# UK RESEARCH FUNDING FOR DEVELOPMENT IN SOUTH AFRICA

## An analysis of funding and reach (2014-2019)

**Front cover photo credit:**
Lindsay Mgbor / DFID

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# Table of Contents

# About UKCDR

The UK Collaborative on Development Research (UKCDR) is a collaborative of government and research funders working in international development, governed by the Strategic Coherence for ODA-funded Research (SCOR) Board. Our core contributing members include the Department for Business, Energy and Industrial Strategy; the Department for International Development; the Department of Health and Social Care; UK Research and Innovation; and Wellcome. UKCDR exists to amplify the value and impact of research for global development by promoting coherence, collaboration and joint action among UK research funders.

For further information on UKCDR, please visit ukcdr.org.uk.

# Commission of this report

In November 2018, the Strategic Coherence for ODA-funded Research (SCOR) Board commissioned UKCDR to carry out in-depth analyses on UK ODA-funded and Wellcome-funded research investments and partnership activities in Kenya, Nigeria and South Africa. These analyses will contribute to the UK's new commitment to partnership with African nations, announced by the former UK Prime Minister Theresa May in mid-2018. approach is expected to lead to a scale up of R&D coherence in these three countries led through new platforms bringing together teams from across government focused on science, technology and innovation (across the Science and Innovation Network, the Department for Digital, Culture, Media and Sport and the Department for International Development)].

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- British Academy
- DFID
- DHSC (Global Health Research Team)
- Royal Society
- UKRI
- UK Space Agency
- Wellcome

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# List of abbreviations and acronyms

| | |
|---|---|
| **Ag Sci** | Agricultural Sciences |
| **AHRC** | Arts and Humanities Research Council |
| **AHRI** | Africa Health Research Institute |
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **AMS** | Academy of Medical Sciences |
| **ANZSRC** | Australian and New Zealand Standard Research Classification |
| **BA** | British Academy |
| **BBSRC** | Biotechnology and Biological Sciences Research Council |
| **BEIS** | Department for Business, Energy and Industrial Strategy |
| **BRIC** | Brazil, Russia, India, China |
| **CAT** | Computed Axial Tomography |
| **CIDRI** | Wellcome Centre for Infectious Diseases Research in Africa |
| **CPD** | Continuing Professional Development |
| **D-MAG** | Data Mapping and Analysis Group |
| **DAC** | Development Assistance Committee |
| **DEFRA** | Department for Environment, Food and Rural Affairs (UK) |
| **DELTAS** | Developing Excellence in Leadership and Training in Africa |
| **DFID** | Department for International Development (UK) |
| **DHSC** | Department of Health and Social Care (UK) |
| **DORA** | San Francisco Declaration on Research Assessment |
| **DREAMS** | Determined, Resilient, Empowered, AIDS-free, Mentored and Safe |
| **DSI** | Department of Science and Innovation (South Africa) |
| **DST** | Department of Science and Technology (South Africa) |
| **Econ** | Economics |
| **EDCTP** | European and Developing Countries Clinical Trials Partnership |
| **Env Sci** | Environmental Sciences |
| **EPSRC** | Engineering and Physical Sciences Research Council |
| **ESRC** | Economic and Social Research Council |
| **EU** | European Union |
| **FP7** | Seventh Framework Programme |
| **FCO** | Foreign and Commonwealth Office |
| **FY** | Financial Year |
| **GCRF** | Global Challenges Research Fund |
| **GDP** | Gross Domestic Product |
| **GERD** | Gross Domestic Expenditure on Research and Development |
| **H3Africa** | Human Heredity and Health in Africa |

| | |
|---|---|
| **Hist & Arch** | History and Archaeology |
| **HIV** | Human Immunodeficiency Virus |
| **IPT** | Isoniazid Preventative Therapy |
| **KTN Africa** | Knowledge Transfer Network Africa |
| **LMIC** | Low and Middle-Income Countries |
| **MRC** | Medical Research Council |
| **MTSF** | Medium-Term Strategic Framework |
| **NDP** | National Development Plan |
| **NERC** | Natural Environment Research Council |
| **NGO** | Non-Governmental Organisation |
| **NIHR** | National Institute for Health Research |
| **NRF** | National Research Fund |
| **NSI** | National System of Innovation |
| **ODA** | Official Development Assistance |
| **OECD** | Organisation for Economic Co-operation and Development |
| **PEPFAR** | President's Emergency Plan For AIDS Relief |
| **R&D** | Research and Development |
| **RAEng** | Royal Academy of Engineering |
| **RCR** | Relative Citation Ratio |
| **ReMPro** | Research Management Programme |
| **RS** | Royal Society |
| **SCOR** | Strategic Coherence for ODA-funded Research |
| **SDG** | Sustainable Development Goal |
| **SIN** | Science and Innovation Network |
| **STFC** | Science and Technology Facilities Council |
| **STI** | Science, Technology and Innovation |
| **TB** | Tuberculosis |
| **TIPC** | Transformative Innovation Policy Consortium |
| **UK** | United Kingdom |
| **UKCDR** | UK Collaborative on Development Research |
| **UKRI** | UK Research and Innovation |
| **UKSA** | UK Space Agency |
| **UN** | United Nations |
| **UNAIDS** | Joint United Nations Programme on HIV and AIDS |
| **UNDP** | United Nations Development Programme |
| **UNESCO** | United Nations Educational, Scientific and Cultural Organization |
| **UNICEF** | United Nations Children's Fund |
| **WHO** | World Health Organization |
| **USA** | United States of America |
| **ZELS** | Zoonoses and Emerging Livestock Systems |

# Executive Summary

This report presents an analysis of the nature and reach of UK Official Development Assistance (ODA) and Wellcome funding for international development research and partnership activities in South Africa between 2014 – 2019, positioned within the wider profile of the South African national research and innovation system.

The analyses provide a baseline of UK funding and collaboration intending to improve coherence and visibility of its investments to inform future activities under the UK Government's new and distinctive commitment to work alongside, invest in, and partner with African nations. This commitment, announced by former UK Prime Minister Teresa May in 2018, aims to establish long-term, meaningful and mutually beneficial partnerships. Alongside other areas of engagement, this will lead to a broadening and deepening of UK research and innovation investments and partnerships in South Africa. This investment will be led by the UK Government through hubs in various African nations, focused on science, technology and innovation.

UKCDR used multiple methods including portfolio-level, and global funding data analysis of UK ODA and Wellcome-funded projects, stakeholder interviews and bibliometrics to draw out high-level research trends and impacts. Key findings for this report include:

**The UK has a long history of research partnership and is one of the largest international research funders in South Africa,** making it key to the South African research ecosystem. UK ODA and Wellcome investment related to South Africa between 2014 – 2019 totalled £474.1m across 397 research projects. However, this is reduced to an estimated £105.5m, after controlling for data limitations (multi-country awards were equally divided by the number of countries of focus). Research investments are varied – spanning all the United Nations' Sustainable Development Goals (SDGs) with strong focus on SDG 3: Good health and well-being, and projects are delivered through complex and diverse funding schemes.

**UK funding has supported many collaborations between researchers in the UK, South Africa and beyond** with funds awarded to 104 lead institutions, partnering with a further 236 institutions (from 63 countries) through the 397 research projects related to South Africa. Project outputs include more than 10,669 publications (produced between 2017 and August 2019), the majority on medical and health sciences, biological sciences and earth sciences. Collated

case studies and programme highlights demonstrate the global reach and diverse nature of the investment spanning HIV, Tuberculosis, peacebuilding, rodent control and governance.

The UK needs to maximise the benefits of this large and important investment in South Africa through improved coherence, visibility and equitable partnership. **UK funding is largely aligned with South African national research priorities** through the existence of formal agreements and strong partnerships with academics and the benefits in visibility and impact afforded have been demonstrated to date (through the Newton Fund in particular). In 2020, South Africa will determine its next national research and development priorities, and this presents an opportunity to potentially diversify UK investments beyond SDG 3.

**UK funding needs to focus on sustainable partnerships** with improved equity in both funding mechanisms and research partnerships to promote greater alignment with South African national priorities, visibility and impact of the UK investment. The UK Government's partnerships with Africa has strong foundations in South Africa which provide an excellent base for future activities.

# 1 Introduction

## 1.1 Purpose

The purpose of this report is to provide a summary and analysis of the nature and reach of UK Official Development Assistance (ODA) and Wellcome-funded research investments and partnership activities in South Africa and contextualise these within the broader national UK research and innovation system.

By providing a baseline of UK's investments this report aims to improve coherence and visibility, and to inform future UK activities in South Africa under the new and distinctive commitment from the UK to work alongside, invest in, and partner with African nations, announced by the former UK Prime Minister, Teresa May, mid-2018[1].

This report is one of three produced by UKCDR, as commissioned by the Strategic Coherence for ODA-funded Research (SCOR) Board, examining the research investments and partnership activities in three African countries – namely Kenya, Nigeria and South Africa.

## 1.2 Scope

The report analyses quantitative and qualitative aspects of UK ODA-funded and Wellcome research and innovation investments activities committed over the last five financial years (2014/15 – 2018/19) to provide a comprehensive overview of their reach and the partnerships involved. Additionally, the report considers indirect, past (significant commitments that are still active) and pipeline commitments, where relevant. The report asks the following four questions

- What is the total investment of UK ODA and Wellcome on research relating to South Africa?
- Where does UK research funding go?
- What is the potential impact of UK research funding?
- How does the investment extent and outputs from UK funding compare to other external funding to South Africa?

## 1.3 Setting the scene - The South African research & innovation system

**Table 1 - South Africa country profile**

| | Total | Country Ranking |
|---|---|---|
| Population (2019)[2] | 58,558,270 | 24 / 232 |
| Human Development Index (2018)[3] | 0.699 | 113/189 |
| GDP per capita (2018)[4] | $6,339.60 | 90/188 |
| Life expectancy at birth (years) 2017[5] | 63 | |
| DAC List Classification[6] | Upper middle- income country | |

South Africa is the second largest economy in Africa after Nigeria and is globalised although unequal. The country's economic and political transition over the past 20 years has seen it emerge as one of the key global players at both continental and global levels – making it one of the UK's key partners in both foreign and international development policy[7] [8].

## 1.4 South African research policy and funding

The South African National Development Plan (NDP) has identified science, technology and innovation (STI) as central to economic growth, job creation and socio-economic reform. South Africa has a solid National System of Innovation (NSI), making significant progress between 1996 and 2016. This has been demonstrated by the threefold growth in publications, the considerable increase in the participation of women and black researchers in the research and development (R&D) workforce, and the rise of doctoral graduation rates.[9] However, South Africa's innovation performance (patents and products) has remained flat, and the NSI is not considered fully inclusive.[10]

The new White Paper on Science, Technology and Innovation 2019 (initially adopted in 1996) sets out the South African Government's ambitious long-term policy approach for the STI sector approved by the Cabinet. It intends to strengthen the NSI to increase the contribution of STI in addressing the socio-economic challenges faced by South Africa and recommits the government to increase the Gross Domestic Expenditure on R&D (GERD) from 0.8% to 1.5% of GDP by 2030. Themes of inclusivity, transformation, partnership and responsiveness to rapid global changes are central to the policy, as well as eco-innovation (including green energy), information and communications technology, and big data science (labelled as the fourth industrial revolution)[11]. The policy aims to promote open science, interdisciplinary research and accelerate the implementation of the pan-African STI agenda[12]. The South African National Research Fund (NRF) is currently developing the national research agenda for South Africa which will be published in early 2020.

## 1.5 South African research landscape and stakeholders

South Africa is ranked highly by organisations such as the World Economic Forum and World Intellectual Property Office on areas including quality of scientific organisations, university-industry collaboration and h-index (Table 2). South Africa's research and innovation landscape is also characterised by its high proportion of female researchers which, at 44.6%, is higher than most high-income countries – including the United Kingdom[13]. Included in Scimago's ranking of the top one thousand academic and research-related institutions worldwide (based on assessments of an institution's research performance, innovation outputs and societal impact) are thirty-one universities from South Africa, including the University of Cape Town (394th globally and 1st in Africa).[14] However, there are also historically disadvantaged universities – a gap which the South African Government aims to address.

