Contents

1. Overview.................................................................................................................. 3
2. Context ...................................................................................................................... 3
3. Scope of the Programme .......................................................................................... 5
4. Areas of support ........................................................................................................ 5
5. Application Process .................................................................................................. 6
6. Eligibility criteria ....................................................................................................... 8
7. Funding .................................................................................................................... 9
8. Monitoring and evaluation ......................................................................................... 10
9. Financial control ...................................................................................................... 11
10. Assessment criteria ................................................................................................. 12
11. NRF Contact Persons ............................................................................................. 13
*Relevant documents on National Priority Research Areas........................................ 14
1. **Overview**

The Department of Science and Technology (DST) and the National Research Foundation (NRF) introduced the Professional Development Programme (PDP) at public Research Institutions, Science Councils, Museums and National Facilities. The Programme is designed to enable outstanding Master’s and Doctoral graduates to further develop their research capabilities and to gain research experience outside the universities. This will be achieved through the placement of doctoral students and postdoctoral research fellows at a Research Institution, Science Council or National Facility. The Programme will also draw on international partnerships and agreements that the DST has entered into, to support the professional development of the next generation and emerging researchers.

The purpose of this framework document is to outline the implementation and funding principles of the Professional Development Programme funding instrument for human capacity development at public research institutions in South Africa.

2. **Context**

Since the release of the National Research and Development (R&D) Strategy in 2002, the challenge of the "frozen demographics" in Science, Engineering and Technology (SET), including Social Science and Humanities (SSH) human capital has become well-known throughout the South African National System of Innovation (NSI) with the acknowledgement that the challenge of training the next generation of SET and SSH professionals is a multi-faceted one needing a range of interventions. One of the intended outcomes of the investment initiatives is to develop and strengthen the NSI technological innovation. This technological innovation is expected to lead to commercialization of products and services and thus contribute directly to international competitiveness, wealth creation and improvement in the quality of life of a country’s citizens.

There is a need however, to improve the co-ordination of a suite of programmes aimed at addressing SET and SSH human capital development and facilitation within the NSI. Analysis of the scientific output of the country’s scientists and researchers in terms of race reveals that although there has been a general increase in the number of South African black authors in all fields of science, the national average of black researchers’ contribution to research output has still been only 10% for the period 2002-2004. In terms of gender, the national average of female researchers’ contribution to research output in all areas of
science was only 22% for this period (ASSAf, 2009). These statistics, coupled with the low number of PhD graduation rates for the country (575 SET PhD graduates in 2008) emphasize the need for increased investment in Human Capital Development.

There are a number of challenges facing recently graduated science workers and emerging researchers within the NSI, including being lured into managerial positions before their true research and leadership potential can be systematically developed. There is also a perception that a lack of incentives and limited mentorship opportunities for emerging researchers at Science Councils and universities contribute to the attrition of active researchers and their premature progression into managerial positions. Furthermore, at Science Councils, the imperative to engage in income-generating activities may overtake the prioritization of activities aimed at increasing research experience and in some cases, obtaining formal high-level educational qualifications. At higher education institutions, researchers are generally faced with high teaching loads, resulting in lack of time for research development.

The consequence is that there are fewer black students and women who choose career paths in knowledge production to become established researchers and academics. Development of a research or academic career to levels where individuals are contributors on an international scale is a long process that continues well after formal qualifications are attained. It is imperative that any intervention aimed at addressing the issues raised above creates maximum opportunity for development and growth of researchers. It is also essential that this takes place in the context of the DST’s Innovation/Technology missions and Frontier Programmes that support the development of specific multi-disciplinary SET and SSH areas in South Africa.

To this end, the DST launched the Research Professional Development Programme (PDP) in 2005. This Programme was initially aimed at addressing the accelerated development of scientists and research professionals in Science Councils and has now been extended to include the National Facilities and Research Institutions.

Beneficiaries will include recently qualified Doctoral graduates, applying within five years of having obtained their Doctoral degree, and those who are currently undertaking Doctoral studies. The PDP will be specifically tailored to accelerate the development of scientists and researchers who are poised to contribute to the South African innovation platforms as
identified in the National R&D strategy. In order to be compliant with the revisions to the Labour Relations Act (Act No. 26, of 2014), as of 2016, all PDP Doctoral candidates will receive a tax free scholarship while all PDP Postdoctoral candidates will be appointed on a three-year fixed term contract but will not be assigned a job grade.

