THE NANOTECHNOLOGY FLAGSHIP

PROGRAMME FRAMEWORK

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1. INTRODUCTION

Realising that extensive research and development (R&D) spending in Nanotechnology was fast becoming commonplace internationally, the Department of Science and Technology (DST) commissioned the South African Nanotechnology Initiative (SANi) to develop a *South African Nanotechnology Strategy*.

The *South African Nanotechnology Strategy* addresses itself to the opportunities presented by this new wave of technology and seeks to strengthen the integrated development focus of Government. The strategy takes cognisance of the needs of local industry and society and compliments the national technology missions that have been identified in the *National R&D Strategy*. It focuses on essential building blocks of nanoscience which are synthesis, characterisation and fabrication. Nanotechnology in South Africa would create opportunities for human capital development, particularly for designate groups that have been historically disadvantaged. It would drive research and development; innovation; education, training and curriculum development; innovative entrepreneurship and improved opportunities for Black Economic Empowerment (BEE).

Government realizes the need for South Africa to optimally share in the benefits of nanotechnology and nanotechnology and thus enhance its global competitiveness and sustainable economic growth. To this end, the DST has outlined the implementation plan (and support mechanisms) for the realization of the strategic objectives. A programme of flagship projects has been identified as part of this implementation plan. Its purpose is to demonstrate the benefits of nanotechnology and nanoscience and its impact on some of the key challenges facing South Africa, within a reasonable period.

2. THE NANOTECHNOLOGY FLAGSHIP PROGRAMME

The Nanotechnology Flagship Programme (NFP) has collaboration as a key principle. The initial investment of R27 million provided by the Government over three years (R7 million, R10 million, and R10 million in 2007/08, 2008/09 and 2009/10, respectively) for the NFP has been allocated to enhance and reinforce the development of collaborative partnerships which reflect the national research priorities. The NFP research funds are

specifically to be used by publicly funded universities or other research organizations to enhance the overall effort in the Programme, by either increasing scale and focus or bringing together complementary expertise.

Driven by the main objectives of the *National R&D Strategy*, which are to enhance quality of life and increase economic growth, the NFP should target relevant impact areas. Considering the status of nanotechnology and nanoscience in the world and how South Africa relates to it and the needs and opportunities identified, the areas where nanotechnology can generate most benefits for South Africa can be grouped into the following six focus areas as identified in the *South African Nanotechnology Strategy*:

- Water
- Energy
- Health
- Chemical and Bio-Processing
- Mining and Minerals
- Advanced Materials and Manufacturing.

Projects funded by the NFP will be grouped into two development clusters as identified in the *South African Nanotechnology Strategy*: industrial (mining and minerals, chemical and bio-processing and materials and manufacturing) and social (water, health, energy). The national challenge for the NFP is to demonstrate how nanotechnology and nanoscience can contribute to:

- Strong, sustained economic growth, new industries, competitive enterprises and quality jobs;
- Healthier, more productive lives for South Africans;
- Clean, cost-efficient energy;
- More productive and sustainable use of water; and
- Growth and prosperity for South Africa.

3. OBJECTIVES OF THE NANOTECHNOLOGY FLAGSHIP PROGRAMME

The NFP should not be seen only in the context of the *South African Nanotechnology Strategy*, but should also be seen in the context of other relevant national strategies such as the *National R&D Strategy*. Amongst other things, these strategies aim to achieve the:

- Development of human resource capacity that focuses on Historically Disadvantaged Institutions (HDIs), women and people with disabilities;
- Acceleration of national efforts to build excellence in research and development capacity;
- Attraction and retention of young scientists and professionals of the highest caliber; and
- Support of young scientists and professionals in basic and applied research, and promotion of innovation.

As such, in addition to serving the purpose of ensuring the realization of the strategic objectives, the NFP will be used to serve the purpose of addressing the aforementioned issues.

4. PROGRAMME SCOPE

The NFP grants will fund large, collaborative and/or multidisciplinary research projects. Such grants will be available to publicly funded higher education institutions, national research laboratories such as research councils, other government laboratories, the national facilities and museums. Young doctoral graduates from the participating institutions are eligible to apply for such grants.

Detailed eligibility criteria and information on application, evaluation and funding processes can be found in the Programme Manual.

5. FUNDING SCOPE

While there is no set limitation on the maximum or minimum funding that applicants can apply for, it is anticipated that each project within this programme will be funded for three years at around R1-1.5 million per annum. Continued funding for the second and third years will be subject to the submission of a revised annual budget and a progress report indicating the achievement and outputs for the previous year.

The funds may be used to cover costs associated with:

- Student support
- Sabbatical
- Public awareness – in collaboration with South African Agency for Science and Technology Agency (SAASTA) of the NRF
- Small research equipment
- Running Expenses
    - Project costs
    - Local and/or domestic Travel
    - Conferences both local and abroad
    - Visiting scientists
    - Temporary support
    - Mentoring

More details on the funding can be found in the Programme Manual.

The envisaged budget for the Nanotechnology Flagship Programmes is:

- Year 2007/08 R 7 million
- Year 2008/09 R10 million
- Year 2009/10 R10 million

6. PROGRAMME PERFORMANCE FRAMEWORK

The NFP will be managed according to the programme performance framework which aims to ensure the achievement of programme objectives and the appropriate use of resources. The key elements of the performance evaluation will include:

- Training of research students and Post-Doctoral fellows (numbers in training, completion rate, tracking of students and post-docs trained)
- Number of black and female students
- Research students' and Post-Doctoral Fellows' international exposure (nature, duration, outputs, and outcomes)
- Harnessing international expertise (visiting researchers, training or research undertaken)
- Potential outputs (publications, training, conference presentations, patents filed)
- Outcomes (new research collaborations, other research funding leveraged)
- Scientific, Social, Economic and Environmental impact

Evaluation Criteria

Criterion	Details	Weight
Scientific Merit and research team 30%	Scientific/technical excellence	15%
	PI and research team track record	15%
HR Development 50%	Training of Research students and Post-Doctoral Fellows	10%
	Black & female students	20%
	Research students and Post-Doctoral Fellows international exposure	10%
	Harnessing international expertise	10%
Alignment with the Flagship objectives 20%	Scientific, Social, Economic and Environmental impact	10
	Potential outputs	10