**Table 2 - Key statistics on research and innovation in South Africa**

| | South Africa |
|---|---|
| RESEARCH | |
| Researchers in R&D (per million people) 2015[15] | 473.1 (rank 69/129) |
| R&D score in Global Innovation Index 2019[16] | 25.8 (rank 43/129) |
| Research and development expenditure (% of GDP) 2015[17] | 0.8 (rank 44/129) |
| Target spend on R&D (% of GDP)[18] | 1.5 |
| Quality of scientific organisations[19] | 4.4* (rank 42/137) |
| Availability of scientists and engineers[20] | 3.5* (rank 100/137) |
| OUTPUTS/PUBLICATIONS[21] | |
| Total number of publications 2018 (citable publications) | 25,150 (21,843) |
| Total number of publications 1996-2018 (citations per publication) | 272,886 (13.48) |
| H Index | 423 (rank 33/239) |
| Percentage of Outputs that are Open Access (2018) | 68.94% (17338 docs) |
| Output as a percentage of Africa (2018) | 32.74% (42.89% in 2009) |
| Output as a percentage of the world (2018) | 0.81% |
| COLLABORATION | |
| International collaboration 2018 (% of total) | 52.97% |
| University-Industry collaboration (score/ranking)[22] | 4.4* (rank 29/137) |
| INNOVATION[23] | |
| Country position in Global Innovation Index 2019[24] | 63 |
| Capacity for Innovation (2017-8)[25] | 3.9* (rank 82/137) |
| Global competitiveness index | 4.3* (rank 61/137) |
| PCT patents (applications/million pop) | 5.8* (rank 49/119) |

*Denotes scores based on a 1-7 scale as calculated by the World Economic Forum

## Table 3 - Key actors and responsibilities in South Africa's NSI[26]

| Type of stakeholder | Stakeholders |
|---|---|
| **Government departments/ Ministries** | The **Department of Science and Innovation** (DSI) is responsible for setting public research policy and owning policy for the innovation ecosystem, and human capacity building.<br><br>Funds for R&D from DSI are allocated through agencies which they oversee, including the **Council for Scientific and Industrial Research**, the **National Research Foundation**, the **Human Sciences Research Council**, the **South African National Space Agency** and the **Technology Innovation Agency**.<br><br>The Department of Trade and Industry also has research responsibilities. |
| **National research policy and funding** | **National Research Foundation** operates six national research facilities[27] and manages competitive research funding programmes for businesses/private sector, researchers at national facilities and higher education institutions.<br><br>Other funding agencies include the **Water Research Commission**, the **South African National Energy Development Institute**, the **Medical Research Council** (funded through their line Departments) and the **Technology Innovation Agency** which aims to stimulate technological innovation by assisting the commercialisation of research.<br><br>Research at universities and public research institutions is mainly block-funded by the government. |
| **Research organisations** | 26 public universities[28] including university clusters in the Western Cape (**University of Cape Town**, **Stellenbosch University** and the **University of the Western Cape**); Gauteng (**University of the Witwatersrand**, **University of Johannesburg** and the **University of Pretoria**); the Eastern Cape (**Rhodes University**) and KwaZulu-Natal (the **University of KwaZulu-Natal**).<br><br>Universities of Technology and other universities also conduct useful research.<br><br>Several funders also conduct research, such as the **National Research Foundation** and the **Medical Research Council**, and there are several high-quality **Research Institutes**. |

## 1.6 South African research collaboration and innovation

South Africa maintains a high level of international collaboration (Table 2) and has entered into 21 formal bilateral agreements with other African countries in science and technology since 1997 through DSI (formally the Department of Science and Technology, DST)[29]. Though the World Economic Forum ranks South Africa as a mid-tier country in innovation capacity and global competitiveness (Table 2), the country demonstrates a good track record and ambition in these areas, with responsibility for the first heart transplant and Computer Tomography (CT) scan. South Africa hosts the majority of the Square Kilometre Array telescope (international science project in which the UK is a major stakeholder with global HQ in Manchester, UK) and is home to world-leading research on astronomy, big data, TB, malaria and HIV/AIDS.[30]

## 1.7 South African scientific outputs

Table 4 shows the ten most popular research topics of all documents published in South Africa in 2018. The country has a high production of academic literature equating to 0.81% of global output. South Africa's h-index (which measures both the productivity and citation impact of scientific publications) of 423 ranks South Africa 33rd out of 236 countries and first among all African nations (Table 2).

**Table 4 - Top 10 subject areas of South African research (2018)**

| Rank | Subject area | Percentage of Published Documents (2018) |
|---|---|---|
| 1. | Medicine | 16.0% |
| 2. | Social Sciences | 10.5% |
| 3. | Agricultural and Biological Sciences | 7.8% |
| 4. | Engineering | 7.0% |
| 5. | Physics and Astronomy | 5.5% |
| 6. | Biochemistry, Genetics and Molecular Biology | 5.1% |
| 7. | Environmental Science | 5.0% |
| 8. | Computer Science | 4.8% |
| 9. | Materials Science | 4.1% |
| 10. | Earth and Planetary Sciences | 4.1% |

Source: Scimago

## 1.8 UK Government partnerships in South Africa

The UK has a formal bilateral Science and Technology Agreement with South Africa (since 1995) and strong partnerships with academics at both individual and institutional levels. Through the European Union Framework Programme (FP7), a research funding programme, South Africa partners with the UK more than any other country and is the fifth-most successful country in accessing FP7 funding. The UK and South Africa have agreed science and innovation priority focus areas of health research, astronomy, biosciences, and climate change[31].

Examples of longstanding links and research collaborations between UK and South African institutions (with significant enhancements in recent years) include:

- The **UK Science and Innovation Network (SIN)** - part of Foreign and Commonwealth Office (FCO) and BEIS, is a network of over 100 officers, in over 40 countries working to build partnerships and collaborations on science and innovation. SIN has a presence in Pretoria and Cape Town;

- **DFID's Research and Evidence Division** which funds a range of multi-million-pound research projects including those in South and Southern Africa. Presently, DFID's relationship with South Africa is based on a development partnership model built around mutually-agreed priorities, including supporting the South African Government efforts to tackle poverty and inequality using its own resources and those which have an impact beyond its borders, such as regional trade and climate change.[32] [33]

- The **UK-South Africa Newton Fund** was launched in September 2014 with a UK commitment of £40 million until 2021 and match-funding from the DSI as the lead agency in South Africa. Activities focus on public health, the environment, oceans, food security, and science and technology capacity building. These are underpinned by cross-cutting themes of big data and regional co-operation across sub-Saharan Africa.

- The **Global Challenges Research Fund (GCRF)** - a £1.5 billion fund announced by the UK Government in 2015 to support cutting-edge research to addresses challenges in low- and middle-income countries (LMICs). In particular, South Africa is listed as a country of focus by more projects than any other country under GCRF.[34]

- The **British Council** who delivers a range of relevant science and education-focused activities, such as researcher mobility schemes.

# 2 Methodology overview

(Full methodology breakdown can be found in Annex 2, available in Supporting Document (Annex 2-8) on the UKCDR website))

All methodologies, scope and design were developed collaboratively by the UKCDR team and UKCDR members.

To understand the extent and impact of UK ODA and Wellcome research funding in South Africa, this report asks four questions presented in the scope.

To address these questions, this report makes use of a combination of the following quantitative and qualitative tools:

## 2.1 Portfolio-level analysis of UK ODA-funded and Wellcome-funded research projects

Data on research funding awarded between 2014-2019 were collected from DFID, BEIS, DHSC (collectively accounting for more than 95% of the total ODA research budget)[35] and Wellcome (Table 5). This timeframe was selected as many of these organisations would not have been allocated ODA funds prior to FY 2014/15.

**Table 5 - List of funders with data included in the portfolio-level analysis of UK ODA-funded and Wellcome-funded research projects relating to South Africa**

| Funder |
|---|
| **Department for Business, Energy and Industrial Strategy (BEIS)*** via delivery partners†:<br>• Academy of Medical Sciences<br>• British Academy<br>• Royal Society<br>• UK Research and Innovation<br>• UK Space Agency |
| **Department for International Development (DFID)*** |
| **Department for Health and Social Care (DHSC)*** |
| **Wellcome** |

* indicates data obtained from ODA-funded research

†Non-extensive list of BEIS-delivery partners for ODA-funded research

### 2.1.1 Data limitations from portfolio-level analysis

There are two important considerations regarding the analysis of the data from this component:

- Though the funded research projects address issues relevant to South Africa, most grants were awarded to UK institutions which in turn disburse funds to in-country partners. It is not possible from the data to determine exact funding to South African institutions. Therefore, the awarded grant amounts do not reflect funds that the UK sends to South Africa. Rather, it reflects investments in research related to South Africa.

- Almost all included research projects (88.2%) have multiple countries of focus and it was not possible to disaggregate spend per individual country from the data provided. To correct for this, most of the portfolio-level analysis equally divides individual grant amounts by the total number of nations listed as a country of focus when presenting financial information. While such an assumption is imperfect, accounting for this helps to frame our understanding of the true underlying size of UK investments into research relating to South Africa. This technique was agreed to by the funders included in the portfolio-level analysis.

## 2.2 Stakeholder interviews

While the analysis of portfolio-level data is vital to understand the extent and impact of UK ODA research funding in South Africa, important elements of the STI relationship between the two countries would otherwise be missed should the analysis employ purely quantitative tools. To that end, interviews with 14 stakeholders based in the UK and South Africa were conducted to add insight on the perceptions of this relationship. These stakeholders were from the following three groups:

- Research funders based in both South Africa and the UK

- Research providers (including research institutions)

- Wider stakeholders of importance (including policy makers)

### 2.2.1 Limitations of stakeholder interviews

The views expressed in the responses received serve as a starting point to understand the perceptions and impact of UK research funding in South Africa and should not be considered to embody the general views of the groups which those stakeholders represent. This is due to two main reasons:

- Only 6 in-country respondents were included (3 interviewed and 3 surveyed) and 8 UK research funders (all surveyed). Given this small sample size these findings are not generalisable across all the stakeholder groups represented.

- UK funders being asked questions relating to the perceptions and impact of UK research funding in three different African countries collectively (though every attempt has been made to extract and present the responses relevant to South Africa - including those that were more generalised across the three countries).

## 2.3 Bibliometric analysis

A bibliometric analysis was used to provide a statistical overview of the publication outputs arising from investments and their resulting collaborations.

UKCDR fully acknowledges that assessments of scientific research output must encapsulate more than just publication and citation metrics, as stated in the San Francisco Declaration on Research Assessment (DORA), which is among the reasons why this bibliometric analysis comprises one of five different components of this report.

Data were sourced from Dimensions– an online subscription-based platform that collates information on grants, publications, citations, alternative metrics, clinical trials, patents and policy documents from more than 350 public and private research funders from 39 countries. A complete list of funders whose data is available on this platform can be found in Annex 5. Several bibliometrics platforms (such as Web of Science and European Pub Med Central) were considered, but Dimensions was selected chosen due to its superior coverage and the completeness of its data.

The data features publications from between 2017 and August 2019, assuming a three-year time-lag between the time of funding and the time of publication, in alignment with the timeframe used for the portfolio-level analysis.

### 2.3.1 Data limitations from bibliometric analysis

Important considerations regarding data from Dimensions:

- Dimensions does not allow for the filtering of research projects with an international development focus or those that are ODA funded in an automated way. Therefore, data for any research project related to South Africa is used – regardless of whether they have an international development focus or are ODA funded.

- DFID data is currently not routinely collected by Dimensions. Due to difficulties in identifying alternative and robust methods of identifying publications acknowledging DFID funding, the decision was made not to include DFID in this component. As DFID are a significant and historical funder of international development research (representing approximately one third of the UK Government's total ODA R&D budget between FY2016/17 and 2020/21)[36], it is acknowledged that the publications identified for this period are underestimated.

- Citation measures, most notably the Relative Citation Ration (RCR), were not included in this component as this information is generally collected two years after publication. Given the date range for this component, as mentioned above, only 19% of the data showed provided an RCR, all of which were publications from 2017.

## 2.4 Analysis of global funding data

To contextualise the magnitude of these investments at a global level, they were compared to those made by funders from other countries on research relating to South Africa over the same period. Similar to the bibliometric analysis, a summary of statistics with data obtained from Dimensions was used.

### 2.4.1 Data limitations from analysis of global funding data

As the same source of data as the bibliometric analysis is used, it is subject to some of the same limitations outlined in Section 2.3.1 - namely the need to incorporate data from all research projects relating to South Africa (due to the lack of an automated method to identify research projects with an international development focus or those that are ODA funded) and the absence of data from certain research funders – such as DFID.

Additional considerations are:

- Of the 354 funders (public and private) with data on the Dimensions database, 154 (43.5%) are based in the United States - potentially skewing the results to show a greater proportion of research investments coming from the USA than may necessarily be the case. Importantly, it is the completeness of a given country's research funding landscape captured by the Dimensions database that determines the extent of the over/ underestimation of the proportion of that country's contribution to research investments on projects relating to South Africa.

- NRF is South Africa's only representative on the database. Although a keyword search for all research projects relating to South Africa over the relevant period found that Dimensions holds no financial information on the more than 3000 research projects funded by NRF

- Grant information is handled in a similar way to the portfolio-level analysis of UK ODA-funded and Wellcome-funded research projects/ Projects with multiple countries of focus listed on the OECD's Development Action Committee (DAC) list are subject to having their grant amounts equally divided by their respective total number of DAC-listed countries of focus for the same reasons outlined in Section 2.1.1.

