*46.9*
Other Current expenditure	*25 023 000*	*46.4*	*12 289 200*	*34.1*	*46 065 179*	*21.3*	*58 803 037*	*35.6*	*142 180 416*	*30.1*
Sub-Total Current Cost	***38 802 800***	***72.0***	***32 407 270***	***89.8***	***133 330 517***	***61.6***	***158 906 421***	***96.2***	***363 447 008***	***77.0***
CAPITAL EXPENDITURE										
Vehicles, plant, machinery and equipment	*10 945 000*	*20.3*	*1 697 000*	*4.7*	*11 528 000*	*5.3*	*0*	*0.0*	*24 170 000*	*5.1*
Land, buildings, and other structures	*1 916 000*	*3.6*	*1 442 000*	*4.0*	*23 401 600*	*10.8*	*169 789*	*0.1*	*26 929 389*	*5.7*
Software	*2 221 000*	*4.1*	*535 000*	*1.5*	*48 354 340*	*22.3*	*6 077 097*	*3.7*	*57 187 437*	*12.1*
Sub-Total Capital Expenditure	***15 082 000***	***28.0***	***3 674 000***	***10.2***	***83 283 940***	***38.4***	***6 246 886***	***3.8***	***108 286 826***	***23.0***
TOTAL GERD	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A7a R&D EXPENDITURE BY SOURCES OF FUNDS 2013/14

SOURCE OF FUNDS	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
COMPANY	**49 684 800**	**92.2**	**12 098 270**	**33.5**	**215 457 223**	**99.5**	**30 331 992**	**18.4**	**307 572 285**	**65.2**
Own Funds	*49 684 800*	*92.2*	*12 098 270*	*33.5*	*215 457 223*	*99.5*	*30 331 992*	*18.4*	*307 572 285*	*65.2*
GOVERNMENT	**2 610 000**	**4.8**	**5 148 000**	**14.3**	**737 234**	**0.3**	**72 576 314**	**43.9**	**81 071 549**	**17.2**
Grants	*0*	*0.0*	*1 804 000*	*5.0*	*737 234*	*0.3*	*69 025 814*	*41.8*	*71 567 049*	*15.2*
Contracts	*2 610 000*	*4.8*	*3 344 000*	*9.3*	*0*	*0.0*		*0.0*	*5 954 000*	*1.3*
All government, research agencies, agency funding and loans	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*3550500*	*2.1*	*3 550 500*	*0.8*
BUSINESS	**530 000**	**1.0**	**1 450 000**	**4.0**	**0**	**0.0**	**687 000**	**0.4**	**2 667 000**	**0.6**
Contracts	*530 000*	*1.0*	*1 450 000*	*4.0*	*0*	*0.0*	*687 000*	*0.4*	*2 667 000*	*0.6*
OTHER NATIONAL SOURCES	**1 060 000**	**2.0**	**2 283 000**	**6.3**	**0**	**0.0**	**3 017 000**	**1.8**	**6 360 000**	**1.3**
Higher education	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*200 000*	*0.1*	*200 000*	*0.0*
Not for profit organisations	*1 060 000*	*2.0*	*1 233 000*	*3.4*	*0*	*0.0*	*2 817 000*	*1.7*	*5 110 000*	*1.1*
Individual donations	*0*	*0.0*	*1 050 000*	*2.9*	*0*	*0.0*		*0.0*	*1 050 000*	*0.2*
FOREIGN	**0**	**0.0**	**15 102 000**	**41.9**	**420 000**	**0.2**	**58 541 000**	**35.4**	**74 063 000**	**15.7**
All sources	*0*	*0.0*	*15 102 000*	*41.9*	*420 000*	*0.2*	*58 541 000*	*35.4*	*74 063 000*	*15.7*
TOTAL	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A7b R&D EXPENDITURE BY SOURCES OF FUNDS 2013/14

SOURCE OF FUNDS	BUSINESS	NOT-FOR-PROFIT	GOVERNMENT	HIGHER EDUCATION	TOTAL
	N$	N$	N$	N$	N$
Government	2 610 000	5 148 000	216 194 456.6	72 576 314.5	296 528 771.1
Business	50 214 800	1 450 000	0	687 000	52 351 800
Other National Sources	1 060 000	14 381 270	0	33 348 992.3	48 790 262
Foreign	0	15 102 000	420 000	58 541 000	74 063 000
TOTAL	**53 884 800**	**36 081 270**	**216 614 457**	**165 153 306.8**	**471 733 833.8**

TABLE A8 REGIONS SPLIT OF R&D 2013/14

REGION	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
Erongo	1 922 660	3.6	7 842 086	21.7	3 011 728	1.4	20 442 577	12.4	33 219 051	7.0
Hardap	377 375	0.7	1 642 086	4.6	1 875 688	0.9	9 700 824	5.9	13 595 973	2.9
Karas	17 687 375	32.8	374 086	1.0	2 711 728	1.3	9 127 234	5.5	29 900 422	6.3
Kavango East	1 600 750	3.0	1 677 586	4.6	693 928	0.3	5 243 569	3.2	9 215 832	2.0
Kavango west	1 600 750	3.0	347 596	1.0	635 678	0.3	4 142 319	2.5	6 726 342	1.4
Khomas	7 474 000	13.9	7 087 862	19.6	60 962 377	28.1	73 161 317	44.3	148 685 556	31.5
Kunene	1 484 255	2.8	2 528 926	7.0	2 551 138	1.2	5 607 093	3.4	12 171 411	2.6
Ohangwena	544 750	1.0	1 853 686	5.1	14 773 397	6.8	6 013 770	3.6	23 185 603	4.9
Omaheke	432 575	0.8	462 136	1.3	14 038 288	6.5	4 402 183	2.7	19 335 182	4.1
Omusati	544 750	1.0	1 243 086	3.4	14 661 487	6.8	7 761 994	4.7	24 211 317	5.1
Oshana	544 750	1.0	374 086	1.0	15 256 128	7.0	5 281 284	3.2	21 456 248	4.5
Oshikoto	16 990 750	31.5	776 086	2.2	41 419 378	19.1	4 204 895	2.5	63 391 109	13.4
Otjozondjupa	2 135 310	4.0	9 453 726	26.2	29 305 638	13.5	3 642 373	2.2	44 537 047	9.4
Zambezi	544 750	1.0	418 236	1.2	14 717 878	6.8	6 421 877	3.9	22 102 740	4.7
TOTAL	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A9 R&D EXPENDITURE BY RESEARCH FIELD (RF) 2013/14

