

# Internationalisation; Research & Innovation in South Africa's universities

Presentation to the Portfolio Committee on Higher Education and Training, Cape Town

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THE VOICE OF HIGHER EDUCATION LEADERSHIP



# PRESENTATION OUTLINE

1. SIZE ; SHAPE AND FUNDING OF THE HE SYSTEM
2. INTERNATIONALISATION
3. RESEARCH AND INNOVATION
4. CONCLUSION

# The South African Post-school System 2012

(Sources: DHET. 2012. Statistics on Post-School Education and Training in South Africa & HEMIS. 2012. StatsSA Census 2011)

University students  
**1 050 860**

Public 953 373

Private 97 487

College students  
**773 276**

Public 657 690

Private 115 586

Adult education & training students  
**315 068**

Public 306 378

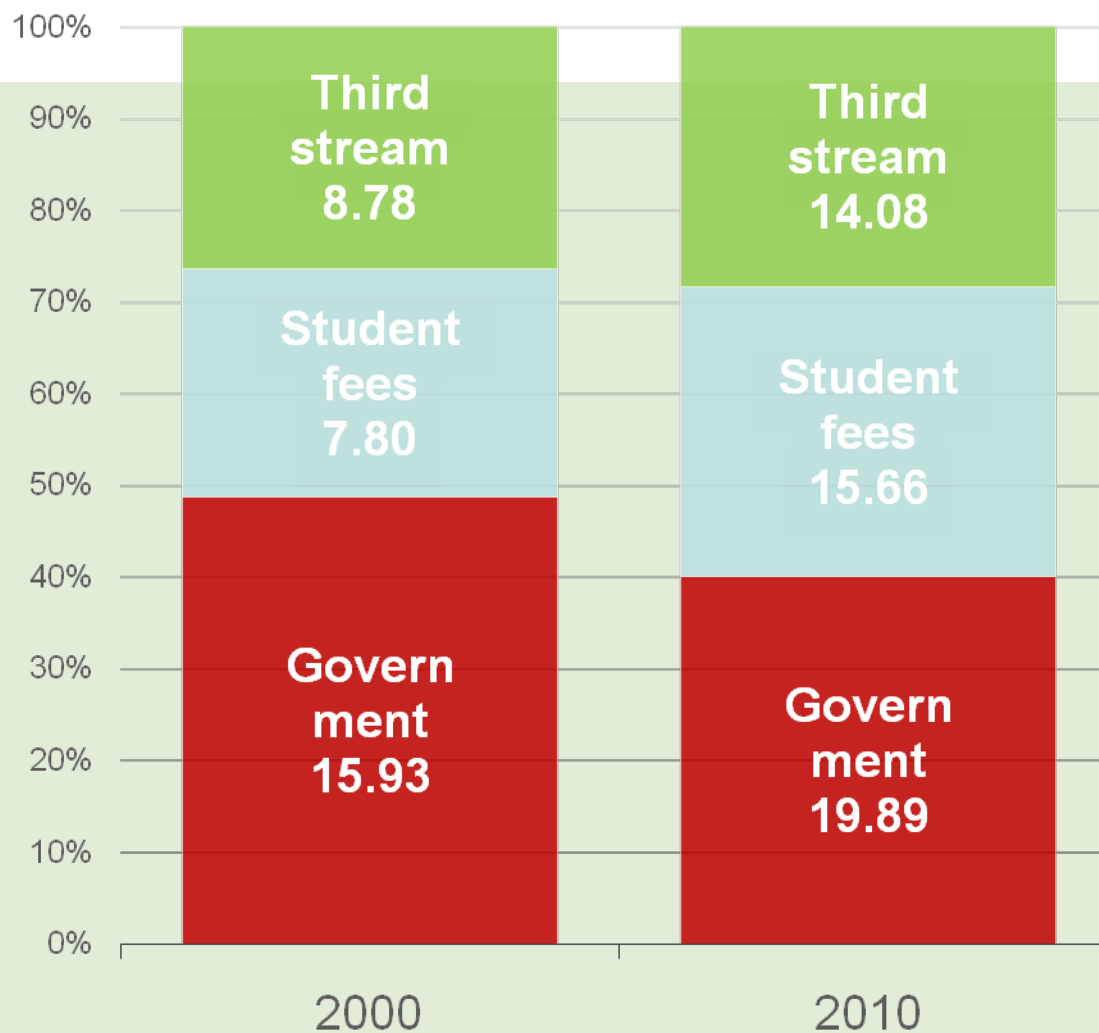
Private 8 690

18 to 24-year-olds  
Not in education, employment or training

**2 945 018**

# Higher education income sources, ZAR (billion)

(Source: DHET, Financial Statements in Annual reports submitted by Universities)



# Expenditure on higher education as % of GDP, 2010

(Source: OECD, downloaded from <http://data.uis.unesco.org>)