3. **Scope of the Programme**

The PDP is part of a suite of DST-NRF Science and Technology human capital interventions and has the following specific objectives:

- To leverage innovation and research at public Research Institutions, Science Councils, Museums and National Facilities in South Africa, through the implementation of science and technology related skills development.
- To enable recently qualified Doctoral graduates and those currently engaged in Doctoral studies to gain further research experience in a Research Institution, Science Council or National Facility thereby strengthening their *Curriculum Vitae* and consequently improving their prospects of permanent employment in the science and technology system;
- To attract and retain young scientists and professionals of the highest caliber in order to complement senior researchers’ influence on the current science and technology research system; and
- To support young scientists and professionals in basic and applied research, and to promote innovation.

4. **Areas of support**

The PDP Doctoral scholarships and Postdoctoral Fellowships may be awarded in any critical focus areas in the broad fields of SET and SSH as identified by prospective host Research Institutions, Science Councils, Museums and National Facilities. These areas should be aligned with the Grand Challenges as identified in the Ten Year Innovation Plan of the DST, namely:

- Space Science and Technology;
- Human and Social Dynamics;
- Farmer to Pharma;
- Energy; and
- Climate Change.
In addition, students and postdoctoral researchers working in research areas aligned with the Science and Technology Missions and Frontier Programmes of the DST will be supported.

5. Application Process

5.1. Call for applications

South African Public Research Institutions, Science Councils, Museums and National Facilities are invited to submit applications for a Block Grant under signature of the Research Director or equivalent, who has overall responsibility for research at the respective institution.

The proposal will include the following information to be completed by both the Research Director or equivalent and the Principal Investigators (PIs):

**Research Director or equivalent to complete the following sections:**

- Details of host institution, accountable executive and designated authority for administrative matters;
- A brief overall institutional project description;
- List of research project(s), name of principal investigator(s) and PI’s email addresses;
- Alignment of skills to be developed with national priorities research areas, scarce skill area and/or a vulnerable discipline at the host institution;
- Expected outputs and outcomes in advancing HCD capacity in support of the priority research areas at the host institution;
- Institutional commitment to provide the necessary research infrastructure and institutional contributions
- Available research grants or funding not indicated by the PI’s.

**Each Principal Investigator to complete the following sections:**

- Project Title: One project per Principal investigator;
- Project Description: Provide background of the research project as well as clear aims and objectives for your current research;
- Projected Outputs: Provide details on envisaged measurable outputs, e.g. publications, patents, conference presentations and proceedings, etc;
• Available research grants or funding: Indicate any available research grant or funding to support the research to be undertaken by the Doctoral students and Postdoctoral Fellows;
• Research Collaborations;
• Access to research running costs; and
• Requested number of Doctoral Scholarships and Postdoctoral Fellowships for new PDP candidates.

All Doctoral and Postdoctoral supervisors listed in the application must upload their updated *Curriculum Vitae* on the NRF Online system.

**Applicants may apply by following the steps below:**

• Applications for a three year block grant must be submitted through an online application process to the NRF.
  • **Research Director or equivalent must apply for the 2018 Professional Development Programme by accessing the link:** [https://nrfsubmission.nrf.ac.za/](https://nrfsubmission.nrf.ac.za/)
  • **Register / Login using your ID number and password.**
  • Go to “My Applications”
  • Select “Create Application”.
  • Select the call for which you are applying to *viz*. **Professional Development Programme call for 2018.**
  • Click on the “Apply” icon.
  • Remember to complete all compulsory sections of the application as incomplete applications will not be considered for support by the NRF. Please follow the step-by-step directions supplied in the *Funding Guide*.
  • Remember to **submit** your application on completion.
  • Incomplete applications will not be considered.
  • Applications that do not meet the eligibility criteria will not be considered (please refer to section 6 for details on eligibility for the Professional Development Programme).
  • Please contact the NRF if you have any queries.
  • The closing date for submitting applications is **26 May 2017.**
5.2. Proposal review and approval
The criteria for evaluation of the institutional block grant application are:

- Alignment of skills to be developed with national priorities, scarce skill area and/or a vulnerable discipline at the host institution;
- Expected outputs and outcomes in advancing HCD capacity in support of the priority research areas* at the host institution;
- Supervisory capacity at the host institution and at the collaborating partner universities;
- Alignment with the institutional staffing plan and institutional retention strategy at the host institution;
- Access to research running costs; and
- Requested number of Doctoral Scholarships and Postdoctoral Fellowships.