MAIN RESEARCH FIELD	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
Natural Sciences	23 710 400	44.0	18 139 271	50.3	41 604 000	19.2	32 513 161	19.7	115 966 832	24.6
Engineering and Technology	14 620 500	27.1	345 541	1.0	0	0.0	49 265 182	29.8	64 231 222	13.6
Medical and health sciences	2 124 600	3.9	1 761 000	4.9	400 471	0.2	4 872 080	3.0	9 158 151	1.9
Agricultural sciences	3 072 300	5.7	3 840 697	10.6	132 014 800	60.9	10 803 215	6.5	149 731 012	31.7
Social sciences	9 325 000	17.3	10 991 562	30.5	18 447 942	8.5	52 498 233	31.8	91 262 736	19.3
Humanities	420 000	0.8	0	0.0	8 484 050	3.9	15 201 437	9.2	24 105 487	5.1
Unclassified	612 000	1.1	1 003 200	2.8	15 663 194	7.2		0.0	17 278 394	3.7
TOTAL	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A10 R&D EXPENDITURE BY SOCIO-ECONOMIC OBJECTIVE (SEO) 2013/14

SOCIO-ECONOMIC OBJECTIVE	BUSINESS		NOT-FOR-PROFIT		GOVERNMENT		HIGHER EDUCATION		TOTAL	
	N$	%	N$	%	N$	%	N$	%	N$	%
Exploration and Exploitation of the earth	2 308 500	4.3	337 881	0.9	93 400	0.0	2 648 778	1.6	5 388 559	1.1
Environment	18 732 900	34.8	15 027 500	41.6	615 800	0.3	19 394 813	11.7	53 771 013	11.4
Exploration and Exploitation of the Space	0	0.0		0.0	36 545 400	16.9	458 350	0.3	37 003 750	7.8
Transport, Telecommunication and other infrastructures	0	0.0	300 000	0.8	1 458 739	0.7	920 390	0.6	2 679 129	0.6
Energy	0	0.0	337 881	0.9	0	0.0	23 837 319	14.4	24 175 200	5.1
Industrial Production and technology	17 310 000	32.1	0	0.0	3 176 297	1.5	1 714 160	1.0	22 200 457	4.7
Health	1 222 200	2.3	2 061 000	5.7	694 577	0.3	15 941 592	9.7	19 919 369	4.2
Agriculture	3 374 800	6.3	6 904 427	19.1	131 395 900	60.7	8 006 043	4.8	149 681 170	31.7
Education	895 200	1.7	1 050 000	2.9	1 899 035	0.9	67 187 569	40.7	71 031 804	15.1
Culture, recreation, religion and mass media	895 200	1.7	854 000	2.4	7 504 094	3.5	3 895 350	2.4	13 148 644	2.8
Political and social systems, structures and processes	1 432 000	2.7	6 451 881	17.9	6 110 661	2.8	6 745 225	4.1	20 739 767	4.4
General Advancement of Knowledge	1 019 000	1.9	1 753 500	4.9	11 770 555	5.4	14 403 718	8.7	28 946 773	6.1
Defence	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Unclassified	6 695 000	12.4	1 003 200	2.8	15 350 000	7.1	0	0.0	23 048 200	4.9
TOTAL	53 884 800	100.0	36 081 270	100.0	216 614 457	100.0	165 153 307	100.0	471 733 834	100.0

TABLE A11 R&D EXPENDITURE BY ISIC 2013/14

STANDARD INDUSTRIAL CLASSIFICATION	BUSINESS ENTERPRISE	
	N$	%
Education	1 680 000	3.1
Financial intermediation	66 950	0.1
Fishing	309 500	0.6
Health and social work	1 680 000	3.1
Manufacturing	17 820 300	33.1
Mining and quarrying	17 310 000	32.1
Other community, social and personal service activities	420 000	0.8
Public administration and defence; compulsory social security	1 160 000	2.2
Real estate, renting and business activities	6 628 050	12.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	1 530 000	2.8
Unclassified	5 280 000	9.8
TOTAL	**53 884 800**	**100.0**

TABLE A12 BUSINESS HEADCOUNT OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY

HIGHEST QUALIFICATION	M	NAMIBIAN	F	NAMIBIAN	TOTAL	NAMIBIAN (%)
RESEARCHERS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	6	2	4	2	10	40.0
Master's or Equivalent Level (ISCED LEVEL 7)	8	5	6	5	14	71.4
Bachelor's or Equivalent Level (ISCED LEVEL 6)	11	11	5	5	16	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	1	1	1	1	2	100.0
All Other Qualifications (ISCED 4 and below)	1	1	1	1	2	100.0
TOTAL	**27**	**20**	**17**	**14**	**44**	**77.3**
TECHNICIANS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	2	0	2	2	4	50.0
Master's or Equivalent Level (ISCED LEVEL 7)	0	0	0	0	0	0.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	7	7	4	4	11	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	0	0	0	0	0.0
All Other Qualifications (ISCED 4 and below)	10	10	1	1	11	100.0
TOTAL	**19**	**17**	**7**	**7**	**26**	**92.3**
OTHER						
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0	0	0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	0	0	0	0	0	0.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	0	0	1	1	1	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	0	2	2	2	100.0
All Other Qualifications (ISCED 4 and below)	6	0	3	1	9	11.1
TOTAL	**6**	**0**	**6**	**4**	**12**	**33.3**
GRAND TOTAL	**52**	**37**	**30**	**25**	**82**	**75.6**

TABLE A13 NOT-FOR-PROFIT HEADCOUNT OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY

HIGHEST QUALIFICATION	M	NAMIBIAN	F	NAMIBIAN	TOTAL	NAMIBIAN (%)
RESEARCHERS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	6	2	5	1	11	27.3
Master's or Equivalent Level (ISCED LEVEL 7)	8	4	5	1	13	38.5
Bachelor's or Equivalent Level (ISCED LEVEL 6)	2	2	0	0	2	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	2	2	3	3	5	100.0
All Other Qualifications (ISCED 4 and below)	0	0	0	0	0	0.0
TOTAL	**18**	**10**	**13**	**5**	**31**	**48.4**
TECHNICIANS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0	0	0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	1	0	0	0	1	0.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	5	2	8	6	13	61.5
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	0	1	1	1	100.0
All Other Qualifications (ISCED 4 and below)	3	3	5	5	8	100.0
TOTAL	**9**	**5**	**14**	**12**	**23**	**73.9**
OTHER						
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0	0	0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	2	2	1	1	3	100.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	4	3	8	5	12	66.7
Short-Cycle Tertiary Education (ISCED LEVEL 5)	2	2	6	6	8	100.0
All Other Qualifications (ISCED 4 and below)	10	10	5	5	15	100.0
TOTAL	**18**	**17**	**20**	**17**	**38**	**89.5**
GRAND TOTAL	**45**	**32**	**47**	**34**	**92**	**71.7**