# Student Enrolment

Total number of students	2010	2011	2012	2013 (preliminary)
Total number of students	<b>892 943</b>	<b>938, 200</b>	<b>953 373</b>	<b>983 698</b>
Total number of international students	<b>66 181</b>	<b>70 060</b>	<b>72 857</b>	<b>73 859</b>
Number of students (FTE)	600 002	628 409	634 548	665 857
Post-graduate students	138 610	147 893	149 027	159 750
Post-graduate students (international students)	<b>18 845</b>	<b>20 046</b>	<b>20 770</b>	<b>23 364</b>

# Academics

	2010	2011	2012	2013 (preliminary)
Number of permanent instruction and research staff	<b>16 684</b>	<b>16 935</b>	<b>17 451</b>	<b>17 838</b>
<b>AFRICAN - TOTAL</b>	4 767	5 077	5 430	5 754
Female	1 781	1 893	2 036	2 172
Male	2 986	3 184	3 394	3 582
<b>COLOURED - TOTAL</b>	964	1 034	1 077	1 122
Female	470	509	529	559
Male	494	525	548	563

# Academics cont.....

	2010	2011	2012	2013 (preliminary)
<b>INDIAN-TOTAL</b>	1 424	1 451	1 477	1 505
Female	672	700	721	734
Male	752	751	756	771
<b>WHITE-TOTAL</b>	9 320	9 162	9 261	9 206
Female	4 384	4 408	4 486	4 537
Male	4 936	4 754	4 775	4 669
<b>UNKNOWN RACE-TOTAL</b>	209	211	206	251
Female	46	53	48	53
Male	163	158	158	198
<b># OF FOREIGN ACADEMICS</b>	<b>1 490</b>	<b>1 723</b>	<b>2 137</b>	<b>2 281</b>



# Funding

- 1 State funding of higher education (in real terms) has been declining over the years;
- 2 In 2011, state budget for universities as % of GDP was 0.75% compared to 0.78% for Africa as a whole; and 1.21 OECD countries;
- 3 Student tuition fees and third stream income are under pressure;
- 4 Funding for infrastructure (notwithstanding Infrastructure Efficiency Grant), does not match the current and projected growth of the system;
- 5 Student-academic FTE ratio has been deteriorating over the years.

# INTERNATIONALISATION



# Why internationalisation is important

1. Improved quality of teaching and learning as well as research.
2. Deeper engagement with national, regional, and global issues and stakeholders.
3. Better preparation of students as national and global citizens and as productive members of the workforce.
4. Access for students to programmes that are unavailable or scarce in their home countries.
5. Enhanced opportunities for academic staff improvement and, through mobility, decreased risk of academic 'in-breeding'.

**Source: International Association of Universities; (2012). Affirming Academic Values in Internationalization of Higher Education: A Call for Action**

# Wider benefits & Impacts

Benefits accrue to (i) SA (economy); (ii) international students themselves and (iii) students' countries of origin:

## A. Economic benefits to SA:

1. Additional HE exports – alumni recommend others to study in SA
2. Skilled migration – alumni work in highly skilled occupations in SA.
3. Enriches the experience of domestic students.

## B. Benefits to international students:

1. Career enhancement or change.
2. Social benefits and networks.
3. Opportunity to develop marketable skills (e.g. inter-cultural competence; global awareness; foreign language skills, etc.).

## C. Benefits to countries of origin:

1. Join highly skilled workforce in home countries.
2. Personal multiplier effects.

Source: Department for Business Innovation & Skills. 2013. The wider benefits of international HE in the UK. BIS Research Paper number 128.

# Internationalization – key questions

- 1 7.5% of our student enrolment is international students
- 2 Other HE systems have between 15% to 30% international students
- 3 **What should be the appropriate balance between local and international students in South Africa?**
- 4 South Africa should have a **discussion on** an appropriate balance between local and international students because:
  - Some students are full-fee paying students (particularly post-graduate students) with scholarships;
  - Universities could use these students' bursaries and scholarships to augment their income; and
  - The more international students we have - a possibility exists for us to exploit the brand value of SA as a destination for international students.

# Constraints

1. Size of our Higher Education system – access pressures for local students.
2. Policy and regulatory environment
  - a. Joint and double degree policy still being developed
  - b. Immigration regulations not favourable to internationalisation
  - c. Insufficient scholarships for out-bound mobility of students
  - d. Insufficient funding to foster joint research collaboration
3. Absence of a broader internationalisation policy framework for the university sector.
4. Inadequate coordination mechanisms between government departments (**DHET, DST; DIRCO, DHA**) to support internationalisation efforts of universities.

# Proposed Solutions

1. Improve the policy and regulatory environment:
  - a. Joint and double degree policy finalised and implemented
  - b. Immigration regulations reviewed
3. Internationalisation policy framework for the university sector finalised and implemented.
4. Scholarship and other funding instruments established to support both in-bound and out-bound mobility of students.
5. Diverse funding instruments for joint research collaboration.
6. Coordination mechanisms between DHET and DST strengthened to support internationalisation efforts of universities.