## 2.5 Case studies and programme highlights

Case studies add depth to the analysis, giving insights into the impact of ODA/ Wellcome research funding has had on the lives of South African beneficiaries and programme highlights demonstrate the diverse nature of UK investments. The information on the projects and investments profiled in the case studies and programme highlights were obtained from UKCDR members and stakeholders, who nominated the projects and investments for inclusion (Annex 7) and desk-based research. This section also features case studies and programme highlights that fall outside of 2014/15 – 2018/19, to not exclude those longstanding UK research investments whose impacts are still being realised to this day. Additionally, research projects often require several years before they reach their respective impact stage.

# 3 Findings

## 3.1 What is the total investment of UK ODA and Wellcome on research relating to South Africa?

Since April 2014, the UK Government departments with the largest ODA research budgets (DFID, BEIS and DHSC) and Wellcome have invested a total of £474.1m on 397 projects that listed South Africa as one of the countries of focus (Table 6). This figure is reduced to an estimated £105.5m after correcting for multiple countries of focus (using the method outlined in Section 2.1.1).

BEIS accounts for both the greatest amount of funds and number of research projects, although typically smaller (Figure 1) and shorter (Table 6) awards compared to the other funders, particularly when accounting for multiple countries of focus – BEIS (estimated £213.4k), DFID (estimated £896.0k), DHSC (estimated £673.9k) and Wellcome (estimated £377.4k).

**Table 6 - Research projects relating to South Africa funded by UK ODA and Wellcome (initiated between FY 2014/15 - 2018/19)**

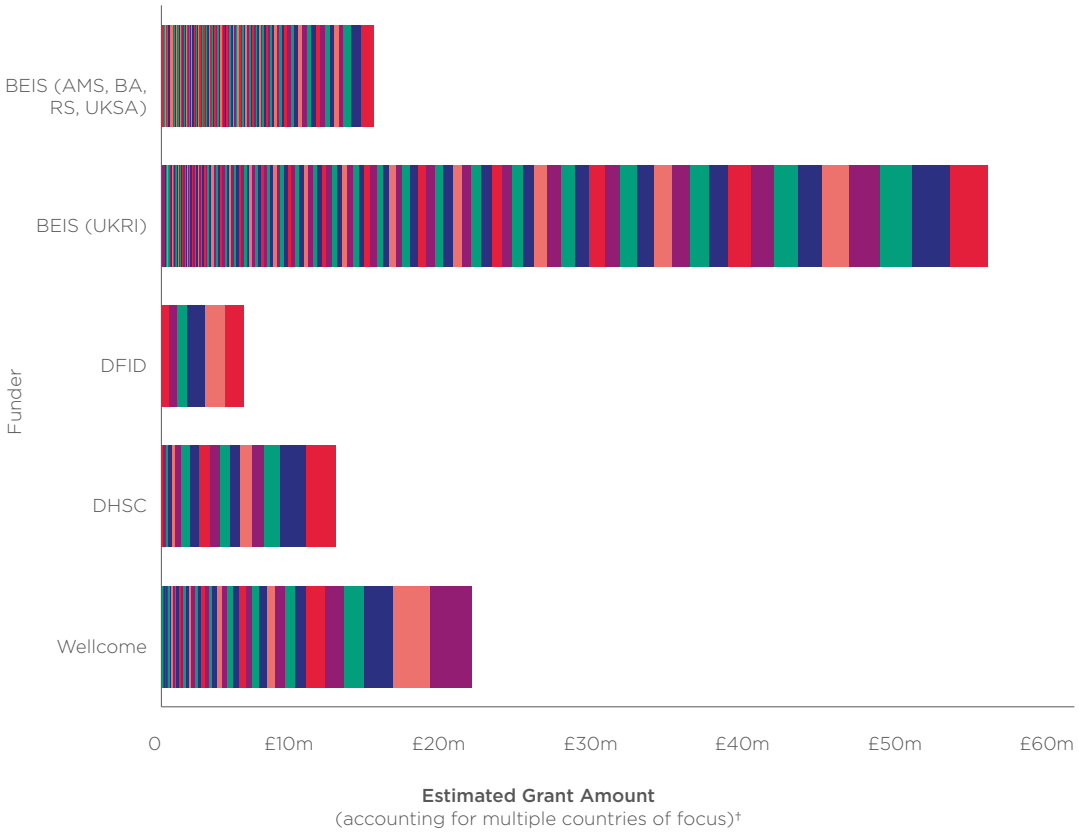
| Funder | No. of research projects | Total grant amount awarde* | Estimated total grant amount awarded (correcting for multiple countries of focus) † | Average duration of research project (months) |
|---|---|---|---|---|
| BEIS (total) | 316 | £186.7m | £68.3m | 30 |
| *AMS* | *25* | *£1.7m* | *£1.5m* | *26* |
| *British Academy (BA)* | *63* | *£4.0m* | *£2.8m* | *21* |
| *Royal Society (RS)* | *78* | *£10.0m* | *£8.0m* | *31* |
| *UKRI* | *151* | *£166.8m* | *£54.3m* | *30* |
| *UK Space Agency (UKSA)* | *3* | *£4.3m* | *£1.7m* | *37* |
| DFID | 6 | £194.8m | £5.4m | 76 |
| DHSC | 17 | £59.0m | £11.5m | 42 |
| Wellcome | 54 | £33.5m | £20.4m | 36 |
| **Total:** ODA only | **343** | **£440.6m** | **£85.1m** | **30** |
| **Total:** ODA and Wellcome | **397** | **£474.1m** | **£105.5m** | **30** |

Totals may not add up due to rounding.

*Figures presented in this column reflect the total grant amount of research projects without taking into account research projects having multiple countries of focus.

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

**Figure 1 - Estimated size of individually-awarded grants taking into account multiple countries of focus† by UK ODA research funders and Wellcome on research projects relating to South Africa (initiated between FY 2014/15 – 2018/19)**

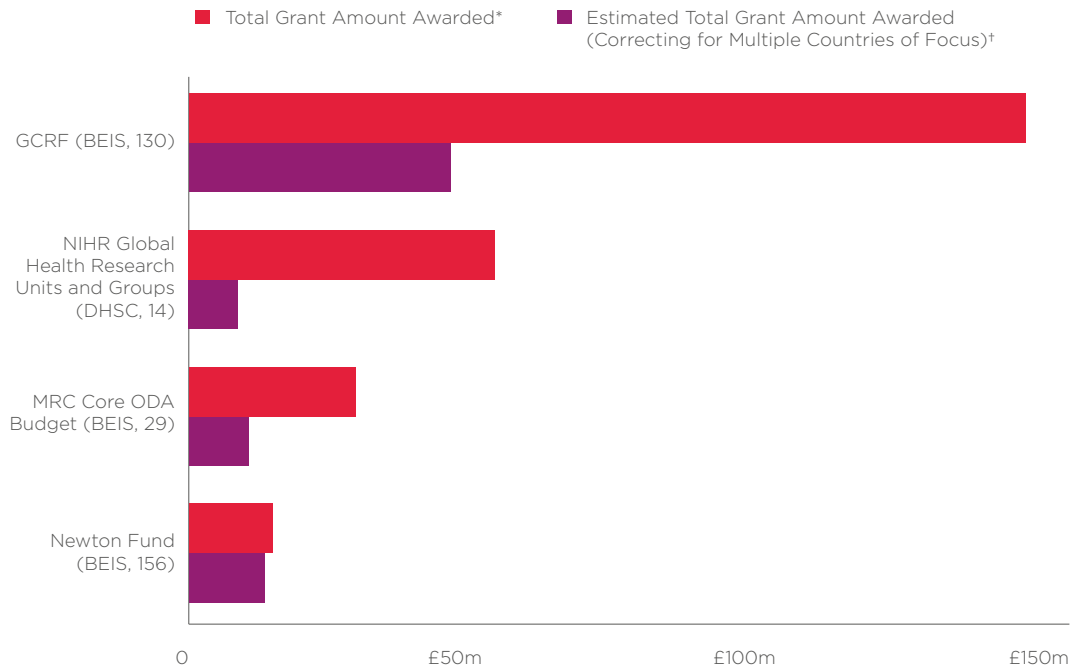



Grants are Displayed in Size Order.

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

Figure 2 presents the four most prominent ODA-funded research programmes (those programmes awarding in excess of £10m-worth of ODA on research projects). It is worth noting that among the key characteristics of the Newton Fund are the matched resources provided by partner countries - which partially explains the fund's comparatively lower investment relative to the other named funds featured.

## Figure 2 – Major UK ODA-Funding programmes that have awarded at least £10m to research relating to South Africa (initiated between FY 2014/15 - 2018/19)




(Funder and number of projects indicated in brackets)

*Figures presented on the total grant amount of research projects do not take into account research projects having multiple countries of focus.

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

### Box 1 - Historical DFID funding on research relating to South Africa

FY 2014/15 was selected for consideration for the portfolio-level analysis due to the launch of the Newton Fund that introduced a number of funders to the ODA research space.

Prior to this, ODA-funded research had largely been administered through DFID who between 2009/1- - 2013/14 had funded **14** projects related to South Africa worth **£228.7m** (estimated **£26.5m** when taking into account multiple countries of focus) – all of which are still active.

This includes **£93m** of support to CGIAR, the world's largest global agricultural innovation network, to:

- Scale up research contributing to the development of new and more productive crop varieties which are more tolerant of biotic and abiotic stress.
- Develop farming systems which are more resilient and productive.
- Establish markets and value chains which are better able to deliver benefits to poor people.
- Promote policies and technology which will directly support better nutritional and health outcomes for impoverished communities.

## Box 2 - Programme highlight- The Africa Health Research Institute

The Africa Health Research Institute (AHRI) is a multidisciplinary, independent research institute based across two sites in the South African province of KwaZulu-Natal at Somkhele and Durban. AHRI was formed in 2016 as the result of a merger of the Africa Centre for Population Health and the KwaZulu-Natal Research Institute for TB-HIV.

AHRI is committed to working towards the elimination of HIV and TB. The prevalence of HIV and TB observed in the region are among the highest in the world. Working with over 60 academic and clinical institutions in South Africa and internationally, AHRI's goal is to become a source of fundamental discoveries into the susceptibility, transmission and cure of HIV, TB and related diseases, while seeking ways to improve diagnosis, prevention and treatment.

The focus of the site in Somkhele is epidemiology, clinical research and population-level intervention research - primarily on prevention, diagnosis and treatment of HIV, TB and related diseases. The site in Durban is fully equipped for diagnostic and exploratory testing services including immunology, proteomics, microbiology and virology, and animal research. It houses over 600m2 of biosafety level 3 laboratory space.

AHRI is funded by Wellcome and the Howard Hughes Medical Institute. Its academic partners are the University of KwaZulu-Natal and University College London.

## Box 3 - Programme Highlight- Wellcome Centre for Infectious Diseases Research in Africa (CIDRI-Africa)

CIDRI-Africa is the Wellcome Centre for Infectious Diseases Research based at the University of Cape Town in South Africa.

Through investigator-led approaches in clinical and laboratory research, CIDRI-Africa aims to combat infectious diseases related to poverty with a focus on TB and HIV. CIDIRI-Africa's portfolio also includes research on the interaction between communicable and non-communicable disease, such as the intersection of HIV with cardiovascular disease. The centre wants to determine the role of non-infectious diseases in infection and overcome the challenges of large scale anti-retroviral therapy for HIV, such as metabolic complications and antiretroviral drug resistance.

The centre's programme is organised into three interlinked platforms. The clinical research platform supports observational cohort studies, evaluation of novel diagnostics, and clinical trials. Firstly, the basic science platform provides the laboratory infrastructure and technical support to ensure the safe handling of infectious materials. Secondly, the platform is embedded within the University of Cape Town's Institute of Infectious Disease and Molecular Medicine's biosafety level 3 facility. Finally, a biomedical data integration platform advances the cutting-edge integration of high-dimensional, big data.

The centre also places a focus on research capacity strengthening, providing training and opportunities to African scientists and clinicians.

### 3.1.1 Non-funding connections

Interviews with two different South African stakeholders highlighted the Transformative Innovation Policy Consortium (TIPC) - a group of policy makers and funding agencies working together to give substance to a framing for STI policy to address the challenges highlighted by the SDGs. This work is coordinated by the University of Sussex[37]. Among the funding agencies involved are the NRF and the DSI.

## 3.2 Where does UK research funding go?

### 3.2.1 Lead institutions

The estimated £105.5m of research grants taking into account multiple countries of focus (Table 6) was awarded to 104 different lead institutions – of which an estimated £73.5m (69.6%) was awarded to 64 lead institutions based in the UK. [This includes six of the ten lead institutions awarded with the most funding on research projects related to South Africa (Table 7) taking into account multiple countries of focus]. As mentioned in Section 2.1.1, funds awarded to lead institutions in the UK may be disbursed to partner institutions (including those in South Africa).