TABLE A14 GOVERNMENT HEADCOUNT OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY

HIGHEST QUALIFICATION	M	NAMIBIAN	F	NAMIBIAN	TOTAL	NAMIBIAN (%)
RESEARCHERS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	11	6	1	1	12	58.3
Master's or Equivalent Level (ISCED LEVEL 7)	36	31	29	28	65	90.8
Bachelor's or Equivalent Level (ISCED LEVEL 6)	56	51	34	28	90	87.8
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	0	0	0	0	0.0
All Other Qualifications (ISCED 4 and below)	4	4	3	3	7	0.0
TOTAL	**107**	**92**	**67**	**60**	**174**	**87.4**
TECHNICIANS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	10	1	1	0	11	9.1
Master's or Equivalent Level (ISCED LEVEL 7)	3	1	1	0	4	25.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	13	13	10	10	23	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	47	47	23	23	70	100.0
All Other Qualifications (ISCED 4 and below)	20	20	15	15	35	100.0
TOTAL	**93**	**82**	**50**	**48**	**143**	**90.9**
OTHER						
Doctoral or Equivalent Level (ISCED LEVEL 8)	1	1	0	0	1	100.0
Master's or Equivalent Level (ISCED LEVEL 7)	2	1	0	0	2	50.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	1	0	1	0	2	0.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	3	3	5	2	8	62.5
All Other Qualifications (ISCED 4 and below)	7	7	6	6	13	100.0
TOTAL	**14**	**12**	**12**	**8**	**26**	**76.9**
GRAND TOTAL	**214**	**186**	**129**	**116**	**343**	**88.0**

TABLE A15 HIGHER EDUCATION HEADCOUNT OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY

HIGHEST QUALIFICATION	M	NAMIBIAN	F	NAMIBIAN	TOTAL	NAMIBIAN (%)
RESEARCHERS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	120	40	43	27	163	41.1
Master's or Equivalent Level (ISCED LEVEL 7)	130	93	104	96	234	80.8
Bachelor's or Equivalent Level (ISCED LEVEL 6)	49	46	43	37	92	90.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	5	4	0	0	5	0.0
All Other Qualifications (ISCED 4 and below)	3	3	3	2	6	0.0
TOTAL	**307**	**186**	**193**	**162**	**500**	**69.6**
TECHNICIANS						
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0	0	0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	5	4	3	2	8	75.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	17	17	15	15	32	100.0
Short-Cycle Tertiary Education (ISCED LEVEL 5)	10	6	6	3	16	56.3
All Other Qualifications (ISCED 4 and below)	7	7	0	0	7	100.0
TOTAL	**39**	**34**	**24**	**20**	**63**	**85.7**
OTHER						
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0	0	0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	1	1	0	0	1	100.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	3	2	14	10	17	70.6
Short-Cycle Tertiary Education (ISCED LEVEL 5)	3	3	14	9	17	70.6
All Other Qualifications (ISCED 4 and below)	4	3	13	11	17	82.4
TOTAL	**11**	**9**	**41**	**30**	**52**	**75.0**
GRAND TOTAL	**357**	**229**	**258**	**212**	**615**	**71.7**

TABLE A16a HEADCOUNT OF R&D PERSONNEL BY AGE AND GENDER

AGE	BUSINESS			NOT-FOR-PROFIT			GOVERNMENT		
	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F
RESEARCHERS									
Under 25	1	0	1	5	2	3	6	3	3
25-34	20	10	10	10	6	4	57	29	28
35-44	9	6	3	9	5	4	71	43	28
45-54	3	2	1	4	3	1	33	27	6
55-59	6	5	1	1	0	1	5	3	2
60 and above	3	2	1	2	2	0	2	2	0
Undisclosed age	2	2	0	0	0	0	0	0	0
TOTAL	44	27	17	31	18	13	174	107	67
TECHNICIANS									
Under 25	3	1	2	5	2	3	6	2	4
25-34	13	9	4	13	5	8	29	10	19
35-44	5	4	1	4	2	2	77	54	23
45-54	1	1	0	1	0	1	30	26	4
55-59	2	2	0	0	0	0	0	0	0
60 and above	0	0	0	0	0	0	1	1	0
Undisclosed age	2	2	0	0	0	0	0	0	0
TOTAL	26	19	7	23	9	14	143	93	50
OTHER									
Under 25	1	0	1	3	2	1	1	0	1
25-34	10	6	4	19	7	12	11	6	5
35-44	1	0	1	10	7	3	6	6	0
45-54	0	0	0	5	2	3	5	2	3
55-59	0	0	0	1	0	1	0	0	0
60 and above	0	0	0	0	0	0	0	0	0
Undisclosed age	0	0	0	0	0	0	3	0	3
TOTAL	12	6	6	38	18	20	26	14	12

TABLE A16b HIGHER EDUCATION HEADCOUNT OF R&D PERSONNEL BY AGE AND GENDER

AGE	HEADCOUNT		
	TOTAL	M	F
RESEARCHERS			
Under 25	0	0	0
25-34	79	43	36
35-44	150	88	62
45-54	181	118	63
55-59	43	26	17
60-65	32	20	12
65 and above	15	12	3
Undisclosed age	0	0	0
TOTAL	500	307	193
TECHNICIANS			
Under 25	1	0	1
25-34	32	19	13
35-44	20	13	7
45-54	7	4	3
55-59	2	2	0
60-62	1	1	0
63 and above	0	0	0
Undisclosed	0	0	0
TOTAL	63	39	24
OTHER			
Under 25	7	2	5
25-34	13	5	8
35-44	18	3	15
45-54	9	1	8
55-59	4	0	4
60-62	1	0	1
63 and above	0	0	0
Undisclosed	0	0	0
TOTAL	52	11	41