# RESEARCH AND POST-GRADUATE EDUCATION





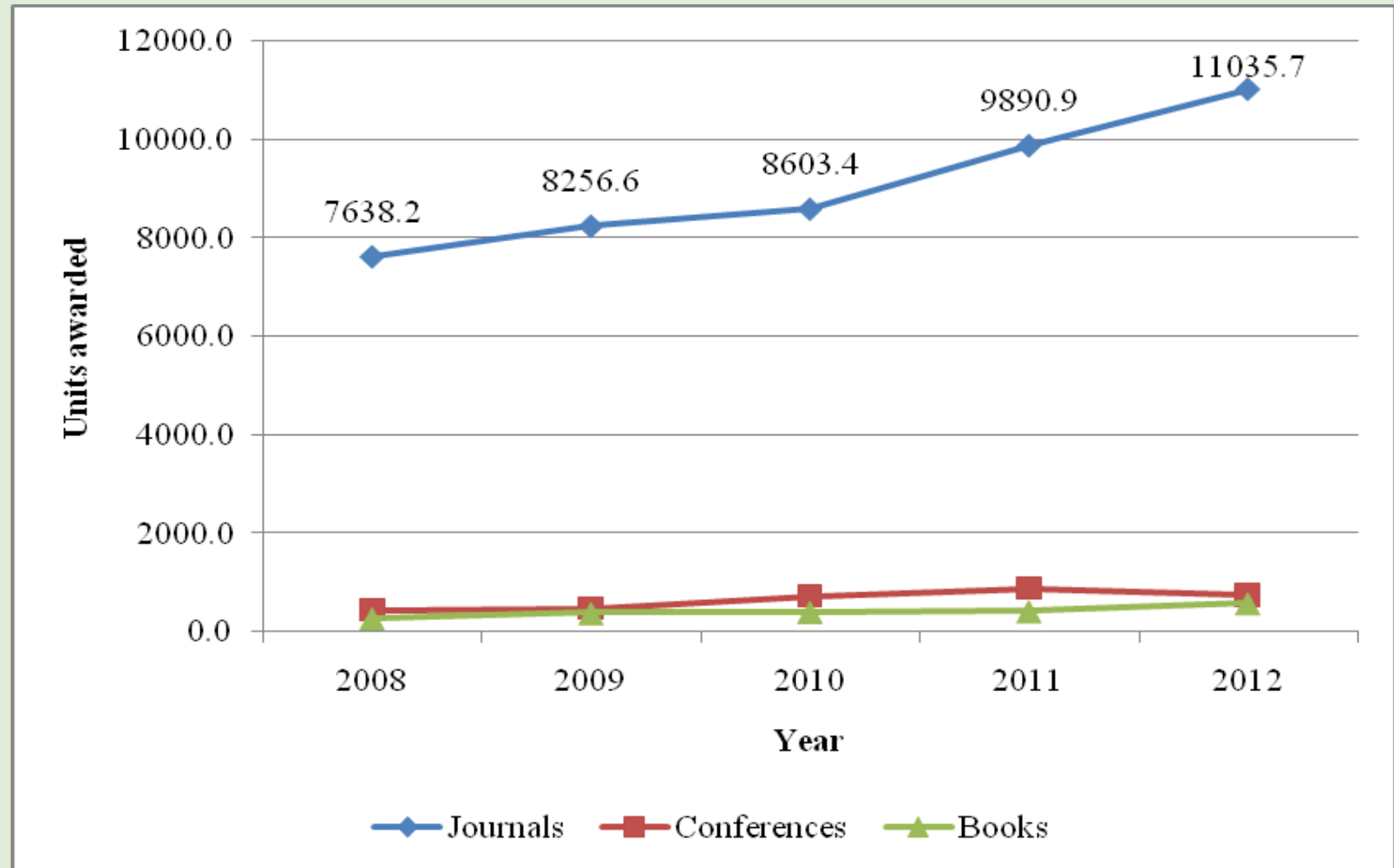
# Why is research important?

1. Economic inclusion and social development
2. Research from universities solves national development challenges:
  - a. Water related challenges; improve waste and water management (Stellenbosch Water Institute & RU)
  - b. Energy related challenges (CPUT)
  - c. Rural and agricultural development, food security and land reform (UP, UWC, Univen and DUT)
  - d. Health related challenges (malaria, TB and lifestyle diseases) – few research chairs in with a strong focus on diagnostics and drug discovering (UKZN)
  - e. Differential patterns of urbanisation (African Centres for the Cities, UCT)

# Highlights

1. SA produces the bulk of scientific research in Africa.
2. The number of post-graduate students grew from 70 964 in 1995 to **149 027** in 2012.
3. South Africa ranks **33<sup>rd</sup>** in world publications outputs (Pouris 2012).
4. The SA system produced over **1870** doctoral graduates per year in 2013 from 1423 graduates in 2010.
5. Our university system has **157** NRF-funded research chairs – supporting research in areas of vital importance to South Africa.
6. Our system has **14** NRF-funded centres of excellence, which provide high-end skills development in priority research areas.
7. **Research output** in Journals, Books and Conference Proceedings is increasing.