5.3. Approval of nominate candidates
The Block Grant applications submitted to the NRF will undergo a technical review to ensure accountability and appropriate utilization of funds to be awarded. New scholarships and fellowships will be approved for funding for a three-year period. However, funding for years two (2) and three (3) will be released to grant-holders on an annual basis, subject to satisfactory progress.

Once a block allocation has been made by the DST-NRF, the host institution shall nominate high caliber students and postdoctoral research fellows on the basis of merit, taking into account the applicant's qualifications, publications and experience and, interest in pursuing a research career. The NRF will approve nominated candidates in line with the set equity targets.

6. Eligibility criteria

6.1. Eligibility criteria for the Doctoral and Postdoctoral supervisors
Eligibility criteria for the institutional lead applicant are as follows:

- He/she must be listed as a supervisor within the block grant application;
- He/she must hold a doctoral degree and have postgraduate supervision experience to host and supervise postgraduate students;
• He/she must hold a full-time permanent position as a researcher at the host institution, or a contract position as a researcher for the full duration of the Block Grant; and

• He/she should ideally hold an honorary or part-time academic position at a South African public university for the full duration of the awarded grant.

6.2. Eligibility criteria for PDP Doctoral students and Postdoctoral fellows

• Only bona-fide South African citizens or permanent residents may receive a PDP Doctoral Scholarship or Postdoctoral Fellowship;

• To be awarded a PDP Doctoral Scholarship the individual must have obtained his/her Master’s degree no more than five (5) years before commencement of Doctoral studies. In the case of female candidates that are returning to postgraduate studies after a period of absence from research due to family responsibilities, this criterion may be waived.

• To be appointed as a PDP Postdoctoral Fellow, the individual must have obtained his/her Doctoral degree no more than five (5) years before commencement of the PDP Postdoctoral Fellowship. In the case of female candidates that are returning after a period of absence from research due to family responsibilities, this criterion may be waived.

• Full-time employees of public Research Institutions, Science Councils, Museums or National Facilities may not hold a PDP scholarship or fellowship.

7. Funding

7.1. DST-NRF contribution

• For the 2017/18 financial year, PDP Doctoral students will receive a tax free scholarship of R180 000 p.a. (one hundred and eighty thousand rand per annum). Doctoral scholarships are tenable for up to three (3) years subject to satisfactory annual performance.

• The value of the PDP Postdoctoral Fellowship shall be R350 000 p.a. (three hundred and fifty thousand rand per annum) in the 2017/18 financial year and shall be subject to employee taxes. All Postdoctoral fellows must enter into a three-year fixed term
employment contract with the host institution. The maximum period of funding per PDP Postdoctoral fellow is three years.

The PDP scholarship and fellowship values will be reviewed annually and increases to these values will be subject to the availability of funds.

7.2. Institutional contribution

- The primary investigator and/or Doctoral supervisor shall provide the necessary research running expenses, infrastructure, supervision and mentorship; and

- The host institution shall contribute towards training costs and travel costs of the PDP candidate.

7.3. Demographic targets

Students and fellows supported by the Programme must be South African citizens or permanent residents and should comprise of 80% Black (African, Indian and Coloured), 55% female, and 4% persons with disabilities.