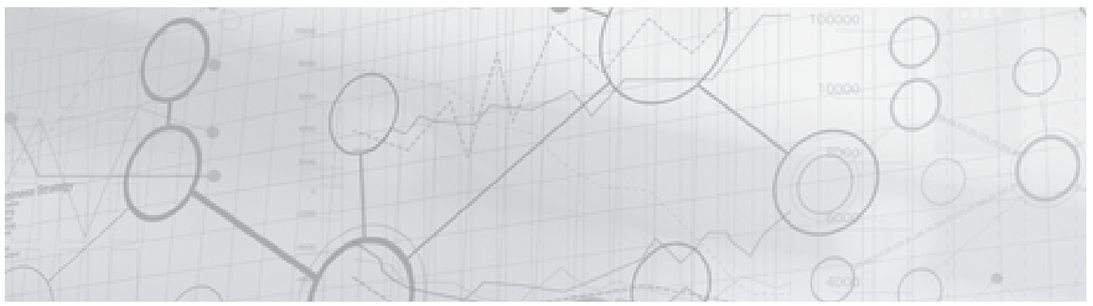


TABLE A17 HEADCOUNT OF R&D PERSONNEL BY RESEARCH FIELD AND GENDER

PER MAIN RESEARCH FIELD	BUSINESS			NOT-FOR-PROFIT			GOVERNMENT			HIGHER EDUCATION		
	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F
RESEARCHERS												
Natural Sciences	**10**	9	1	**10**	6	4	**73**	54	19	**91**	64	27
Engineering and Technology	**2**	1	1	**1**	1	0	**0**	0	0	**41**	32	9
Medical and health sciences	**8**	3	5	**0**	0	0	**3**	1	2	**10**	6	4
Agricultural sciences	**7**	5	2	**3**	3	0	**48**	26	22	**35**	23	12
Social sciences	**6**	2	4	**16**	7	9	**29**	13	16	**277**	152	125
Humanities	**0**	0	0	**0**	0	0	**12**	6	6	**20**	12	8
Unclassified	**11**	7	4	**1**	1	0	**9**	7	2	**26**	18	8
TOTAL	**44**	**27**	**17**	**31**	**18**	**13**	**174**	**107**	**67**	**500**	**307**	**193**
TECHNICIANS												
Natural Sciences	**9**	9	0	**16**	6	10	**55**	32	23	**12**	7	5
Engineering and Technology	**5**	5	0	**1**	1	0	**5**	5	0	**11**	10	1
Medical and health sciences	**0**	0	0	**0**	0	0	**0**	0	0	**11**	4	7
Agricultural sciences	**2**	1	1	**1**	1	0	**58**	44	14	**10**	6	4
Social sciences	**0**	0	0	**1**	0	1	**5**	3	2	**14**	10	4
Humanities	**0**	0	0	**0**	0	0	**15**	4	11	**0**	0	0
Unclassified	**10**	4	6	**4**	1	3	**5**	5	0	**5**	2	3
TOTAL	**26**	**19**	**7**	**23**	**9**	**14**	**143**	**93**	**50**	**63**	**39**	**24**
OTHER SS												
Natural Sciences	**0**	0	0	**7**	2	5	**10**	8	2	**3**	2	1
Engineering and Technology	**0**	0	0	**0**	0	0	**0**	0	0	**7**	2	5
Medical and health sciences	**0**	0	0	**13**	9	4	**0**	0	0	**3**	0	3
Agricultural sciences	**0**	0	0	**1**	0	1	**0**	0	0	**1**	0	1
Social sciences	**1**	0	1	**6**	4	2	**2**	1	1	**15**	4	11
Humanities	**0**	0	0	**0**	0	0	**9**	3	6	**10**	1	9
Unclassified	**11**	6	5	**11**	3	8	**5**	2	3	**13**	2	11
TOTAL	**12**	**6**	**6**	**38**	**18**	**20**	**26**	**14**	**12**	**52**	**11**	**41**

TABLE A18 BUSINESS FTES OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY, 2013/14

HIGHEST QUALIFICATION	M	F	TOTAL
RESEARCHERS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	3.4	1.3	4.7
Master's or Equivalent Level (ISCED LEVEL 7)	3.5	3.8	7.3
Bachelor's or Equivalent Level (ISCED LEVEL 6)	5.0	4.2	9.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0.9	1.9	2.8
All Other Qualifications (ISCED 4 and below)	0.3	0.3	0.6
TOTAL	**13.1**	**11.4**	**24.5**
TECHNICIANS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0.0	0.0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	0.0	0.0	0.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	4.4	3.3	7.7
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0.0	0.0	0.0
All Other Qualifications (ISCED 4 and below)	3.0	0.3	3.3
TOTAL	**7.4**	**3.6**	**10.9**
OTHER			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0
Master's or Equivalent Level (ISCED LEVEL 7)	0	0	0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	0	0.3	0.3
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	1	1
All Other Qualifications (ISCED 4 and below)	3.6	1.6	5.2
TOTAL	**3.6**	**2.9**	**6.5**
GRAND TOTAL	**24.1**	**17.9**	**41.9**

TABLE A19 NOT-FOR-PROFIT FTES OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY, 2013/14

HIGHEST QUALIFICATION	M	F	TOTAL
RESEARCHERS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	6.5	4	10.5
Master's or Equivalent Level (ISCED LEVEL 7)	2.8	2.2	5
Bachelor's or Equivalent Level (ISCED LEVEL 6)	1.6	0.2	1.8
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0	0	0
All Other Qualifications (ISCED 4 and below)	5	2.5	7.5
TOTAL	**15.9**	**8.9**	**24.8**
TECHNICIANS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0.0	0.0	0.0
Master's or Equivalent Level (ISCED LEVEL 7)	1.0	0.0	1.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	5.0	9.2	14.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0.0	0.9	0.9
All Other Qualifications (ISCED 4 and below)	1.5	0.4	1.9
TOTAL	**7.5**	**10.5**	**18.0**
OTHER			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0
Master's or Equivalent Level (ISCED LEVEL 7)	2.1	3.6	5.7
Bachelor's or Equivalent Level (ISCED LEVEL 6)	1.2	0.8	2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	2.5	3.7	6.2
All Other Qualifications (ISCED 4 and below)	3	3.8	6.8
TOTAL	**8.8**	**11.9**	**20.7**
GRAND TOTAL	**32.2**	**31.3**	**63.5**

TABLE A20 GOVERNMENT FTES OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY, 2013/14