# Total Research Output in Journals, Books and Conference Proceedings, 2008-2012

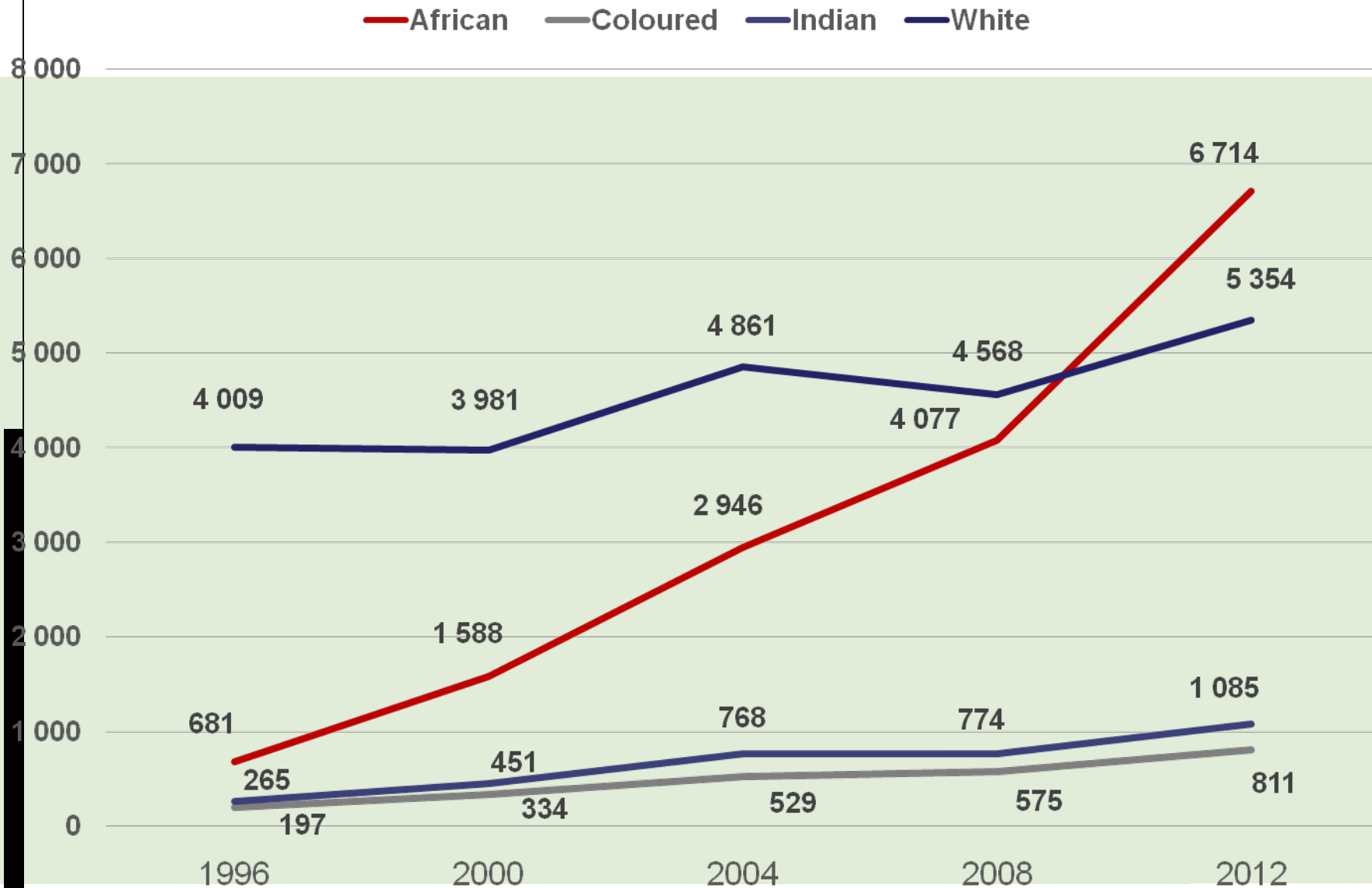


# Research funding

- 1 Decline in funding for research and innovation is noticeable
- 2 Total approved research outputs for 2012 has increased to 12 363 units:
  - 2012 (10.5% growth)
  - 2011 (26.8% growth)
- 3 As universities increase their research output units (articles books, conference proceedings etc); the total share to institutions also decreases.
4. Doctoral graduate output have increased from 1400 to just over 1800 with similar funding effect.
5. Research infrastructure funding (equipment, libraries, etc) does not match the current demand.