**Table 7 - Top 10 lead institutions awarded the most estimated funds, taking into account multiple countries of focus† by UK ODA research funders and Wellcome on research projects relating to South Africa (initiated between 2014/15 – 2018/19) ***

| Rank | Institution (country) | Estimated total grant amount awarded (correcting for multiple countries of focus)† |
|---|---|---|
| 1 | London School of Hygiene and Tropical Medicine (UK) | £8.4m |
| 2 | University College London (UK) | £7.6m |
| 3 | University of Cape Town (South Africa) | £7.0m |
| 4 | Imperial College London (UK) | £6.7m |
| 5 | University of Oxford (UK) | £5.2m |
| 6 | South African Medical Research Council (South Africa) | £3.7m |
| 7 | Stellenbosch University (South Africa) | £3.7m |
| 8 | University of Leeds (UK) | £3.3m |
| 9 | University of Southampton (UK) | £3.1m |
| 10 | University of the Witwatersrand (South Africa) | £3.0m |

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

*Funds awarded to lead institutions may be disbursed to partner institutions (including those in South Africa)

### 3.2.2 South African institutions

Beyond the lead institutions (Table 7) a total of 340 institutions from 63 countries have been involved with the 397 research projects related to South Africa included in the portfolio-level analysis (Figure 3). Of these institutions, 45 are based in South Africa with the University of Cape Town ranking first among all other research institutions based in the nation (Table 8) or otherwise.

**Figure 3 - Location of institutions involved with UK ODA-Funded and Wellcome-funded research projects relating to South Africa (initiated between FY 2014/15 - 2018/19)**

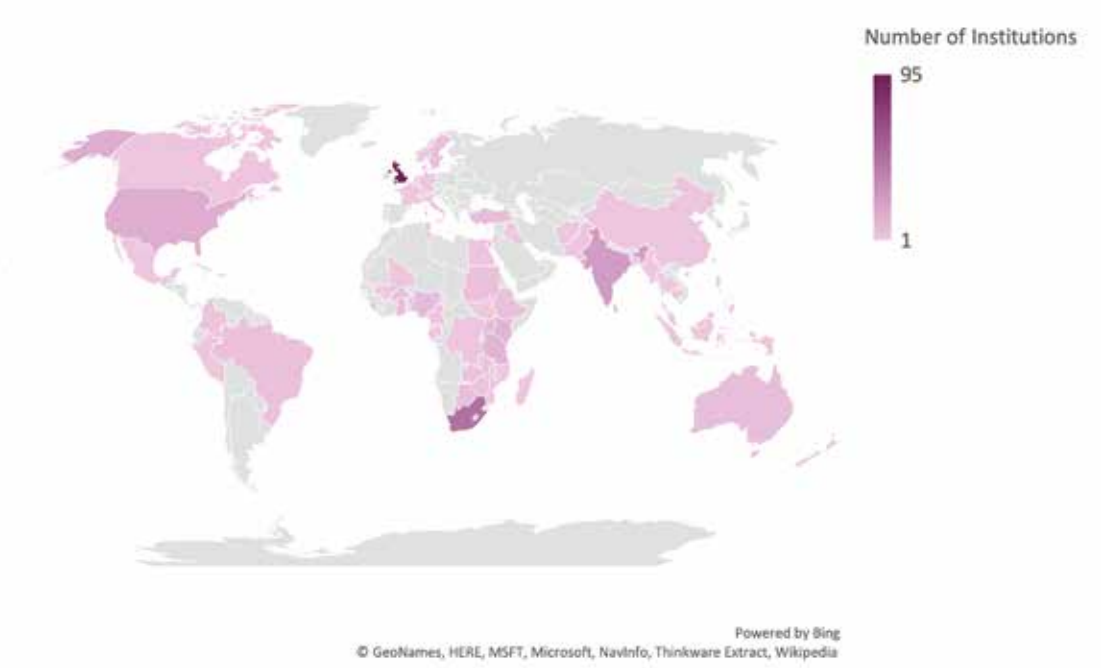



**Table 8 - Top 10 South African institutions involved with the greatest number of UK ODA-funded and Wellcome funded research projects relating to South Africa (initiated between FY 2014/15 - 2018/19)**

| Rank | Institution | No. of projects |
|---|---|---|
| 1 | London School of Hygiene and Tropical Medicine (UK) | 103 |
| 2 | University College London (UK) | 43 |
| 3 | University of Cape Town (South Africa) | 34 |
| 4 | Imperial College London (UK) | 24 |
| 5 | University of Oxford (UK) | 19 |
| 6 | South African Medical Research Council (South Africa) | 14 |
| 7 | Stellenbosch University (South Africa) | 13 |
| 8 | University of Leeds (UK) | 11 |
| 9 | University of Southampton (UK) | 8 |
| 10 | University of the Witwatersrand (South Africa) | 7 |

### 3.2.3 Institutional linkages

Collaboration is a priority of research programmes offered by funders to address key challenges faced by LMICs. The advantages of such collaborations are well-documented, such as the opportunity for researchers to exchange experiences, debate academic ideas and support research capacity strengthening practices, thereby expanding the reach and benefits of the projects in this analysis.

Of the 340 institutions involved with the research projects included in the portfolio-level analysis, Table 9 presents the 10 most common collaborations on UK ODA-funded and Wellcome-funded research projects. The pairings presented in Table 9 lists the most common collaborations between any two institutions that were listed as either a lead institution or the location of any of the co-investigators for a given research project.

**Table 9 - Most common collaborations between two institutions on UK ODA-funded and Wellcome-funded research projects relating to South Africa (initiated between FY 2014/15 - 2018/19)**

| Rank | Institutions | No. of collaborations |
|---|---|---|
| 1 | London School of Hygiene and Tropical Medicine and University of Cape Town | 16 |
| 2 | University of Cape Town and University of Oxford | 15 |
| 3 | South African Medical Research Council and University of Cape Town | 11 |
| 4 | University of Oxford and University of the Witwatersrand | 10 |
| 5 | Stellenbosch University and University of Cape Town | 9 |
| 6 | King's College London and University of Cape Town | 8 |
| =7 | University of Cape Town and University of Manchester<br>University of Cape Town and University of Southampton<br>University of Cape Town and University of York | 7 |

As a measure for the type of opportunities that UK research funding affords to institutions based in LMICs for collaboration, Table 10 highlights the most common collaborations between any two institutions based in LMICs.

**Table 10 - Most common collaborations between two LMIC-based Institutions on UK ODA-funded and Wellcome-funded research projects Relating to South Africa (initiated between FY 2014/15 - 2018/19)**

| Rank | Institutions | No. of collaborations |
|---|---|---|
| 1 | South African Medical Research Council and University of Cape Town | 11 |
| 2 | Stellenbosch University and University of Cape Town | 9 |
| 3 | Addis Ababa University and University of Cape Town | 6 |
| =4 | Makerere University and University of Cape Town<br>University of Cape Town and University of Kwazulu-Natal<br>University of Cape Town and University of the Witwatersrand | 5 |
| =7 | Addis Ababa University and Makerere University<br>Desmond Tutu HIV Foundation and University of Cape Town<br>Kenya Medical Research Institute and Makerere University<br>Kwame Nkrumah University of Science and Technology and Makerere University<br>University of Cape Town and Wits Health Consortium<br>University of KwaZulu-Natal and University of Zimbabwe | 4 |

### 3.2.4 Issues and opportunities linked to funding distribution

There was a consensus among the UK and South African stakeholders interviewed that there exists an uneven distribution of research funding across different South African institutions - with most research going to researchers at a small group of leading institutions (supported by the information in Table 8).

In-country respondents described 'strong' institutions as having greater (institutional) capacity and research infrastructure to apply for funding which is partially a result of historical, political and networking considerations. South African institutions lacking such political and historical connections still struggle to compete for UK funding and, consequently, face difficulty in retaining talented scientists and researchers. These notions were echoed by most UK research funders, indicating an awareness of a small number of elite in-country institutions that tend to be more successful because of being better networked with UK universities and having access to more resources. One UK funder mentioned that funding is based on competition and excellence rather than equity and may therefore result in 'excellent' researchers from 'weaker' institutions being less likely to make successful funding applications due to having less support and experience.

To address these institutional disparities, respondents suggested 'relay investment' as an opportunity for UK research funding to strengthen historically-disadvantaged universities whereby a 'strong' university partners with less-developed research institutions for shared learning and capacity building. The

adoption a method to uplift other universities has been used by Wellcome in their African Institutions Initiative programme and is presently being explored by relevant UK and South African stakeholders.

The identification of this uneven distribution was also seen as an opportunity to build institutional capacity to support research management, with the 'Good Financial Grant Practice' mentioned as an appropriate tool to support this in South Africa.

### 3.2.5 Funding for capacity strengthening

Most funders interviewed indicated that research capacity strengthening is embedded within research programmes that they fund, rather than as a standalone programme. Examples include training in research methodologies, user engagement, paper writing and conference presentations. UKRI, for example, funded some programmes via GCRF which included funding for indirect costs for building institutional capacity and training.

Other institutional capacity building activities currently funded by the UK research funders are the Good Financial Grants Programme and Research Management Programme (ReMPro), which are both led by the African Academy of Sciences (AAS).

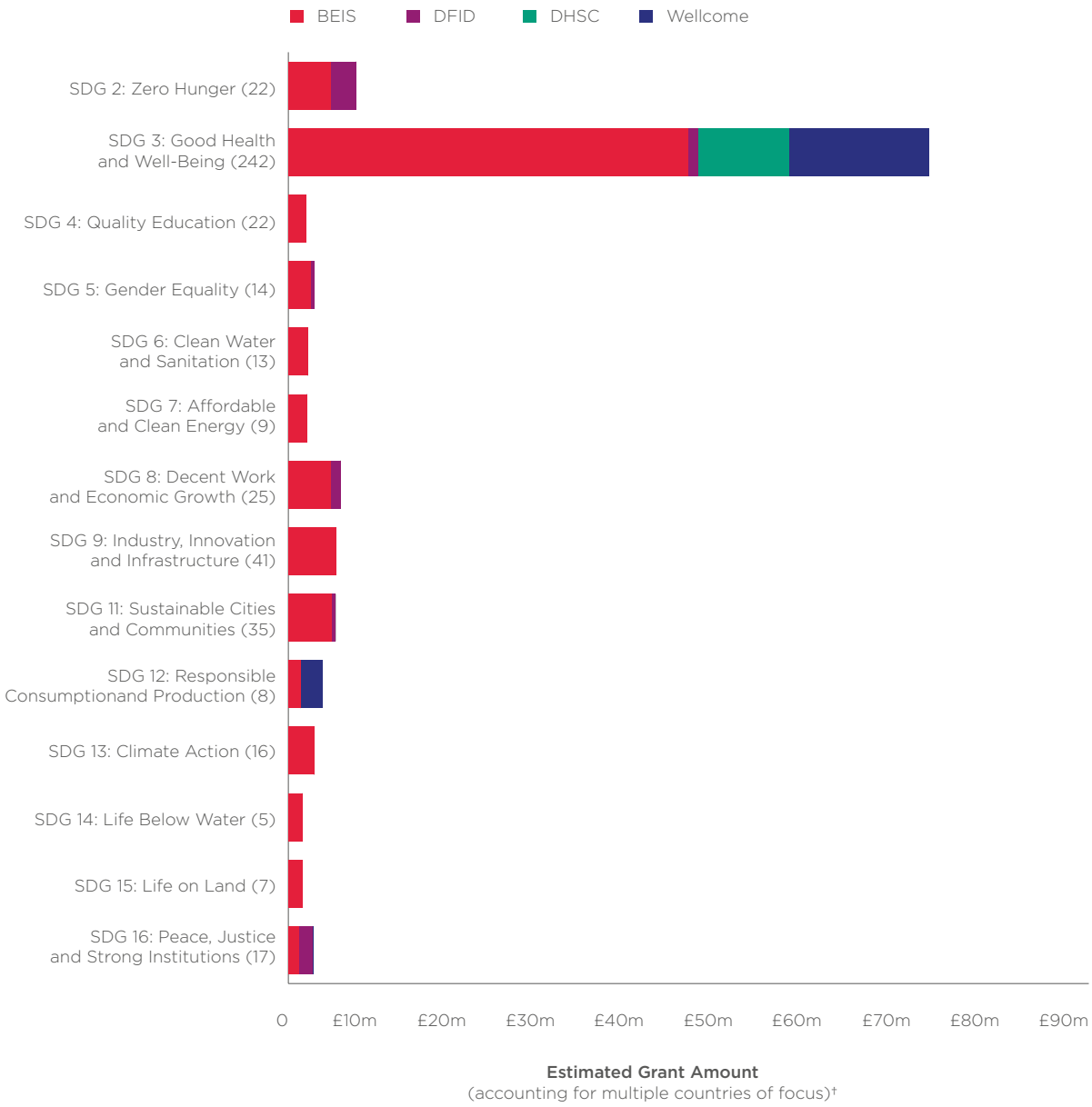
### 3.2.6 Funding distribution across the SDGs

To gain a deeper understanding of the investments made, each of the research projects included in the portfolio-level analysis was assigned up to 5 of 14 of the SDGs based on the qualitative information provided.