HIGHEST QUALIFICATION	M	F	TOTAL
RESEARCHERS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	7.8	1.0	8.8
Master's or Equivalent Level (ISCED LEVEL 7)	28.7	24.0	52.7
Bachelor's or Equivalent Level (ISCED LEVEL 6)	41.6	24.5	66.1
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0.0	0.0	0.0
All Other Qualifications (ISCED 4 and below)	4.0	3.0	7.0
TOTAL	**82.1**	**52.5**	**134.6**
TECHNICIANS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	8.0	4.0	12.0
Master's or Equivalent Level (ISCED LEVEL 7)	2.3	1.0	3.3
Bachelor's or Equivalent Level (ISCED LEVEL 6)	4.4	2.8	7.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	44.2	14.7	59.0
All Other Qualifications (ISCED 4 and below)	10.0	6.6	16.6
TOTAL	**68.9**	**29.1**	**98.1**
OTHER			
Doctoral or Equivalent Level (ISCED LEVEL 8)	1.0	0.0	1.0
Master's or Equivalent Level (ISCED LEVEL 7)	2.0	1.0	3.0
Bachelor's or Equivalent Level (ISCED LEVEL 6)	0.0	0.0	0.1
Short-Cycle Tertiary Education (ISCED LEVEL 5)	2.4	4.2	6.6
All Other Qualifications (ISCED 4 and below)	6.4	3.3	9.7
TOTAL	**11.9**	**8.5**	**20.4**
GRAND TOTAL	**162.9**	**90.1**	**253.1**

TABLE A21 HIGHER EDUCATION FTES OF R&D PERSONNEL BY QUALIFICATION, GENDER AND NATIONALITY, 2013/14

HIGHEST QUALIFICATION	M	F	TOTAL
RESEARCHERS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	38.3	14.2	52.5
Master's or Equivalent Level (ISCED LEVEL 7)	43.2	34.1	77.3
Bachelor's or Equivalent Level (ISCED LEVEL 6)	17.9	13.3	31.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	4.3	0.6	4.9
All Other Qualifications (ISCED 4 and below)	0.6	0.9	1.5
TOTAL	**104.3**	**63.1**	**167.4**
TECHNICIANS			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0
Master's or Equivalent Level (ISCED LEVEL 7)	2.5	1.5	4
Bachelor's or Equivalent Level (ISCED LEVEL 6)	7	5.1	12.1
Short-Cycle Tertiary Education (ISCED LEVEL 5)	3.6	1.5	5.1
All Other Qualifications (ISCED 4 and below)	1.8	0.3	2.1
TOTAL	**14.9**	**8.4**	**23.3**
OTHER			
Doctoral or Equivalent Level (ISCED LEVEL 8)	0	0	0
Master's or Equivalent Level (ISCED LEVEL 7)	0.6	0	0.6
Bachelor's or Equivalent Level (ISCED LEVEL 6)	1.2	5	6.2
Short-Cycle Tertiary Education (ISCED LEVEL 5)	0.3	4.8	5.1
All Other Qualifications (ISCED 4 and below)	2.6	6.6	9.2
TOTAL	**4.7**	**16.4**	**21.1**
GRAND TOTAL	**123.9**	**87.9**	**211.8**

3 R&D SURVEY QUESTIONNAIRE

NATIONAL CENSUS OF RESEARCH AND EXPERIMENTAL DEVELOPMENT (R&D) INPUTS

BUSINESS ENTERPRISE, HIGHER EDUCATION, GOVERNMENT AND NOT-FOR-PROFIT - FINANCIAL YEAR 2013/2014

ORGANIZATION	PLEASE MODIFY ADDRESS LABEL (ONLY IF THERE IS ONE)

AUTHORITY

The National Commission on Research Science and Technology (NCRST) established in accordance with Section 4 of the Research, Science and Technology Act, 2004 (Act 23 of 2004 is mandated to conduct a census of inputs into Research and experimental Development (R&D)

All data gathered for this census are confidential. Only the census team sees individual organisation data. Raw data gathered for this census is confidential except when an organisation gives written permission for its data to be disclosed to other parties.

PURPOSE AND SCOPE OF CENSUS

The R&D census collects data on the inputs into R&D activities performed IN-HOUSE by all organizations (including higher education, government, business and not-for profit). The data are used for planning and monitoring purposes and for measuring international competitiveness.

This census covers the Financial Year: 01/04/2013 to 31/03/2014 (or your nearest complete financial or academic year).

DUE DATE

Kindly review the questionnaire and compile the information required. An interviewer will contact you to arrange for a meeting to collect the information.

ASSISTANCE

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

NAME	CONTACT NUMBER	EMAIL
Gernot Piepmeyer	061 4317069	gpiepmeyer@ncrst.na
Edgar Mowa	061 431 7069	emowa@ncrst.na

PERSON COMPLETING THE QUESTIONNAIRE			
Organization		Tel	( )
Name (with title)		Fax	( )
Designation		Cell	( )
Date		Email	
Signature		Website	

THE FOLLOWING DEFINITIONS ARE IMPORTANT IN THE COMPLETION OF THE CENSUS QUESTIONNAIRE:

Definition of R&D:

This census follows the *Frascati Manual* guidelines for conducting census on the inputs to R&D (OECD, 2002).

It 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.
- **Experimental development** is the application of research findings or their scientific knowledge for the creation of new or significantly improved products, applications 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.

Scope of census:

- The census requests data on R&D performed IN-HOUSE by your organization in the national territory.
- Part five includes some questions on extramural R&D.

R&D in business:

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.

R&D includes – but is not limited to:

Activities of personnel who are obviously engaged in R&D.

In addition, research activity includes:

- The provision of professional, technical, administrative or clerical support and/or assistance to personnel directly engaged in R&D.
- The 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.
- Software development where the aim of the project is the systematic resolution of a scientific uncertainty.
- Research work in the natural sciences, engineering, medical sciences, agricultural sciences, social sciences and the humanities.
- R&D carried out as a participant in any unincorporated joint venture.
- Prototypes and pilot plants, as long as long as the primary objective is to make further improvements.
- Industrial design and drawing but only if required for R&D.
- 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 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 reporting unit:

- 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.

Examples:

- 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, and increasingly involves nanotechnology.
- Much service R&D involves software development where the completion of the project is dependent on a scientific or technological advance and the aim of the project is the systematic resolution of a scientific or technological uncertainty.

Borderline cases:

- The greatest source of error in measuring R&D is the difficulty of locating the cut-off point between experimental development and the related activities required to realise an innovation.
- Care must be taken to exclude activities that although undoubtedly a part of the innovation process, rarely involve any R&D, e.g. patent filing and licensing, market research, manufacturing start-up, tooling up and redesign for the manufacturing process.
- It is also difficult to define precisely the cut-off point between experimental development and pre-production development, such as producing user demonstration models and testing, and production that is applicable to all industrial situations. If the primary objective is to make further technical improvements on the product or process, then the work falls within the definition of R&D. If, on the other hand, the product, process or approach is substantially set and the primary objective is to develop markets, to do pre-production planning or to get a production or control system working smoothly, the work is no longer R&D.