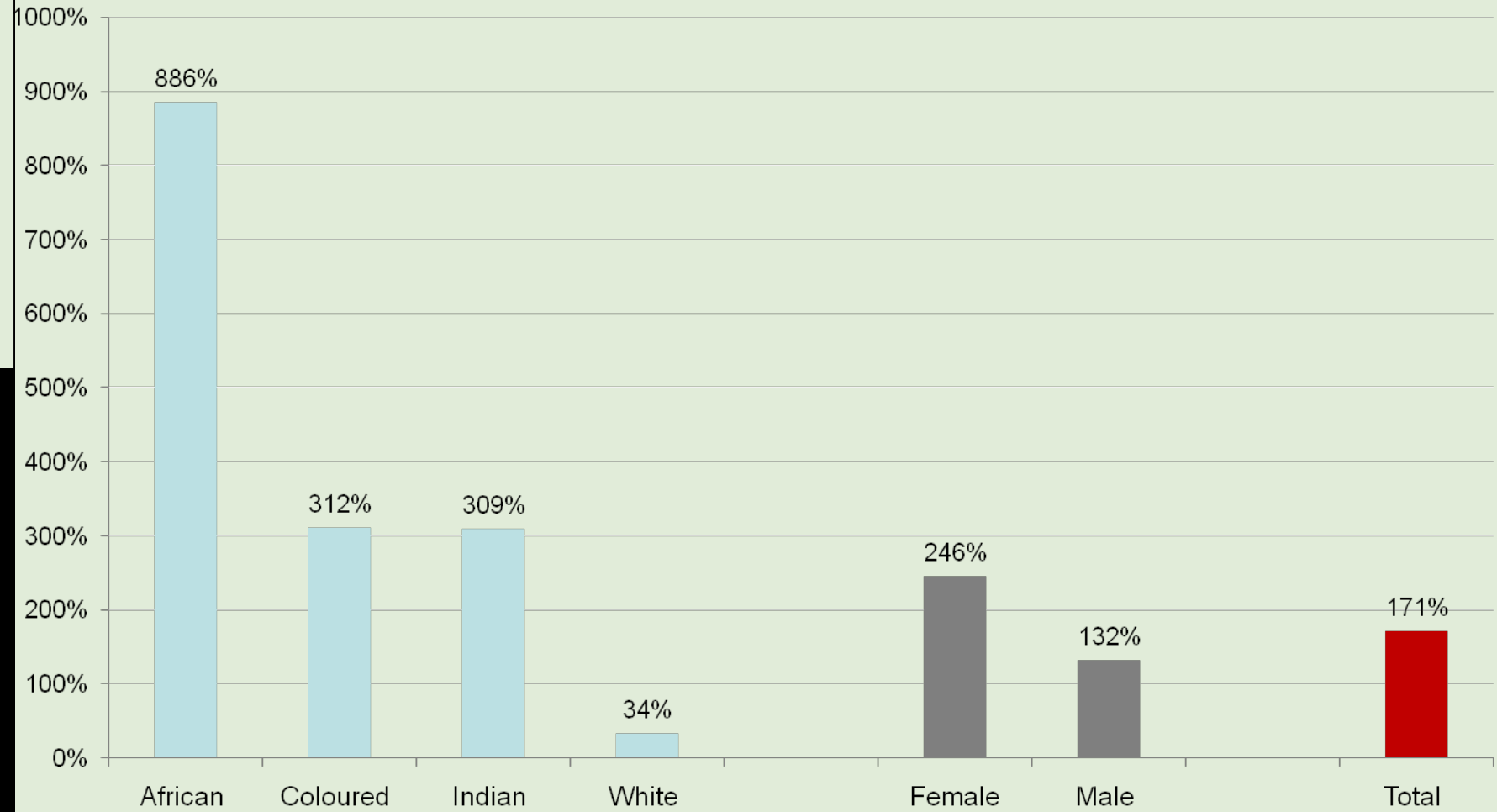
# Doctoral enrolments by race, 1996 to 2012

(Source: DoE (1999) SAPSE & DHET (2013) HEMIS)