The three SDGs not selected to classify projects against were SDG 1: No Poverty, SDG 10: Reduced Inequality and SDG 17: Partnership for the Goals as each of these goals are deeply embedded within each funding programmes strategies. This is particularly apparent with SDG 10 and SDG 17 where ODA is referenced multiple times within each goal's respective targets and indicators as a tool to achieve the SDGs. In the case of SDG 1, this goal deals with the eradication of poverty in all its forms everywhere – which is at the core of each funder's research programme.

For projects assigned multiple SDGs, funding amounts were not divided accordingly. Estimated funding amounts presented in Figure 4 represent the total value of research projects that are relevant to that SDG (correcting for multiple countries of focus) and does not equate to the total value of the portfolio of UK ODA-funded and Wellcome-funded research projects.

## Figure 4 - Estimated financial breakdown by SDG of research projects relating to South Africa (initiated between FY 2014/15 - 2018/19) funded by UK ODA research funders and Wellcome taking into account multiple countries of focus†*




(Total number of projects per SDG indicated in brackets)

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

*The total funding value across all SDGs presented in the figure does not equate to the total value of the portfolio of UK ODA-funded and Wellcome-funded research projects.

### 3.2.7 Alignment of UK ODA & Wellcome funding with national research and development priorities

The stakeholder interviews indicated varying perceptions of the alignment of UK research and innovation funding with national research priorities in South Africa. Two of the three South African respondents who answered this question indicated good alignment. The Newton Fund was cited by stakeholders from both South Africa and the UK as particularly well-aligned with national research and development priorities due to the co-development of a joint strategy between South Africa and the UK based on a set of agreed principles. Some respondents also indicated that South African stakeholders have increasingly led discussions on the re-prioritisation of the fund since its inception when priorities were more UK focussed.

Some UK funders indicated that research project proposals are required to address in-country research user needs and are assessed to this effect. Furthermore, one funder highlighted the need for government departments investing ODA in research to work together to ensure alignment with national priorities, and link with DFID research hubs to engage country offices and local stakeholders. Additionally, they highlighted the need to design future programmes with clear theories of change and based on evidence to ensure greater policy impact.

In-country stakeholders interviewed additionally highlighted several potential future development priorities for South Africa including HIV/TB, maternal and neonatal health, data, artificial intelligence, climate change, accessing and strengthening good research infrastructure, applied and translational research, and increased support for innovation and job creation.

## Box 4 - The National Development Plan and the Medium-Term Strategic Framework

South African national research priorities are drawn from the National Development Plan 2030. Launched in August 2012, the National Development Plan outlines a series of objectives to shape the nation's socioeconomic development with the aim of eliminating poverty and reducing inequality in the nation by the year 2030. To implement the National Development Plan for the electoral period 2014 – 2019, the Medium-Term Strategic Framework (MTSF) was launched shortly afterwards, detailing 14 priority outcomes for the South African government to address, namely:

1. Quality basic education;
2. A long and healthy life for all South Africans;
3. All people in South Africa are and feel safe;
4. Decent employment through inclusive growth;
5. A skilled and capable workforce to support an inclusive growth path;
6. An efficient, competitive and responsive economic infrastructure network;
7. Vibrant, equitable, sustainable rural communities contributing towards food security for all;
8. Sustainable human settlements and improved quality of household life;
9. Responsive, accountable, effective and efficient local government;
10. Protect and enhance our environmental assets and natural resources;
11. Create a better South Africa and contribute to a better Africa and a better world;
12. An efficient, effective and development-oriented public service;
13. A competitive, responsive and sustainable social protection system;
14. A diverse, socially cohesive society with a common national identity

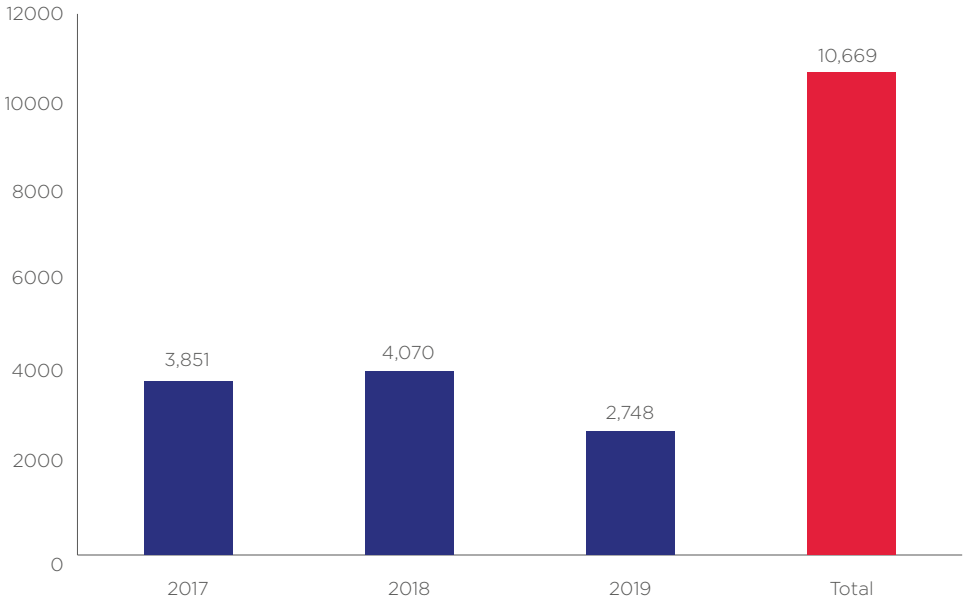
The priority outcomes listed under the MTSF be mapped onto the SDGs and give an indication as to which SDGs the South African government are prioritising for the 2014-2019 electoral period with SDG 8 (Decent Work and Economic Growth) and SDG 16 (Peace, Justice and Strong Institutions) represented on multiple MTSF outcomes – the SDGs with the third and ninth most commonly funded thematic areas, respectively (Figure 4).

## 3.3 What is the reach and potential impact of UK research funding?

### 3.3.1 Publication volume

From the bibliometric analysis, UK-funded research output relating to South Africa totalled 10,669 publications between 2017 and 2019 (Figure 5). As this data was collected in August 2019, the publication number is not indicative of the final publication output of 2019, and it is likely that this figure will be higher than indicated in this analysis.

**Figure 5 - Total number of publications produced in 2017 – 2019* relating to South Africa resulting from UK research funding**



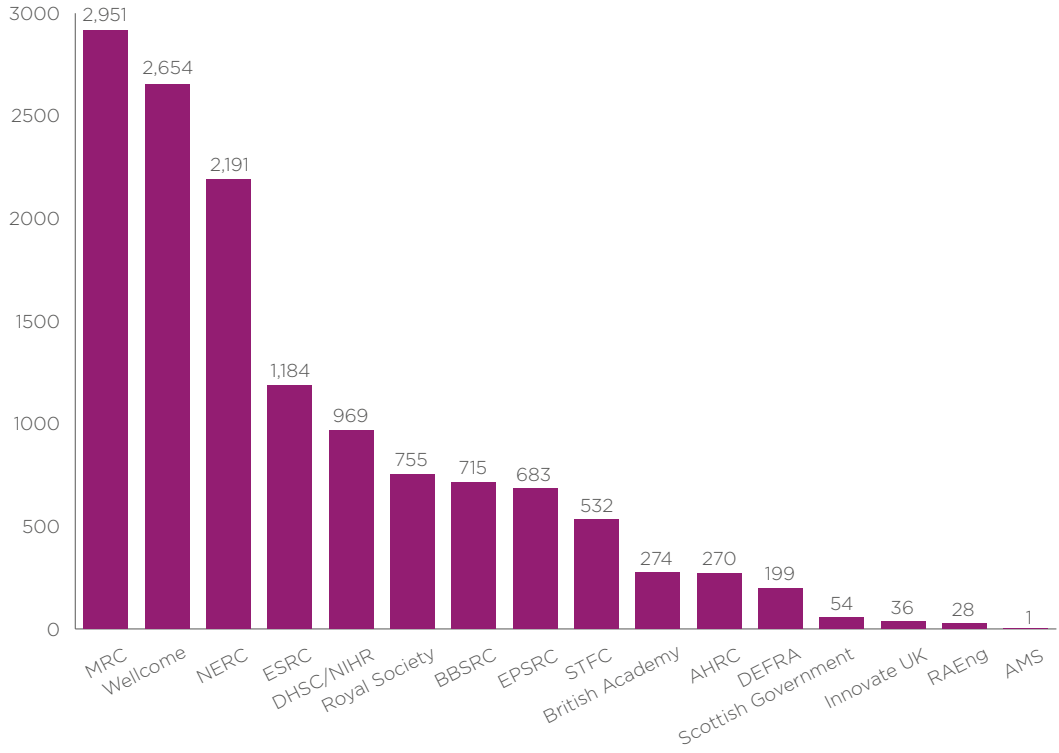

Source: Dimensions

*The data for 2019 was collected in August 2019, and therefore is not representative of the total number of publications in 2019

### 3.3.2 Publications per funder

The majority (78%) of research output during this period listed a single UK funder with most of these publications being co-funded by other international funders. The remaining publications (22%) were funded by two or more UK funders. UKRI was associated with the greatest number of research outputs, which was largely driven by the UK Medical Research Council who, among the UK research councils, have a comparatively long history of funding research through ODA, followed by Wellcome (Figure 6). It is important to note that more recently-funded research is unlikely to have as many publications and much of the diversification of the ODA budget for research only started in 2016 (following the launch of the UK's revised aid strategy in November 2015).

**Figure 6 – Number of publications per UK research funder in 2017 – 2019***




Source: Dimensions

*As publications are counted once for each mention of UK funder, where UK research funders were co-funders, there may be double counting

Abbreviations: **AHRC** - Arts and Humanities Research Council; **AMS** – Academy of Medical Science; **BBSRC** - Biotechnology and Biological Sciences Research Council; **DEFRA** - Department for Environment, Food and Rural Affairs; **DHSC** - Department of Health and Social Care; **EPSRC** - Engineering and Physical Sciences Research Council; **ESRC** - Economic and Social Research Council; **MRC** - Medical Research Council; **NERC** - Natural Environment Research Council; **NIHR** - National Institute for Health Research; **RAEng** - Royal Academy of Engineering; **STFC** - Science and Technology Facilities Council.

### 3.3.3 Thematic focus of UK funded research output

UK funded research output in South Africa mostly focuses on medical and health, biological and health sciences. Figure 7 presents the ten most common thematic areas of UK-funded research publications relating to South Africa which together, comprises 91% of all publication outputs considered in the bibliometric analysis. The Australian and New Zealand Standard Research Classification (ANZSRC) was used to categorise publications as this was considered by UKCDR as the most detailed and wide-ranging system. The ANZSRC was also deemed more appropriate than using the SDGs (as in Section 3.2.6) as the publications considered were not limited to those with an international development focus (for reasons outlined in Section 2.3.1).

**Figure 7 - Thematic focus of UK funded research output relating to South Africa (2017 – 2019)**


Source: Dimensions

Number of publications per field is indicated (27 research publications were uncategorised)

Abbreviations: **Env Sci** = Environmental Sciences; **Ag Sci** = Agricultural Sciences; **Hist & Arch** = History and Archaeology; **Econ** = Economics

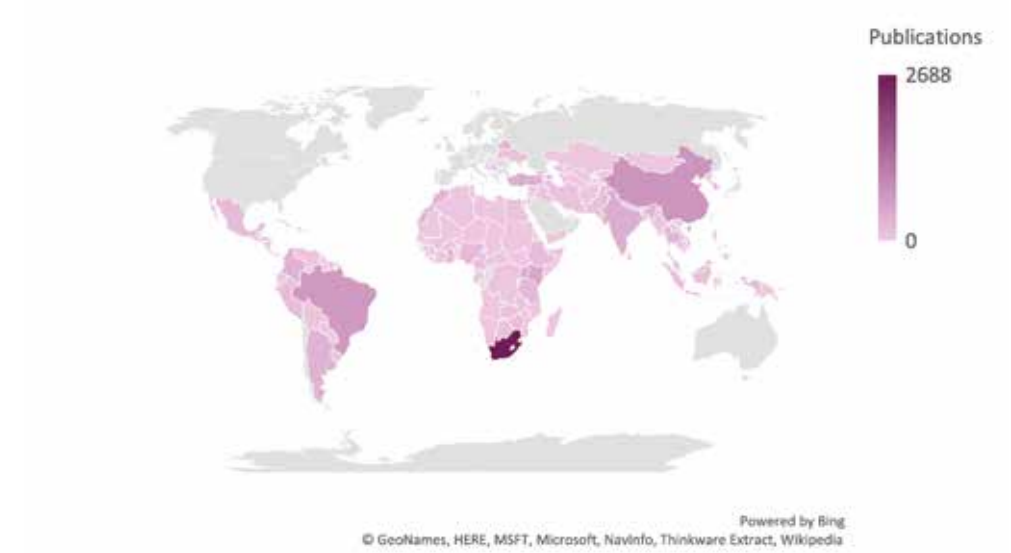
### 3.3.4 Research collaboration and co-authorship

Most publications arising from UK research funding were authored or co-authored by researchers in institutions based in the UK (8,620 publications), USA (3,017 publications) and South Africa (2,735 publications).

As with much research, the clear majority (93%) of research outputs were produced in collaboration. Of these co-authored papers, 19% included researchers from research institutions in both South Africa and the UK. Additionally, over half (55%) of all publications arising from collaborations included a co-author from an LMIC-based research institution, of which 27% were co-authored by authors affiliated with institutions in South Africa (Figure 8).

UK funding supports some South-South collaboration, with 18% of all research outputs including more than one author from an LMIC-based research institution - 253 of which were between an author affiliated with a South African research institution, and an author affiliated with another LMIC research institution. However, there is an opportunity for UK research funders to build on this and increase support to South-South research partnerships and production of research outputs.

**Figure 8 - Geographical location of collaborators and co-authors of publications resulting from UK research funding relating to South Africa (2017 – 2019)**




Source: Dimensions

*As some of the publications were co-authored by researchers from institutions in several countries, some publications may be double counted

### 3.3.5 Top research institutions producing UK-funded research output relating to South Africa

Notably, the University of Oxford, University College London and the University of Cape Town were involved with more than 1,000 publications each.

## Table 11 - The top 10 research institutions involved in production of research output relating to South Africa because of UK research funding (2017 – 2019) *

| Rank | Research institution | No. of publications |
|---|---|---|
| 1 | University of Oxford | 1,570 |
| 2 | University College London | 1,188 |
| 3 | University of Cape Town | 1,009 |
| 4 | University of the Witwatersrand | 930 |
| 5 | London School of Hygiene & Tropical Medicine | 921 |
| 6 | University of Cambridge | 831 |
| 7 | Imperial College London | 717 |
| 8 | University of Liverpool | 675 |
| 9 | University of Edinburgh | 669 |
| 10 | University of Manchester | 588 |

Source: Dimensions

*As some of the publications were co-authored by researchers from different institutions, some publications may be double counted

Limiting the list of institutions to just those based in South Africa (Table 12) reveals a significant difference in the number of publications that the top two institutions (University of Cape Town and the University of the Witwatersrand) were involved with relative to other South African institutions.

## Table 12 - The top 10 South African research institutions involved in production of research output relating to South Africa produced following UK research funding (2017 – 2019) *

| Rank | Research institution | No. of publications |
|---|---|---|
| 1 | University of Cape Town | 1,009 |
| 2 | University of the Witwatersrand | 930 |
| 3 | Stellenbosch University | 373 |
| 4 | University of Johannesburg | 320 |
| 5 | University of KwaZulu-Natal | 300 |
| 6 | South African Medical Research Council | 167 |
| 7 | University of Pretoria | 158 |
| 8 | Africa Health Research Institute | 149 |
| 9 | National Research Foundation | 104 |
| 10 | National Health Laboratory Service | 99 |

Source: Dimensions

*As some of the publications were co-authored by researchers from different institutions, some publications may be double counted

### 3.3.6 Open access

UK research funding demonstrated a commitment to equitable access of research outputs, with almost three-quarters of the publication outputs being open access. Table 13 outlines the distribution of UK funded open access research outputs by open access category. Full descriptions of the open access categories are listed in Annex 6. Significantly, 98% of all publication outputs were journal articles, with the remaining 2% being book chapters, pre-prints and proceedings.

**Table 13 - Total number of UK funded open access research outputs relating to South Africa published in 2017 - 2019**

| | No. of publications |
|---|---|
| Gold | 3,299 (42%) |
| Hybrid | 1,939 (24%) |
| Green | 1,754 (22%) |
| Bronze | 952 (12%) |
| Total Open Access | 7944 |

Source: Dimensions

### 3.3.7 Reach and potential impact

Descriptions of a wide range of outcomes and impacts resulting from UK research funding were provided by stakeholders, from saving lives, to strengthening institutions and fostering collaboration (Examples in Annex 7). Case studies were developed from these examples (shortlisting described in Section 2.5) that show the national and international reach of the results of UK funding in South Africa and provide useful examples of the benefits of such funding (see Annex 1). These include:

- Reducing HIV risk in Southern Africa
- Reducing the risk of TB for people with HIV – isoniazid preventative therapy
- Peacebuilding role of teachers in South Africa and Rwanda
- Barrier systems to control rodent populations
- Governance, legal reform and access to justice

### 3.3.8 South-South networking

The facilitation of South-South networks was valued by some respondents and highlighted as an area South Africa would like to improve on, and which the UK could support. The following were cited by UK and in-country stakeholders, as programmes which have facilitated South-South networking:

- The Human Heredity and Health in Africa (H3Africa) Initiative
- The European and Developing Countries Clinical Trials Partnership (EDCTP) funded programmes
- The GCRF Network+
- The new GCRF-funded Knowledge Transfer Network (KTN) Africa programme
- the Wellcome and DFID-funded Developing Excellence in Leadership, Training and Science (DELTAS) programme
- The Zoonoses and Emerging Livestock Systems (ZELS)

In-country respondents highlighted the need for more strategic conversations to agree at the government-level on joint areas of research focus to develop partnerships with mutual benefits to both countries. One respondent highlighted that South Africa has an appetite to build more trilateral partnerships, regional programmes and networks with other countries.

### 3.3.9 Perceptions of UK-funded research

Positive responses from stakeholders indicate good visibility of UK funding, including co-funding. UK funders were key partners by the STI network and South African national research funders. The most recognisable UK funders across the various stakeholder groups were Wellcome, DFID, the MRC (UK), and BEIS' Newton Fund. The UK's investment and focus on LMICs was perceived to provide more opportunities for grants and collaborations with UK researchers, and support human capacity development. The UK-South Africa Newton Fund, launched in 2014, was highlighted for increasing the visibility of UK funding and co-investment from South Africa.

In-country stakeholders interviewed perceived the significant increase in UK funding over the last three years. Several respondents emphasised the clearer focus on LMICs and the impact that this has had on bidirectional capacity building between UK and South African institutions. A national research funder indicated that this shift in UK funder models has also impacted South African research, making it more demand driven and focussed on societal impact.

The UK-South Africa Newton fund was particularly well received, and the in-country national research funder interviewed welcomed its co-creation and collective agenda setting process. The UK's role in funding the Science Granting Council Initiative was also perceived particularly positively.

The UK was noted as "*one of the most successful partnerships*" going beyond research into innovation by a national funder. However, the fragmented nature of UK funding was noted by others, with a need to building innovation and technological capacities in South Africa.

There were variable responses on the clarity of the remit of different UK funders. The changes in UK research funding such as the merging of the research councils to form UKRI and the introduction of GCRF have improved the clarity of UK funding and has made it easier to navigate. At the governmental level there is less clarity on which universities are involved and how their capacity is being strengthened. It was also suggested that the changing landscape and improving clarity of UK research funding should be accompanied by the SIN having good visibility of spend and focus of UK research funding in-country.

## 3.4 How does the investment extent and outputs from UK funding, compare to other external funding to South Africa?

A total of £1.2b was invested by 82 public research funders between 2014-2019 across 1,407 projects relating to South Africa – a figure which is reduced to an estimated £754.2m when correcting for research projects with multiple DAC-listed countries of focus. Additionally, a total of 12 private research funders invested £255.1m (estimated £200.3m when correcting for multiple DAC listed countries of focus) on 301 research projects relating to South Africa over the same period.

By way of comparison, a total of £420.8m (estimated £216.8m when considering multiple DAC-listed countries of focus) was invested on research projects relating to South Africa between 2014/15 and 2018/19 by eight funders based in the UK (both public and private). [A breakdown of the top research funders investing the most funds on projects relating to South Africa between 2014/15 and 2018/19 can be found in Annex 8].

Figure 9 ranks the ten countries that have invested the greatest amount of public research funds on projects relating to South Africa between 2014/15 and 2018/19 (considering multiple DAC-listed countries of focus). The UK is the country that has invested the second-most public funds on research relating to South Africa, estimated £144.9m after taking into account multiple DAC-listed countries of focus, therefore ranking behind organisations based in the United States and European Union (EU) institutions (controlling for multiple DAC-listed countries of focus) – more than the investments made by any single country (EU investments are recorded separately to individual EU member states in Dimensions).

## Figure 9 - Estimated top-10 countries investing the most public funds on research relating to South Africa - taking into account multiple DAC List countries of focus (initiated between 2014/15 – 2018/19)†

**EU Institutions***

£274.9m

**United States**

£267.5m

**United Kingdom**

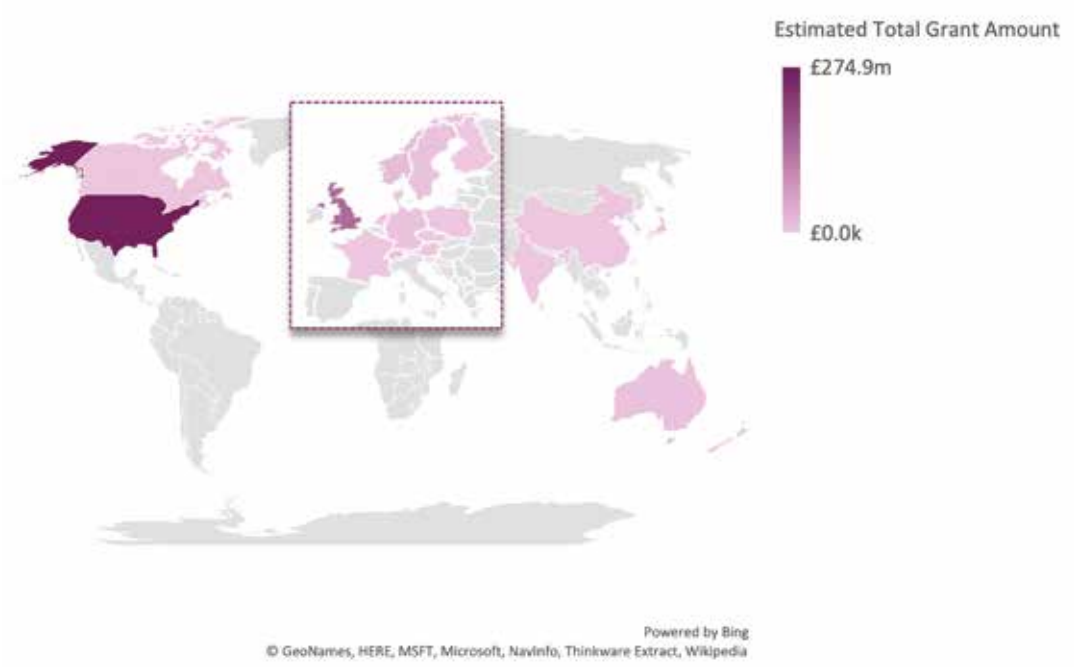
£144.9m

**Norway**

£19.8m

**Switzerland**

£10.5m




**Sweden**

£8.3m

**Germany**

£7.8m

**Australia**

£7.6m

**Japan**

£5.2m

**Canada**

£3.1m

Source: Dimensions

†Made by equally dividing individual grant amounts by that research project's total number of countries of focus.

*The amount indicated for EU institutions does not include funding amounts from individual EU member states

While the results presented are not a comprehensive overview of the activities of all public research funders globally on projects relating to South Africa (as several funders are not included on the Dimensions database), the findings at the organisational level (Annex 8) remain useful as they give an indication of the range of public research investments that are considered the largest. It is, however, when these findings are extended to the country level that the significance of missing public research funders is more apparent. The results presented in Figure 9 are likely to overestimate the proportion of the contribution to public research investments on projects related to South Africa of countries that have a greater proportion of their public research funders' data included on the Dimensions database (and a likely underestimation for those countries with a smaller proportion of their public research funders' data on the database).

Despite the clearly stated limitations with comparing the results from the portfolio-level to the global funding data analysis, these findings at least begin to help shape our understanding of the size of UK ODA investments on research relating to South Africa, how this compares to investments made by other public research funders globally and who the other major research funders are.

### 3.4.1 Perceptions of non-UK funded research

Almost all the key South African stakeholders interviewed highlighted the role of the NRF – with four of the six interviewed mentioning the NRF (and its 60 funding partnerships) as a key research funder in South Africa. Other national research funders highlighted the South Africa MRC, the Council for Scientific and Industrial Research and the Technology Innovation Agency. One respondent highlighted that among the reasons for this significant national research funding is that in the past, some international funders have not allowed for overheads/indirect costs making it difficult to resource and implement projects effectively.

American, European and Canadian funders were recognised across all stakeholder groups interviewed – particularly the US National Institute of Health, the Bill and Melinda Gates Foundation, the European Commission, and the Canadian International Development Research Centre. Other funders highlighted were the EDCTP, US Centres for Disease Control, and to a lesser extent, Switzerland, Norway, Germany, Japan and growing partnerships with the BRIC nations.