PART 1 GENERAL INFORMATION

1a.	Registered name of company	
1b.	Trading as (if applicable)	

2a. **If you are reporting R&D for subsidiary companies (e.g. as a head office with several subsidiary companies), please list the companies below (append a page if required).**

2b. **List the principal activities from which your company derives its main income.**

Activities	Company income obtained (%)

3. **Parent Company (if applicable) with % ownership**

Parent company	% ownership
	%

4. **Approximate foreign/local ownership split** (By ultimate ownership if complex holding structures exist.)

EU	%
USA	%
China	%
Other	%
Domestic	%
TOTAL	100%

5. **Financial year (dd/mm/yyyy) for which you are reporting in this census**

From		to	

6.	Total number of employees	
7.	Gross sales revenue or turnover (local currency '000 excl. VAT[1])	

[1]VAT = Value-added tax

8. Did the reporting unit perform any IN-HOUSE R&D during the financial year?

Yes		Continue with Question 9.
No		Proceed to Part 5 if you paid for R&D to other parties (optional).
No		If the organization/unit does not do any In-House and/or any extramural R&D, tick this box and return the questionnaire as a NIL response.

PART 2 IN-HOUSE R&D PERSONNEL

R&D PERSONNEL

- Report against the categories listed below for all personnel employed **directly** in R&D or providing direct R&D services/support for at least 5% of their time. Do not count any staff NOT supporting research.
- Please report the average number of persons engaged in R&D during the reference year.
- Please include permanent, temporary, full-time, part-time and contract staff.

Researchers

- Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the planning and management of the projects concerned.
- Researchers include managers and administrators engaged in the planning and management of the scientific and technical aspects of a researcher's work. Their rank is usually equal or superior to that of persons directly employed as researchers and they are often former or part-time researchers.
- Excluded are managers and directors concerned primarily with budgets and human resources rather than project management or content (include in other personnel directly supporting R&D).

Technicians directly supporting R&D

- Persons performing 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.
- Included are executives and directors concerned primarily with budgets and human resources in support of research rather than project management.

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" ("other current expenditure" in Question 11B) but such persons should not be included as R&D personnel.

9. HEADCOUNT OF R&D PERSONNEL

CALCULATING HEADCOUNT (HC) DATA

HC data cover the total number of persons who are mainly or partially employed in R&D. This includes staff employed both full-time and part-time on R&D activities.

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

* Please indicate how many of the males are Namibian ** Please indicate please how many of the females are Namibian

(1) RESEARCHERS

HIGHEST QUALIFICATION	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Doctoral or equivalent level **(ISCED level 8)**					
Master's or equivalent level **(ISCED level 7)**					
Bachelor's or equivalent level **(ISCED level 6)**					
Short-cycle tertiary education **(ISCED level 5)**					
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**					
TOTAL RESEARCHERS (1)					

(2) TECHNICIANS

HIGHEST QUALIFICATION	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Doctoral or equivalent level **(ISCED level 8)**					
Master's or equivalent level **(ISCED level 7)**					
Bachelor's or equivalent level **(ISCED level 6)**					
Short-cycle tertiary education **(ISCED level 5)**					
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**					
TOTAL TECHNICIANS (2)					

(3) OTHER SUPPORT STAFF

HIGHEST QUALIFICATION	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Doctoral or equivalent level **(ISCED level 8)**					
Master's or equivalent level **(ISCED level 7)**					
Bachelor's or equivalent level **(ISCED level 6)**					
Short-cycle tertiary education **(ISCED level 5)**					
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**					
TOTAL OTHER SUPPORT STAFF (3)					

	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
TOTAL R&D PERSONNEL (1+2+3)					

9.2 (a) Headcount of all R&D personnel according to three categories, Namibian and non-Namibian and fields of science.

(1) RESEARCHERS					
FIELD OF SCIENCE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Natural sciences					
Engineering and technology					
Medical and health sciences					
Agricultural sciences					
Social sciences					
Humanities					
Not specified elsewhere (crosscutting or multidisciplinary)					
TOTAL RESEARCHERS					

(2) TECHNICIANS					
FIELD OF SCIENCE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Natural sciences					
Engineering and technology					
Medical and health sciences					
Agricultural sciences					
Social sciences					
Humanities					
Not specified elsewhere (crosscutting or multidisciplinary)					
TOTAL TECHNICIANS					

(3) OTHER SUPPORT STAFF					
FIELD OF SCIENCE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Natural sciences					
Engineering and technology					
Medical and health sciences					
Agricultural sciences					
Social sciences					
Humanities					
Not specified elsewhere (crosscutting or multidisciplinary)					
TOTAL OTHER SUPPORT STAFF					

9.3 (a) Headcount of all R&D personnel according to three categories, Namibian and non-Namibian and age

(1) RESEARCHERS					
AGE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Under 25 years					
25-34 years					
35-44 years					
45-54 years					
55- 59 years					
60 years and more					
TOTAL RESEARCHERS					

(2) TECHNICIANS					
AGE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Under 25 years					
25-34 years					
35-44 years					
45-54 years					
55- 59 years					
60 years and more					
TOTAL TECHNICIANS					

(3) OTHER SUPPORT STAFF					
AGE	M	NAMIBIAN*	F	NAMIBIAN**	TOTAL
Under 25 years					
25-34 years					
35-44 years					
45-54 years					
55- 59 years					
60 years and more					
TOTAL OTHER SUPPORT STAFF					

10. RESEARCH FULL-TIME EQUIVALENTS (FTEs) AND COST TO BUSINESS ENTERPRISES

Provide an estimate of person-years of effort on R&D (or full-time equivalents), according to the categories below.

Using the male and female headcounts of all R&D personnel reported for in Question 4, provide the research full-time equivalents (time devoted to R&D). Then, calculate the total labour costs of R&D using the average annual full cost-to-company for full-time staff (including annual wages and salaries and all associated costs or fringe benefits, such as bonus payments, contributions to pension and medical aid funds, payroll tax, unemployment insurance fund and all other statutory payments) per category below.

CALCULATING FULL-TIME EQUIVALENT (FTE) PERSONS

FTE data measure the volume of human resources in R&D. One FTE may be thought of as one person-year. That is 1 FTE is equal to 1 person working full-time on R&D for a period of 1 year or more persons working part-time or for a shorter period corresponding to one person-year.

For the purpose of this census, an employee can work a maximum of 1 FTE in a year.

The following is a theoretical approach to calculating FTE:

FTE:

(Dedication to the employment: Full-time/Part-time) x (Portion of the year active on R&D) x (Time or portion spent on R&D)

Examples are the following:

- A full-time employee spending 100% of time on R&D during a year: (1 x 1 x 1) = 1 FTE
- A full-time employee spending 30% of time on R&D during a year: (1 x 1 x 0.3) = 0.3 FTE
- A full-time R&D worker who is spending 100% of time on R&D, is employed at an R&D institution for only six months: (1 x 0.5 x 1) = 0.5 FTE
- A full-time employee spending 40% of time on R&D during half of the year (person is only active for 6 months per year): (1 x 0.5 x 0.4) = 0.2 FTE
- A part-time employee (working 40% of a full-time year) engaged only in R&D (spending 100% of time on R&D) during a year: (0.4 x 1 x 1) = 0.4 FTE
- A part-time employee (working 40% of a full-time year) spending 60% of time on R&D during half of the year (person is only active for 6 months per year): (0.4 x 0.5 x 0.6) = 0.12 FTE
- 20 full time employees spending 40% of time on R&D during a year: 20 x (1 x 1 x 0.4) = 8 FTE

NOTE: Please calculate FTEs for all R&D personnel.

10.1 FTE by personnel category

(1) RESEARCHERS

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Doctoral or equivalent level **(ISCED level 8)**						
Master's or equivalent level **(ISCED level 7)**						
Bachelor's or equivalent level **(ISCED level 6)**						
Short-cycle tertiary education **(ISCED level 5)**						
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**						
TOTAL RESEARCHERS (1)						

(2) TECHNICIANS

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Doctoral or equivalent level **(ISCED level 8)**						
Master's or equivalent level **(ISCED level 7)**						
Bachelor's or equivalent level **(ISCED level 6)**						
Short-cycle tertiary education **(ISCED level 5)**						
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**						
TOTAL TECHNICIANS (2)						

(3) OTHER SUPPORT STAFF

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Doctoral or equivalent level **(ISCED level 8)**						
Master's or equivalent level **(ISCED level 7)**						
Bachelor's or equivalent level **(ISCED level 6)**						
Short-cycle tertiary education **(ISCED level 5)**						
All other qualifications, including post-secondary non-tertiary programmes **(ISCED 4)** and upper secondary programmes **(ISCED 3)**						
TOTAL OTHER SUPPORT STAFF (3)						

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
TOTAL R&D PERSONNEL (1+2+3)						

10.2 FTE by field of science

(1) RESEARCHERS

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Natural sciences						
Engineering and technology						
Medical and health sciences						
Agricultural sciences						
Social sciences						
Humanities						
Not specified elsewhere (crosscutting or multidisciplinary)						
TOTAL RESEARCHERS (SAME AS 10.1)						

(2) TECHNICIANS

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Natural sciences						
Engineering and technology						
Medical and health sciences						
Agricultural sciences						
Social sciences						
Humanities						
Not specified elsewhere (crosscutting or multidisciplinary)						
TOTAL TECHNICIANS (SAME AS 10.1)						

(3) OTHER SUPPORT STAFF

PERSONNEL CATEGORY	HEADCOUNTS (FROM Q 9.1)			FULL-TIME EQUIVALENT (FTE)		
	M	F	TOTAL	M	F	TOTAL
Natural sciences						
Engineering and technology						
Medical and health sciences						
Agricultural sciences						
Social sciences						
Humanities						
Not specified elsewhere (crosscutting or multidisciplinary)						
TOTAL OTHER SUPPORT STAFF (SAME AS 10.1)						

10.3 FTE by personnel category and labour cost

PERSONNEL CATEGORY	FULL TIME EQUIVALENT (FTE) (FROM Q 10.1) (A)	AVERAGE ANNUAL LABOUR COST PER PERSON LOCAL CURRENCY '000 (EXCL. VAT) (B)	CALCULATED LABOUR COST OF R&D LOCAL CURRENCY '000 (EXCL. VAT) (A X B)
Total researchers (1)			
Total technicians (2)			
Total other support staff (3)			
TOTAL LABOUR COST (1+2+3)			

Carry subtotal over to Q 11A

PART 3 IN-HOUSE R&D EXPENDITURE

THE DEFINITION AND CALCULATION OF IN-HOUSE R&D EXPENDITURE

Other Current Expenditure

Including – but not limited to:

- Direct project costs, project consumables and running costs linked to research, such as materials, fuels and other inputs, including telephone and printing.
- Subsistence and travel expenses.
- Repair and maintenance expenses.
- Payments to outside organizations for use of specialised testing facilities, analytical work, engineering or other specialised services in support of R&D projects carried out by this reporting unit.
- Commission/consultant expenses for research projects carried out by this reporting unit.
- The relevant % of indirect and institutional costs and utility costs, such as rent, space charge, leasing and hiring expenses, furniture, water, electricity and any other overhead costs.
- The relevant % of labour costs of persons providing indirect services such as the head office, human resources, finances, security and maintenance personnel as well as staff of central libraries and IT departments.
- Where current expenses such as direct project costs and consumables are used solely for R&D, allocate the full cost of the items.
- If these current expenses are used for more than one activity, include only an estimate of the portion used for R&D.
- Only where such an estimate of the portion used for R&D is not available, such as indirect and utility costs and labour costs of staff providing indirect services, it is advised that respondents apply the percentage time that researchers in the reporting unit spent on R&D to the total of these current expenditures.
- So if the income and expenditure statement shows that the current expenditure for indirect and utility costs and labour costs of staff providing indirect services for the year was say USD 1,700,000 and that researchers on average spent 80% of their time to R&D, then this component of R&D current expenditure may be estimated as 0.8 x USD 1,700,000 = USD 1,360,000.

Excluding:

- Contract R&D expenses where the research project is carried out elsewhere by others on behalf of this reporting unit.
- Payments for purchases of technical know-how (goodwill).
- Licence fees.
- Depreciation provisions.

CAPITAL EXPENDITURE

The full cost of capital expenses must be reported in the year of purchase (do not depreciate).

Including – but not limited to:

- Expenditure on fixed assets used in the R&D projects of this reporting unit.
- Acquisition of software, including license 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 buildings.
- Where a capital item is used solely for R&D, allocate the full cost of the item.
- If the capital item is used for more than one activity, include only an estimate of the portion used for R&D. For example, a new piece of equipment that will be used for R&D (included), testing (excluded) and quality control (excluded). For instance, if the intended use of this new equipment for R&D purposes is 40% of the total usage (i.e. the other 60% for other activities), only 40% of the total equipment cost should be considered as relevant R&D expenditure.
- Only where such an estimate of the portion used for R&D is not available, apply the percentage time that researchers in the reporting unit spent on R&D to the cost of the item.

Excluding:

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

II. IN-HOUSE R&D EXPENDITURES

Compile expenditure on IN-HOUSE R&D during the fiscal year ...<YYYY>... 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.