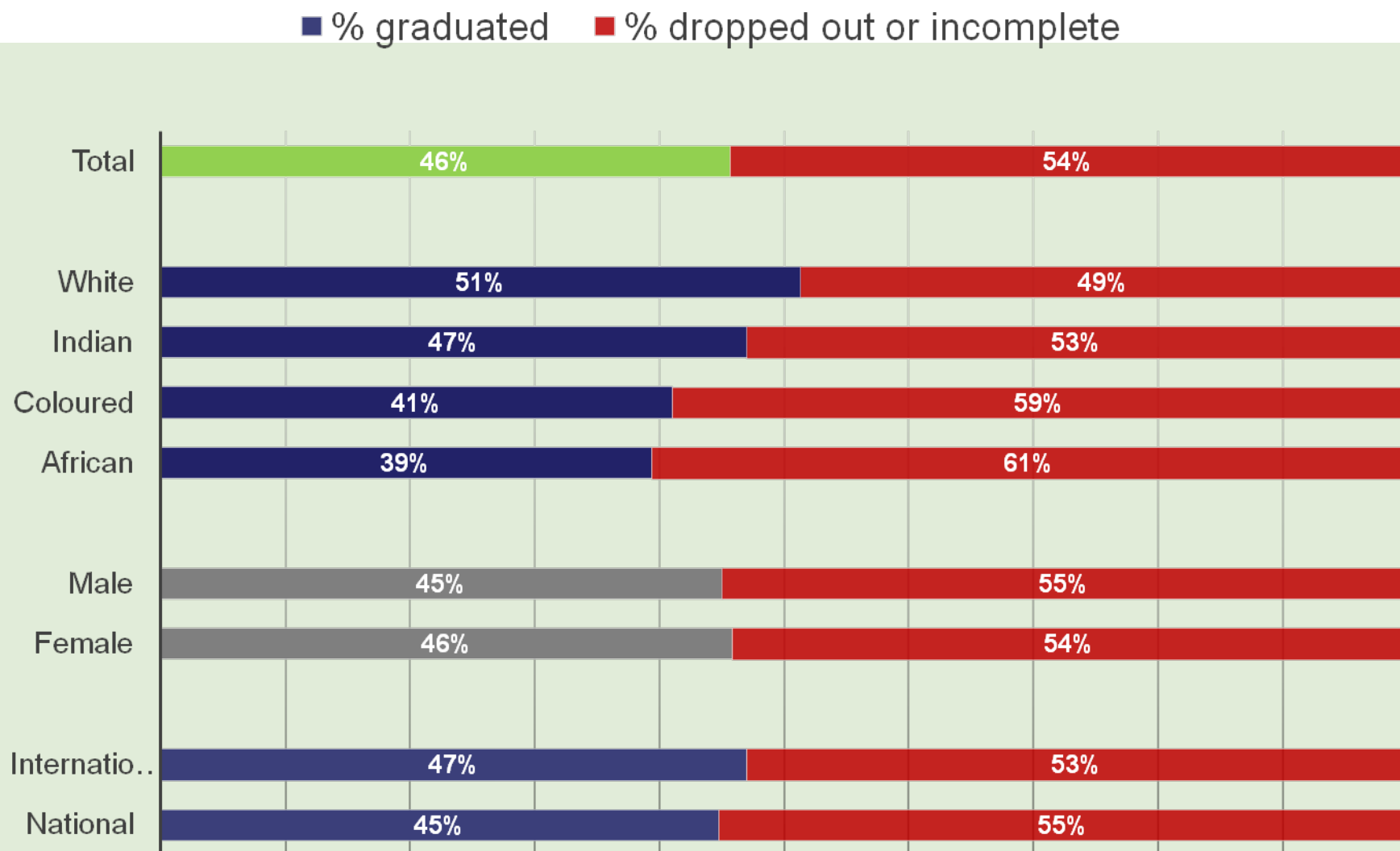
# % increase in doctoral enrolments by race group and gender, 2012 vs 1996

(Source: DoE (1999) SAPSE & DHET (2013) HEMIS)



# Progress of the 2006 new doctoral entrants after 7 years by race, gender & nationality

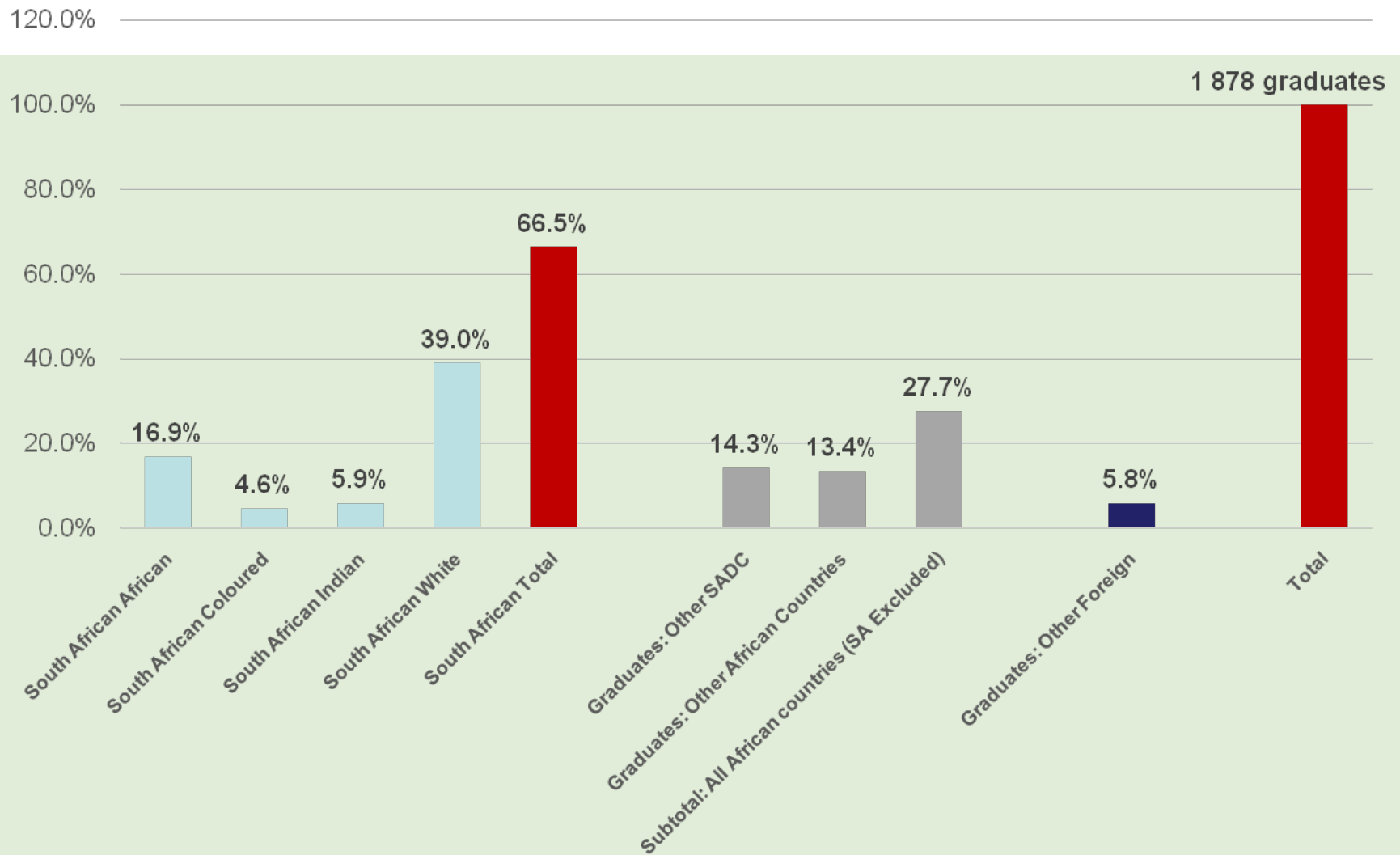
(Source: DHET & CHE Cohort Analysis (2014))



Source: DHET & CHE, Cohort analyses, 2014

# Doctoral graduates according to nationality as % of total doctoral graduates, 2012

(Source: DHET (2013 HEMIS))





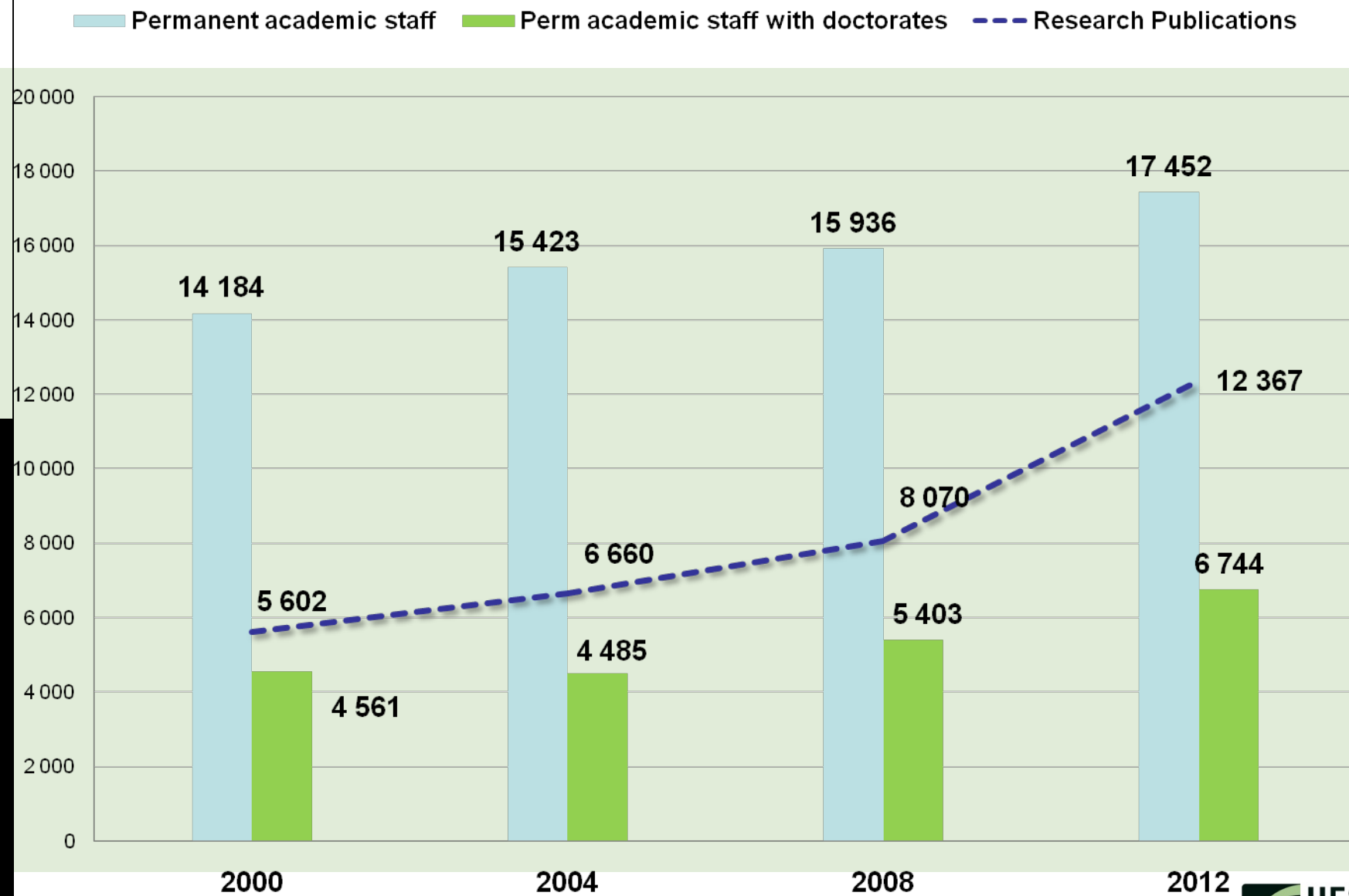
# PhD production in SA vs a number of selected OECD countries, 2000 and 2011