Respondents also commented on the different ways of working between funders. Germany and Scandinavian countries were highlighted as having more dialogue with South African stakeholders, and European Commission partners requiring more extensive grant-application procedures. China's research funding was viewed as growing in visibility, largely due to politics rather than scale. Asian funders more broadly were highlighted by one respondent as being more focussed on innovation and industrial development over longer periods. Several respondents mentioned a growing focus on innovation in South Africa, with one suggesting that this is something national research funding could support.

When asked to compare the differences between UK and non-UK research funding, of the two in-country stakeholders who answered this question, one respondent indicated that there is scope for UK funding to improve on its coordination and transparency in its decision-making processes. However, another affirmed the transformative effect of the UK-south Africa Newton Fund and GCRF indicating that both funds had revitalised the science and innovation partnership between UK and South Africa.

# 4 Discussion

**The UK has a long-history of research partnerships in South Africa and is one of the largest international research funders**

The UK investment in research and innovation in South Africa between 2014/15 – 2018/19 is substantial, a total of (at least) £474.1m on 397 projects that listed South Africa as one of the countries of focus, reduced to an estimated £105.5m after correcting for multiple countries of focus. It is broad (spanning all 17 SDGs) but with a strong focus on the SGD 3: Good health and well-being and complex (through a wide range of UK Government and Wellcome funding schemes). The UK is identified as a leading funding partner to South Africa (based on the available data), second only to the USA and is key to the South African research ecosystem.

There are many benefits to the diversity of the funding schemes through which the UK funds research focused on South Africa. A range of different funding models focused at the researcher (e.g. GCRF), institution (e.g. DELTAS) and government levels (e.g. UK-South Africa Newton Fund) are provided allowing both bottom-up development of research priorities (which the South African government may not be aware of) and top-down alignment with South African national research priorities. The variety of schemes further offers a wide range of disciplinary remits and allows both bilateral and global partnerships.

This report has, however, highlighted that the complexity of the UK funding and direct links to research institutions may have resulted in an underestimation of this UK investment by the South African Government and other relevant stakeholders to date. The stakeholders interviewed have indicated that the recognition of UK funding has improved in the past few years (with the advent of the UK-South Africa Newton Fund and GCRF, streamlining of UKRI, improved clarity of remit of funders and LMIC focus), however there is still scope for improvement - particularly regarding coherence.

Improved coherence and resulting visibility of UK-funded schemes may help to maximise the visibility and impact of UK investment further, especially as those countries that South Africa are interacting with have much more streamlined models (e.g. Germany). The synthesis of this investment in this report provides an excellent basis for further discussion on development of the UK-South Africa government relationship, under the UK Government's new partnership with Africa announced by the former UK Prime Minister mid-2018. This report provides evidence (especially the case studies in Annex 1) that can be used for showcasing the benefits that this UK investment has afforded to date.

### UK funding is largely aligned with South Africa's national research priorities

Alignment of UK research investments with South African national priorities is facilitated by the existence of the formal bilateral Science and Technology Agreement with South Africa (from 1995) and strong partnerships with academics at both individual and institutional levels. The new NRF National Research Agenda for South Africa (due to be published in early 2020) will afford further opportunity for alignment. The value of the close alignment of the UK-South Africa Newton Fund activities with South African priorities was particularly highlighted by some of the stakeholders interviewed (with joint agenda setting based on a set of agreed principles to ensure equitable partnering), resulting in both high profile and national importance for this initiative.

Other UK ODA and Wellcome programmes could consider the benefits that such close alignment (and co-funding) affords. This report shows the strong focus of UK investment on the around health and well-being - which is clearly one of the South African priorities. However, in 2020, South Africa will determine its next national research and development priorities, and this presents an opportunity to potentially diversify UK investments beyond SDG 3.

### Strong and long-standing institutional collaborations exist for research

The richness of institutional (and necessarily individual) collaboration afforded by the UK investment is longstanding with many productive collaborations highlighted between UK and South African research institutions. The data does, however, indicate a high concentration of funding to a small number of institutions and the potential to work with a greater variety of stakeholders in South Africa. In-country stakeholders highlighted that those South African institutions which lacked political and historical connections still struggle to access UK funding and consequently have difficulty in retaining talented scientists and researchers.

Given the South African Government's aim to address the gap for historically disadvantaged universities, UK funders could look towards further support to such universities. One recommendation given by respondents was termed 'relay investment' whereby a 'strong' university partners with less-developed research institutions for shared learning and capacity building. The adoption of such a method to uplift other universities is presently being explored by relevant UK and South African research funders and has previously been explored by Wellcome across Africa through the African Institutions Initiative.

More broadly, funding of research management and strengthening institutional capacity building was indicated as particularly important to allow a wider range of research institutions to apply for competitive funding. Existing tools such as the Good Financial Grants Practice and ReMPro could facilitate this.

### UK funding needs to focus on sustainable partnerships

The importance of partnerships resulting from UK funding has been highlighted in this report including; UK-South Africa, South-South partnerships and worldwide with funds awarded to 104 different lead institutions and 236 further institutions from 63 countries.

There is a clear need for greater equity in partnerships to promote sustainability of research collaboration, alignment with national priorities, visibility and impact. The majority of funding (69.6%) presented in this report goes to UK institutions (although much of this may be distributed onwards) and bibliometric data in this report identified greater scope for UK research funding to include in-country researchers in the production of outputs with only 26% of outputs including authors based in South African institutions (the relevance of this data may be affected by the multi-national focus of many of the research grants). At present, an increasing number of UK funding initiatives are shifting this balance already, ensuring funding through South African institutions directly (e.g. DELTAS).

The facilitation of South-South networking was also particularly valued by in-country stakeholders and highlighted as an area which the UK could potentially support further (18% of publications in this analysis included more than one author from an LMIC-based research institution).

### The UK Government's new partnerships with Africa has strong foundations in South Africa

In conclusion, this report demonstrates an excellent baseline of UK funding and collaboration in South Africa on which to base future activities under the UK Governments' new partnerships with Africa. From these findings there are clear directions to take in the future towards partnerships, capacity building, data collection and coherence.

# Endnotes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# Annex 1: Case studies

Annex 2-8 are available in a supporting document on the UKCDR website

# Case Study 1: Reducing HIV risk in Southern Africa – 'Cash Plus Care' programmes


**Changes in national health policies leading to the delivery of 'cash plus care' programmes to two million teenagers across Southern and Eastern Africa have been informed by evidence gathered by ESRC-funded research into HIV risk and prevention in South Africa.**

## Key Information

**UK Funder:** ESRC

**Timeframe:** 2009 - 2012

**Total UK Funding:** Approx. £516,938

**Organisations:** University of Oxford, University of Cape Town

**Policy Influence:** National, International

Human immunodeficiency virus (HIV) is a major public global health issue and hyper-endemic in Southern and Eastern Africa. HIV/AIDS is the leading cause of death among adolescents in this region, accounting for 90% of all adolescent AIDS deaths globally. Research into HIV risk has shown that a primary infection route is girls from low-income families having unprotected sex with older men.

## Towards impact

Social science studies, by researchers at the University of Oxford and University of Cape Town between 2009 - 2012, have found that 'cash plus care' programmes (social welfare grants of $20 per month per family combined with parent support and free schooling), can reduce HIV incidence in adolescents by reducing risky sexual behaviours. The model can cut HIV risks among teenage girls by 60%.

- International funders have committed significant resources to the implementation of 'cash plus care' programmes: USAID and the Gates Foundation put $385 million into the HIV prevention programme DREAMS, UNICEF led 'cash plus care' programmes in four countries funded by the Netherlands Government, and a Teen Advisory Group of 20 young people in South Africa has influenced further uptake by UNAIDs and UNDP.

- In South Africa, the government was awarded $50 million through the Global Fund to implement 'cash plus care' programmes.

- The research team were invited to write South Africa's National Adolescent and Youth Health Policy (2017 – 2022), which includes 'cash plus care' social protection interventions.

- Ten African countries have now rolled out 'cash plus care' social welfare packages.

## Underpinning research

- The world's largest longitudinal study of AIDS-affected adolescents (2008-2012) followed 6,000 children and 2,500 of their adult caregivers in six urban and rural sites in South Africa. The study examined whether household poverty, orphan hood and parental illness, independently or interactively, predict HIV-infection risks. It found that children were at the highest risk of negative health effects where poverty and AIDS interact.

- In 2011, the team examined whether social welfare for families could reduce adolescent HIV risk. The study found that state-provided, child-focused cash transfers could reduce HIV incidence through reducing risky behaviours.

- Between 2009 and 2012, the research team interviewed 3,516 adolescents to analyse which social protection interventions have the greatest potential for adolescent HIV protection. Girls' incidence of economically-driven sex fell from 11% to 2%, and unprotected and casual sex or multiple partners from 15% to 7% (with both parental monitoring and school feeding, 'cash plus care').

## Evidence of impact

### Policy documents

- South Africa's National Adolescent and Youth Health Policy (2017 – 2022) [Hyperlink]

- Preventing HIV in Adolescent Girls and Young Women: Guidance for PEPFAR Country Teams on the DREAMS Partnership, Washington: PEPFAR, 2014 [hyperlink]

- Discussion Paper: Cash Transfers and HIV Prevention, New York: UNDP, 2014 [hyperlink]

- A call to action for all children: Protection, care and support for an AIDS-free generation, UNICEF, 2014 [hyperlink]

- HIV Care and Support: HIV Care and support taking into account the 2016 WHO consolidated guidelines, Geneva: UNAIDS, 2016 [hyperlink]

### Selection of publications:

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- Cluver, L. et al. (2013) 'Child-focused state cash transfers and adolescent risk

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- Cluver, L. et al. (2014) 'Cash plus care: social protection cumulatively mitigates HIV-risk behaviour among adolescents in South Africa', AIDS, Suppl. 3, S289-97. [Hyperlink]

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- ESRC (2017) 'Preventing HIV risk in Southern Africa' [hyperlink]

- University of Oxford - 'Improving lives for families affected by HIV and AIDS' [hyperlink]

- ESRC (2018) 'Blog: Reducing HIV in Africa with cash plus care' [hyperlink]

- Summary of Webinar Presentation for STRIVE Consortium at LSHTM by Prof Lucie Cluver, 'Structural solutions? Impact of cash and care on adolescent HIV prevention and adherence', [hyperlink]

# Case Study 2: Reducing the risk of TB for people with HIV - Isoniazid Preventative Therapy


**Changes in WHO guidelines leading to more patients receiving preventative treatment have been informed by UK-funded research assessing the efficacy of isoniazid to prevent TB in HIV patients.**

### Key Information

**UK Funders:** DFID, DHSC, MRC

**Timeframe:** 1990- 2013

**Total UK Funding:** £1.13m

**Organisations:** London School of Hygiene and Tropical Medicine, The Aurum Institute

**Policy Influence:** International

Tuberculosis (TB) is a major cause of death in HIV-positive people. For this group, the risk of developing TB is an estimated 21 times greater than among those without HIV infection.

Isoniazid preventative therapy (IPT) is used to reduce the risk of TB in people exposed to the infection or with latent infection, or of a recurrent TB episode. IPT has long been an important intervention for preventing TB, but its efficacy among people with HIV was unknown.

## Towards impact

UK-funded research over the last 20+ years has resulted in IPT becoming one of the key interventions recommended by the WHO to reduce the impact of TB among HIV-positive people.

- The research has informed the evolution of WHO guidelines since the first trial in Zambia in 1998. In 2010, the research team joined the WHO Guidelines Group and contributed to the revision of IPT guidelines for people living with HIV. This included evidence from South African trials that isoniazid should be offered regardless of TB history.

- The principal investigator was a member of the WHO's policy updating group, advising the WHO on collaborative TB/HIV activities. As a result, the 2012 policy emphasised the need to establish mechanisms for integrating TB and HIV services.

- The Thibela trial stimulated political interest in IPT in South Africa. South Africa was the first country to adopt the WHO's IPT guidelines and The South African National Strategy Plan on HIV, sexually-transmitted infections and TB (2012-2016) included clear recommendations on scaling up IPT therapy.

- As of 2016, in South Africa IPT coverage is reported to be at 38% in South Africa, similar to global trends. The number of PEPFAR-funded South African clinics prescribing isoniazid had increased from 3,309 (in 2010) to 49,130 (in 2011).

## Underpinning research

- In 1994, the first clinical trials to assess the efficacy of isoniazid to prevent TB in HIV patients took place Kenya and Zambia. 2,052 HIV-positive individuals were randomly assigned preventative therapy. The Zambian trial showed a reduced incidence of TB in HIV-patients.

- In 1999, the research team undertook an observational cohort study in South African gold mines. 1,655 HIV-positive male employees were enrolled in a clinic offering IPT. The study demonstrated the effectiveness of IPT (38% reduction in TB incidence overall) among people with HIV and a history of TB, for whom IPT was not previously recommended by the WHO.

- In the Thibela Trial in South Africa (2004-2011), 24,211 individuals with no evidence of active TB were offered IPT (the largest number of people to receive IPT in a clinical trial) to study adverse events. The study concluded that the risk of adverse events was very low, and that clinical criteria can be used for screening prior to and monitoring during IPT.

- In 2010, a qualitative study undertook a systemic review of research describing models for integrating TB and HIV services. The review made recommendations for models to overcome reported barriers, such as the provision of space for specialised activities including HIV testing.

## Evidence of impact

### Policy documents

- World Health Organisation. Global Tuberculosis Report 2016. [Hyperlink]

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- A Prospectus for Victory (The Aurum Institute, 2018) [Hyperlink]

# Case-Study 3: Enhancing the peacebuilding role of teachers in South Africa and Rwanda


**Evidence generated by UK-funded research has been informing policy and practice on the role of teachers in peacebuilding and social cohesion in countries affected by conflict.**

## Key Information

**UK Funders:** DFID, ESRC

**Timeframe:** 2014 - 2017

**Total UK Funding:** £347,963

**Organisations:** University of Sussex, University of Bristol, Cape Peninsula University of Technology, University of Rwanda

**Policy Influence:** Local, national

Both South Africa and Rwanda have emerged from protracted and violent conflict in the 1990s and have since been important sites for a range of post-conflict interventions in the education sector.

## Towards impact

- The research team's principal investigator was appointed as a member of the Department for Basic Education's Ministerial Task Team to conduct a review of school textbooks in South Africa. The review focuses on discrimination, equity and social cohesion.
- The research team inputted into a 2017 commission (by the Ministry of Basic Education and National Education Collaboration Trust) to work towards policy options for education in South Africa. This informed policy dialogue on education transformation in South Africa around enhanced equity and quality.
- Several universities in South Africa are updating their inclusive education programmes drawing on the research findings.

- Rwandan ministry officials are implementing a continuing professional development (CPD) programme for teachers, with dedicated modules on social cohesion and peacebuilding.

- Internationally, the research was cited in the UNESCO Global Education Monitoring Report 2017 and the World Bank, UNICEF and DFID have all engaged the research team in policy discussions.

## Underpinning research

Between 2014 and 2017, this research project sought to understand the challenges and opportunities faced by teachers in post-conflict settings (South Africa and Rwanda). Through a mixture of interviews, focus groups, lesson observations, and policy analysis, the study evaluated interventions in both countries aimed at improving and enhancing the peacebuilding role of teachers.

Based on the findings, the project developed a metric system for measuring peace and social cohesion that can be used as a policy planning tool. The research team also made four specific policy recommendations:

- Improve teacher distribution in post-conflict contexts, such as across rural and urban areas, to ensure the most disadvantaged and impacted by historic conflict are reached.

- Build the trust and accountability of teachers through more support for teacher councils.

- Develop socially cohesive curricula and textbooks that are free from bias and discrimination and challenge assumptions and marginalisation.

- Support teachers to develop inclusive pedagogies through providing teachers with psychosocial support.

## Evidence of impact

### Policy documents

- Department of Basic Education joins anti-racism campaign, 2016 [Hyperlink]

- Global Education Monitoring Report (UNESCO, 2017) [Hyperlink]

- Policy Brief No.1: Engaging Teachers in Peacebuilding – Rwanda (2017) [Hyperlink]

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- Policy Brief No.3: Curriculum and Textbooks for Peacebuilding – Rwanda and South African (2017) [Hyperlink]

- Policy Brief No.4: Professional Development for Teachers for Peacebuilding – Rwanda and South Africa (2017) [Hyperlink]

- Policy Brief No.5: Synthesis of Insights – Rwanda and South Africa (2018) [Hyperlink]

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- Sayed, Y. et al. (2017): Engaging Teachers in Peacebuilding in Post-Conflict Context: Evaluating Education Interventions in South Africa. South Africa Country Report, ESRC/DFID Research Report, University of Sussex, UK [Hyperlink]

**Other resources:**

- The role of teachers in peacebuilding and social cohesion, UNICEF Report 2016 [Hyperlink]
- The role of teachers in peacebuilding in Rwanda and South Africa, ESRC-DFID 2018 [Hyperlink]
- Teachers have a crucial role to play in building social cohesion, The Conversation 2016 [Hyperlink]
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- ESRC-DIFD Impact Initiative Case Study [Hyperlink]

# Case Study 4: Barrier systems to control rodent populations


**UK-funded research into ecology and the management of rodents helped to mitigate a regional famine and shape national policy and practice in South Africa.**

## Key Information

**UK Funders:** DFID

**Timeframe:** 2002 - 2016

**Total UK Funding:** £963,000

**Organisations:** University of Greenwich, Agricultural Research Council South Africa

**Policy Influence:** Regional, National, International

Rodent population outbreaks can result in widespread destruction of crops and the transmission of disease. However, research specifically on rats as pests remains a neglected field. The impact of rodent infestations is often greater felt in LMICs where the proximity of rats to people is much higher. Farmers and households have traditionally relied on poisons to combat population outbreaks which pose risk for wider environmental contamination and can be ineffective or even lethal if used incorrectly.

## Towards impact

- Regulatory change was seen within the National Pesticide Regulation Authority of South Africa with the introduction of qualification requirements to be commercially involved in rodent management.
- A new rat trap was developed by a South African commercial company.
- Awareness was raised surrounding rodent disease found in informal settlements such as squatter camps around the city of Durban. A clean-up campaign and rodent trapping programme was subsquently introduced by the city authorities.

- A public-private service partnership was established to promote expertise surrounding rodent management which included training workshops for service providers in both rural and urban locations.

- The South African Department of Health establsihed a plague surveillance panel of experts who routinely identify and survey risk areas for plague outbreaks. This has continued to operate since 2006.

- In 2008 the research team was involved in leading a team of scientific experts for the UN to provide international evidence-based policy intervention recommendations

## Underpinning research

- The research team focused on research involving the ecology and management of rodents with the aim of developing technological interventions particularly relevant to the health and livelihood contexts within African and Asian societies.

- Research has been multi-disciplinary involving studies of rodent population dynamics, systematics and taxonomy, habitat utilisation, rodent behaviour, outbreak ecology, social anthropology, economics, damage assessment methodology and population control and impact mitigation strategies.

- Principal findings have been that rodents can be sustainably managed without poison. However, communities must be adequately strengthened to deal with shared problems. Intensive trapping barrier systems must be introduced as well as greater environmental management to increase the distance between populations and rodents.

- Treatment-control studies have demonstrated that crop damage can be reduced sustainably and in a cost-beneficial manner to subsistence farming communities by over 75%.

## Evidence of impact

**Policy documents:**

- Crop Protection Programme: Extension of ecologically-based rodent management in South Africa, FINAL Technical Report [Hyperlink]

- Crop Protection Programme: Ecologically-based rodent management for diversified rice-based cropping systems in Bangladesh [Hyperlink]

**Selection of publications:**


- Taylor, P. J., Downs, S., Monadjem, A, Eiseb, S. J., Mulungu, L. S., Massawe, A. W., Mahlaba, T. A., Kirsten, F., Maltitz von, E., Malebane, P., Makundi, R. H., Lamb, J., & Belmain, S. R. (2012). Experimental treatment-control studies of ecologically based rodent management in Africa: balancing conservation and pest management. Wildlife Research. 39(1), 51-61

- Singleton, G. R., Belmain, S. R., & Brown, P. R. (Eds.) (2010). Rodent Outbreaks: Ecology and Impacts. International Rice Research Institute Press, Los Banos, Philippines. [Hyperlink]

- Singleton, G. R., Belmain, S. R., Brown, P. R., Aplin, K. and Htwe, N. M. (2010). Impacts of rodent outbreaks on food security in Asia. Wildlife Research. 37, 355-359. [Hyperlink]


**Other resources:**

- Director, Plant Protection Research Institute, Agricultural Research Council.

- Managing Director, Scientific Supakill, 8 Derrick Road, Spartan, Kempton Park, South Africa.

- Director, Manager (Vector Control), Communicable Diseases, eThekwini Municipality.

- REF Impact Case Study [Hyperlink]

# Case Study 5: Governance, legal reform and access to justice


**UK-funded research informed by studies in South Africa has helped government agencies, NGOs and global organisations to evaluate their approach to legal reform projects.**

## Key Information

**UK Funders:** DFID

**Timeframe:** 1994 – 2013 (research period)

**Total UK Funding:**

**Organisations:** University of Warwick

**Policy Influence:** National, International

Not properly accounting for local contexts, particularly indigenous and vulnerable groups' access to justice, often leads to a lack of success for in-country legal reform.

## Towards impact

The research project has had impact on the development of legislation, the understanding of legal reform from the perspective of policy-makers and the implementation of policy in NGOs:

- The lead researcher was invited by the International Labour Organisation to assist the South African and Namibian governments to draft employment legislation which was introduced in both countries in 1998. An empirical study concluded that this had a positive impact with a broadening of representation of people from designated groups to positions of responsibility.

- Published works on empowerment and access to justice have helped shape policy of organisations such as the World Bank, the Inter-American Development Bank and DFID. Organisations have now begun to adopt an institutional approach that accounts for the needs of vulnerable groups. The researcher has regularly participated in World Bank expert group meetings on themes such as efforts to link justice with security and development concerns (November 2012).

- The research provided evidence to multi-donor fund projects such as 'Capacity Building of the Sudan Judiciary' which highlighted problems of institutional fragility and links between legal and religious principles in certain contexts.

- The lead researcher's report 'Lessons Learned from Selected DFID Justice and Security Programmes—Study to Inform the White Paper Process' (2009) was used as a background paper for DFID's White Paper 'Eliminating World Poverty: Building our Common Future' (2009).

- Since 2009, the lead researcher has been a member of the Rule of Law Research Consortium, part of the multinational initiative, The World Justice Project.

## Underpinning research

The research has principally been focused on the scope and design of legal reform projects and the ability of state law to impact on vulnerable groups.

- The project has identified an over-simplification of thinking that the law can be easily implemented without taking into account local environments. Legal reform has to focus on society as a whole rather than drawing upon Western democratic ideals of legal models.

- Through the study of areas where state institutions are weaker or not present, the research has shown the importance of appreciating the socio-economic circumstances of vulnerable groups. This brings together work on international labour conventions and human rights standards taken from international court setting

- Overall, the research is informed by an approach which seeks to promote dialogue between academics and international development practitioners and organisations.

## Evidence of impact

**Policy documents:**

- DFID (2009), Eliminating World Poverty: Building our Common Future, ch 4 para 10 [drawing on 2009 report Lessons Learned From Selected DFID Justice and Security Programmes—Study to Inform the White Paper Process] [Hyperlink]

- Ewa Wojkowska, UNDP (2006), Doing Justice: How informal justice systems can contribute [Hyperlink]

**Selection of publications:**

- Faundez, J. (2005) `Community Justice Institutions and Judicialization: Lessons from Rural Perú', in A. Angell and R. Sieder (eds.), *The Judicialization of Politics in Latin America* (New York: Palgrave Macmillan), pp.187-209.

- Faundez, J. (1994), *Affirmative Action – International Perspectives*, International Labour Organisation (ILO).

- Faundez, J. (2006) `Should Justice Reform Projects Take Non-State Justice Systems Seriously? Perspectives from Latin America', *World Bank Legal Review: Law Equity and Development*, pp.113-139.
- Faundez, J. (2011) `Legal Pluralism and International Development Agencies: State Building or Legal Reform?' 3(1) *Hague Journal on the Rule of Law*, pp. 18-38.
- Faundez, J. (2005) `Democratization through Law: Perspectives from Latin America' 12(5) *Democratization*, pp.615-624 [Hyperlink]
- Faundez, J. (2009) `Empowering Workers in the Informal Economy' 1(1) *Hague Journal on the Rule of Law* pp.156-172
- Sifani, J.N., (2009), *The Impact of Namibia's Affirmative Action Policy on Employment of the Designated Groups*, University of Namibia, Faculty of Economics
- Faundez, J. (1997) `Legal Technical Assistance', in J. Faundez (ed), *Good Government and Law: Legal and Institutional Reform in Developing Countries* (Macmillan), pp. 1-24
- Faundez, J. (2001) `Legal Reform in Developing and Transition Countries: Making Haste Slowly', in R.V. Van Puymbroeck (ed.) *Comprehensive Legal and Judicial Development* (World Bank), pp. 369-396
- Faundez, J. (2010) `Rule of Law or Washington Consensus: the evolution of the World Bank's approach to legal and judicial reform', in A. Perry-Kessaris (ed), *Law in Pursuit of Development: Principles into Practice?* (Routledge), pp 180-201.


**Other resources:**


- University of Warwick, School of Law 'Warwick Law Impact', [Hyperlink]
- Director, Bureau for Gender Equality, International Labour Office
- Chief Counsel, Justice Reform Practice Group, Legal Vice-Presidency, World Bank
- Senior Counsel, Director of Justice for the Poor Programme, World Bank
- Chief Counsel, Justice Reform Practice Group, Legal Vice-Presidency, World Bank
- World Justice Project, Research & Scholarship [Hyperlink]
- World Justice Project, Rule of Law Research Consortium [Hyperlink]
- REF Impact Case Study [Hyperlink]

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