PLEASE NOTE: Extramural R&D should be reported under Part 5.

Purchase of equipment can, in theory, be classified as either capital or current expenditure. A distinction can therefore be made between "major" and "minor" equipment (to be included in "capital" and "current" expenditures respectively) by establishing some kind of monetary limitation. Please provide us with this limitation as used by your institution.

Local currency:	

		LOCAL CURRENCY '000 EXCLUDING VAT
LABOUR COSTS OF R&D		
Total cost of R&D personnel (carried over from Question 10.3)	A	
OTHER CURRENT EXPENDITURE ON R&D (See the definition of current expenditure and how to calculate current expenditure devoted to R&D on the previous page)		
Other current expenditure	B	
CAPITAL EXPENDITURE ON R&D (See the definition of capital expenditure and how to calculate capital expenditure on R&D on the previous page)		
Vehicles, plant, machinery and equipment	C	
Land, buildings and other structures	D	
Software	E	
TOTAL R&D EXPENDITURE (A + B + C + D + E)	F	

Carry total R&D expenditure (F) over to Question 12

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

Provide a breakdown of the total R&D expenditure according to the sources of funds listed below.

(NOTE: Only the proportion of the money actually SPENT is required not the total income per source)

	LOCAL CURRENCY '000 EXCLUDING VAT
COMPANY	
Own funds	
GOVERNMENT (includes departments/ministries and grant-making Institutes)	
Grants, especially general purpose, including studentships	
Contracts to perform directed R&D	
Government supported loans for R&D	
OTHER LOCAL BUSINESSES	
Contracts to perform R&D	
OTHER NATIONAL SOURCES	
Not-for-profit organizations (including foundations)	
Individual donations	
Higher education	
FOREIGN SOURCES	
Parent company	
Philanthropic organizations and foundations	
All other foreign sources	
TOTAL R&D EXPENDITURE (TO EQUAL QUESTION IIF)	

PART 4 CATEGORIES OF IN-HOUSE R&D EXPENDITURE

13. IN-HOUSE R&D EXPENDITURE BY TYPE OF R&D

Specify the percentage of:
a) IN-HOUSE TOTAL R&D expenditure (both current costs and capital expenditure) by type of R&D and
b) total IN-HOUSE R&D CURRENT expenditure (labour costs and other current cost) by type of R&D. (b is optional)

	COLUMN A			COLUMN B (OPTIONAL)		
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 usually published in peer-reviewed scientific journals.	BASED ON TOTAL INTRAMURAL EXPENDITURE (PERCENTAGE)			BASED ON ONLY CURRENT EXPENDITURE (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. · Information or knowledge derived from applied research may be published in peer-reviewed journals or subjected to other forms of intellectual property protection.	BASED ON TOTAL INTRAMURAL EXPENDITURE (PERCENTAGE)			BASED ON ONLY CURRENT EXPENDITURE (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.	BASED ON TOTAL INTRAMURAL EXPENDITURE (PERCENTAGE)			BASED ON ONLY CURRENT EXPENDITURE (PERCENTAGE)		
TOTAL	1	0	0	1	0	0

14. DETAILED INDUSTRIAL BREAKDOWN

Classify the actual industrial orientation of the R&D carried out by the business, according to the National Industrial Classification or ISIC with associated percentage expenditure (see Appendix C)

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

ISIC CODES			PERCENTAGE			ISIC CODES			PERCENTAGE		
ISIC						ISIC					
ISIC						ISIC					
ISIC						ISIC					
ISIC						ISIC					
ISIC						ISIC					
ISIC						ISIC					
						TOTAL			1	0	0

15. DETAILED FIELDS OF SCIENCE (FOS)

Classify R&D according to two-digit field of science (FoS) with associated percentage expenditure (see Appendix A)

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

FOS CODES			PERCENTAGE			FOS CODES			PERCENTAGE		
FOS						FOS					
FOS						FOS					
FOS						FOS					
FOS						FOS					
FOS						FOS					
FOS						FOS					
						TOTAL			1	0	0

16. SOCIO-ECONOMIC OBJECTIVES (SEO)

Classify R&D according to socio-economic objective with associated percentage expenditure (see Appendix B)

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

SEO CODES			PERCENTAGE			SEO CODES			PERCENTAGE		
SEO						SEO					
SEO						SEO					
SEO						SEO					
SEO						SEO					
SEO						SEO					
SEO						SEO					
						TOTAL			1	0	0

17. Kindly indicate geographic the location where the reporting unit carried out R&D activities and the percentage of the total R&D expenditure.

Classify R&D according to socio-economic objective with associated percentage expenditure (see Appendix B)

REGION	PERCENTAGE			REGION	PERCENTAGE		
Erongo				Ohangwena			
Hardap				Omaheke			
Karas				Omusati			
Kavango East				Oshana			
Kavango West				Oshikoto			
Khomas				Otjozondjupa			
Kunene				Zambezi			
				TOTAL	1	0	0

PART 5 EXTRAMURAL R&D

Extramural R&D refers to:

- Extramural expenditures are the sums a reporting unit paid or committed to pay to another organization for the performance of R&D during a specific period.
- This includes acquisition of R&D performed by and/or grants given to other organizations for performing R&D (FM § 408).

18.

	APPROXIMATE VALUE LOCAL CURRENCY '000 (EXCL. VAT)
State details of extramural R&D paid locally	

19.

	APPROXIMATE VALUE LOCAL CURRENCY '000 (EXCL. VAT)
State details of extramural R&D paid abroad	

20. If the amounts stated in Question 19 or 20 are in excess of 1 million units of national currency please indicate the name of the organization(s) that conducted the extramural R&D with the associated expenditure.

State details of extramural R&D paid locally.

PAID TO:	APPROXIMATE VALUE LOCAL CURRENCY '000 (EXCL. VAT)

State details of extramural R&D paid abroad.

PAID TO:	APPROXIMATE VALUE LOCAL CURRENCY '000 (EXCL. VAT)

THANK YOU FOR YOUR TIME AND EFFORT

NOTES

NCRST
NATIONAL COMMISSION ON RESEARCH SCIENCE & TECHNOLOGY

Head Office

Platinum Street | 490
Prosperita | Windhoek
Tel: +264 61 431 7000
Fax: +264 61 216 531

Innovation Hub

Cnr Louis Raymond and Grant
Webster Street | Olympia | Windhoek
Tel: +264 61 431 7099
Fax: +264 61 235 758

Cyber Space

Email: info@ncrst.na
Web: www.ncrst.na
Facebook: facebook.com/ncrst.na
Twitter: @NCRST_Namibia