Country	Average annual growth rate in total PhDs 2000 - 2011	Population 2011	2011 SET PhD graduates per 100,000 of 2011 population	2011 total PhD graduates per 100,000 of 2011 population
Australia	4.7%	22 324 000	15.9	27.2
Canada	3.3%	34 483 980	10.3	16.5
Czech Republic	9.6%	10 496 670	14.5	23.5
Finland	-0.2%	5 388 272	21.1	34.4
Germany	0.5%	81 797 670	24.2	33.4
Hungary	5.1%	9 971 726	6.5	12.4
Ireland	10.1%	4 576 748	20.3	31.6
Italy	11.1%	60 723 570	11.8	18.6
Korea	6.0%	49 779 440	14.0	23.4
Norway	6.4%	4 953 000	16.7	26.2
Portugal	3.5%	10 557 560	11.4	21.9
Slovak Republic	12.8%	5 398 384	16.1	31.0
Switzerland	2.2%	7 912 398	30.1	44.0
Turkey	7.4%	73 950 000	3.5	6.3
United Kingdom	5.1%	61 761 000	19.5	32.5
United States	4.5%	311 591 900	13.0	23.4
South Africa	4.5%	51 770 560	1.6	3.0

Source: OECD (2013) Graduates by field of study, data extracted on 4 July 2013.

# Research output of academic staff

Source: DHET (2013). HEMIS



# Constraints

1. Post-graduate student **enrolment** and **outputs** remain low relative to national developments needs.
2. **36%** of our academic workforce hold a doctorate.
3. Research performance of universities is uneven - 10 universities producing 86% of all research and 89% of doctoral graduates.
4. Blockages in undergraduate and post-graduate pipeline.
5. Post-graduate supervision capacities are limited.
6. Research and post-graduate education funding is inadequate.
7. Transforming the social composition of the academic workforce (black and women).
8. Challenges relating to producing and retaining the next generation of academics.

# Differentiation

- 1 The sector should comprise a continuum of institutions, ranging from **specialized, research-intensive universities** to largely **undergraduate institutions**, with various levels of research focus and various postgraduate niches at masters and/or doctoral level
2. It vital that the core functions of our universities are supported by government through a differentiated approach and strategy that:
  - Gives scope to the different missions, programmes and capabilities of our universities; and
  - Recognises and builds on the distinctive strengths and achievements of all universities within their strategic and specific locational trajectories of development.

# Proposed Solutions

1. Develop and implement **a national, state-funded programme** for the next generation of academics to:
  - a. Increase the proportion of academics with a doctoral qualification;
  - b. Increase the proportion of black and women academics;
  - c. Increase the proportion of African academics.
2. Create diverse funding instruments to support and retain post-graduate students (Honours, Masters and Doctoral).
3. HESA and the State should finalise and implement a differentiation policy, giving each institution a “clearly defined mandate”.
4. Increase HE funding allocation as a % of government budget and of GDP – in line with the projected student enrolment growth.
5. Strengthen university-business collaboration.
6. National digital library for universities established

# CONCLUSION

1. Internationalisation is important for the health of our HE system.
2. Despite the gains made since 1994; much more still needs to be done to create an enabling environment to support internationalization.
3. The research and innovation performance of our system requires catalytic interventions:
  - a. A state-funded national programme for building the next generation of academics and address transformation challenges; and
  - b. Implementation of a differentiation policy framework.
4. Adequately fund the HE system in line with its projected student enrolment growth.

# QUESTION & ANSWER

Thank you