8. Monitoring and evaluation

The NRF will continuously monitor and evaluate the progress of the PDP at an individual, institutional and funding instrument level as follows:

- All Doctoral students and Postdoctoral Fellows will be required to submit an Annual Progress Report (APR) as a requirement for the release of funding for years two (2) and three (3);

- The host institution will be required to submit an Annual Progress Report (APR) in a format provided by the NRF, against deliverables as outlined in the application form and the signed Conditions of Grant, on the overall performance of the PDP at the institutional level. This APR must be submitted under signature of the Research Director or equivalent, who has overall responsibility for research at the respective institution;

- On an ongoing basis, the NRF will undertake institutional visits and focus group discussions which will be conducted at the host institutions;

- The PDP funding instrument will undergo an independent evaluation every five (5) years or as agreed by the DST and NRF.
9. Financial control

These awards will be managed in terms of standard NRF financial policies and procedures. The payment of the grant by the NRF to host institutions will be administered by the Grants Management and Systems Administration Directorate (GMSA). The institution will in turn administer the funds on behalf of the successful students and fellows to the value of the full sum awarded by the NRF.

**Student scholarships** will be released to the host institution upon receipt of the following documents:

- NRF Scholarship Agreement completed by the student;
- Proof of Registration completed by the institution's grants office;
- Copy of the student’s Master’s certificate;
- Copy of the student’s identity document; and
- Student-Supervisor Agreement that specifies amongst other matters, the expectations, deliverables and responsibilities of both parties with respect to the student-supervisor relationship.

**Postdoctoral fellowships** will be released to the host institution upon receipt of the following documents:

- The three year fixed-term employment contract with the host institution;
- Copy of identity document;
- Proof of completion of the Doctoral degree;
- Postdoctoral Scholarship and Fellowship agreement and
- Memorandum of Agreement between the Research fellow and Mentor.

**Cancellations of scholarships and fellowships**

Scholarships and Fellowships that are approved by the DST-NRF and that are not taken up within six (6) months of the grant award to the host institution will be cancelled for reallocation unless otherwise approved by the NRF.

In the event of a Doctoral student or Postdoctoral Fellow terminating their training at the host institution, the scholarship or fellowship will not be transferable, unless otherwise approved by the NRF. Surplus funds that arise through cancellations may be reallocated by the NRF.
10. Assessment criteria

The assessment criteria for the applications are set out in the scorecard illustrated in Table 1.

**Table 1: Scorecard for the evaluation of application**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Sub-Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Track Record of all supervisors and mentors</td>
<td>Past research outputs (Journal articles, conference presentations and proceedings, book chapters, patents and awards), the supervisor’s and mentors research experience, postgraduate supervision and postdoctoral mentor experience.</td>
<td>15%</td>
</tr>
<tr>
<td>2. Human Capital Development</td>
<td>Alignment of Human Capacity Development (Postgraduate students and Postdoctoral fellows) with institutional Staffing plan and institutional retention strategy, alignment with national priority/scarce skill area and/or vulnerable discipline.</td>
<td>45%</td>
</tr>
<tr>
<td>3. Potential projected research Outputs</td>
<td>Details of envisaged realistic outputs of the research such as publications, conference proceedings, toolkits, policy documents etc.</td>
<td>15%</td>
</tr>
<tr>
<td>4. Collaboration on Research Project</td>
<td>Collaboration between institutions includes historically disadvantaged higher education institutions. Existing research collaborations with national and international research institutions and universities demonstrated.</td>
<td>20%</td>
</tr>
<tr>
<td>5. Running cost</td>
<td>Access to research grant or funding to support the research to be undertaken by the Doctoral students and Postdoctoral Fellows.</td>
<td>5%</td>
</tr>
<tr>
<td>Outcome</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
11. NRF contact persons

For programme related enquiries, please contact:

Project leader: Mr Mduduzi Tshabangu: Professional Officer: Human Infrastructure Capacity Development (HICD).
Telephone: 012 481 4148.
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Ms Tsibiso Mohlomi: Professional Officer – HICD.
Telephone: 012 481 4315.
Email: tsibiso.mohlomi@nrf.ac.za

For grants management related enquiries, please contact:

Ms Sushie Pillay: Professional Officer – Grants Management and Systems Administration (GMSA)
Telephone: 012 481 4178.
E-mail: ppillay@nrf.ac.za

For reviews and evaluation related enquiries, please contact:

Mr Sam Sibiya: Professional Officer – Reviews and Evaluation (RE)
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Email: sam.sibiya@nrf.ac.za
*Relevant documents on National Priority Research Areas: