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Foundational Biodiversity Information Programme

DST/KFD/SANBI

Framework Document

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1. Programme title and description

1.1 Name

Foundational Biodiversity Information Programme

1.2 Description of Programme

RATIONALE: South Africa is one of the world's "megadiverse countries" which means that it is especially rich in terms of biodiversity. This wealth of biodiversity underpins a large proportion of the economy and many urban and rural people are directly dependent on it for their livelihoods, jobs, food, shelter, medicines and spiritual well-being. Sustainable use and management of South Africa's biodiversity requires a solid knowledge base and access to relevant information and data. Researchers in South Africa have made considerable progress towards documenting our biodiversity, but large gaps in our knowledge still exist and it has been estimated that more than 50,000 species remain undiscovered or un-described. These species may have economic benefits or they could play a critical role in the functioning of ecosystems. There are also several parts of South Africa in which the biodiversity has been only superficially explored and so data critical for development planning and ecosystem management are poor. The distribution and abundance of most species in South Africa is also far from complete, even for the better known groups including plants, small mammals, reptiles and amphibians, which makes understanding change in status and sustainable use problematic. The scale of the effort required to fill all gaps means that this will not be achievable within a reasonable time frame, and so a strategic approach is critical to ensure that priorities are addressed. For the knowledge that has been and continues to be generated, there is generally poor co-ordination and it is not all readily accessible to stakeholders who currently or potentially need it. A new, long-term programme has been developed to address these challenges.

The primary focus of the programme is to generate, co-ordinate and make accessible knowledge relevant to "essential biodiversity variables" which include species occurrence, species identity, population abundance, and phylogenetic / DNA information, including barcoding. This type of information is often referred to as "fundamental" or "foundational" because it forms the basis of so many other aspects of biodiversity research and decision-making. These data sets are critical for ecosystem mapping, monitoring and reporting on the state of biodiversity, for sustainable use of biodiversity, and for understanding and mitigating the impacts of global change on biodiversity.

While "foundational biodiversity knowledge" plays an essential role in facilitating understanding of ecosystem services and goods, its link to sustainable use of biodiversity for societal benefits and policy input is indirect. This often makes its relevance less attractive compared to other more exciting areas of research where the outputs can directly feed into societal benefits or policy. In addition, this aspect of research often deals with descriptive science and is therefore not perceived as cutting-edge. An additional challenge is that researchers who generate the information on essential biodiversity variables, and those practitioners who use this type of information in research or decision-making generally work in isolation from each other, resulting in misalignment in what knowledge is generated and what is needed and used. The uptake of the outputs of this foundational science by practitioners further up the value chain and closer to the science-society and science-policy

interfaces is rather low due to these blockages.

The integrated programme approach will increase both efficiency and impact by aligning the needs of knowledge users higher up the value chain with those of the knowledge generators at the base of the chain. Having a long term programme will also ensure information security and incremental knowledge generation which is not the current situation.

AIM: The aim of the Foundational Biodiversity Information Programme (FBIP) is to fund the generation, mobilization and integration of priority foundational biodiversity knowledge and information so that this can be managed, secured and disseminated to address the needs of society, the Department of Science & Technology (DST) Global Change Programme and the bio-economy.

ADDED VALUE: The DST indicated that an integrated programme that covers previously funded programmes such as the South African Biodiversity Information Facility (SABIF) and the South African Biosystematics Initiative (SABI) and those that are strategic but unfunded (South African Barcode of Life and South African Encyclopedia of Life) would not only reduce transaction costs but would benefit from stronger collaboration and increase the impact of the investment.

2. Executive summary

The FBIP addresses the generation, mobilization and integration of foundational biodiversity knowledge and information so that it can be managed and disseminated for addressing societal needs. The Programme is fully aligned to international and national obligations and objectives including the Convention on Biological Diversity (CBD), National Biodiversity Act, the National Biodiversity Strategy & Action Plan, the Global Change and Bio-economy Grand Challenges of DST and its programme on Indigenous Knowledge Systems. The Programme integrates SABIF, SABI, DNA barcoding as promoted by the International Barcode of Life (IBOL), and the compilation of species information in line with the Encyclopedia of Life (EoL). The main approach of the FBIP is to fund large, collaborative / integrated team projects which align with knowledge needs, or which involve participants along the entire value chain from knowledge generation to application for decision-making. These projects will also include postgraduate students and emerging researchers, and the up-skilling of researchers and practitioners who use the data generated. The projects will generate or mobilize species occurrence data, DNA barcode data, and descriptive information on species, and will ensure that the knowledge is co-ordinated, managed and disseminated through appropriate structures and systems. Monitoring of the uptake and impact of the knowledge generated will allow the development of an understanding of best practice for ensuring that research outputs do have an impact on global change understanding and decision-making relating to biodiversity and sustainable livelihoods. A limited number of small grants will also be available to address key strategic gaps in data / knowledge. This framework is applicable for a three-year period, and it is anticipated that it will be revised every fourth year.

3. Strategic context

3.1 Environmental scan

The Programme will deliver products that contribute to the fulfilment of objectives included in the Aichi Targets of the

Strategy of the Convention on Biological Diversity (CBD) for 2011-2020, the Global Taxonomic Initiative of the CBD, the National Biodiversity Act, National Biodiversity Framework, the Global Change and Bio-economy Grand Challenges of DST and its programme on Indigenous Knowledge Systems. The outputs of the Programme are foundational to protecting South Africa's ecological infrastructure on which many industries and communities depend for their livelihood and to supporting the sustainable use of components of biodiversity.

Several workshops involving DST, NRF, SANBI and representatives of programmes such as SABI, SABIF, EoL and SA-IBOL were held in 2011 and 2012 to discuss the DST request for an integrated programme which would reduce transaction costs of separate programmes and increase impacts. This group formed a task team which developed the Programme concept. In October 2012 a brain-storming session was held for the users of foundational biodiversity information in other programmes or in decision-making to identify priority needs. Two workshops were run for potential participants / contributors to the Programme to discuss the approach, and the Programme concept was discussed by both the SABI and the SABIF Steering Committees, and well as at the SABI Forum in 2012. A National Strategy for Biosystematics Research in South Africa has been developed by SANBI, and this identifies priority outputs. A workshop at the Southern African Society for Systematic Biology (SASSB) in July 2012 discussed these priorities and some of the constraints on researchers in the field.

3.2 Objectives

The Programme has four main strategic objectives which deal with the generation of knowledge, the mobilization of information, integration of data, ensuring the management and dissemination of knowledge and data, capacity development and development of an understanding of how best to ensure the uptake and application of outputs in foundational biodiversity knowledge.

Strategic Objective 1: Generate knowledge and mobilise existing data to address priority knowledge / information gaps identified through consultation with or involvement of relevant stakeholders who use and apply foundational biodiversity information in decision-making for sustainable use and development (Figure 1).

Knowledge generation includes:

- discovery, description, and identification of taxa,
- surveys of areas or taxa of strategic importance for presence / absence (species occurrence) and / or population abundance data,
- phylogenetic and population genetic diversity, including DNA barcodes, which enable the distinction and identification of taxa

Mobilization of existing data includes:

- data capture / digitization of specimen data according to the Darwin core standard for biodiversity collections
- compilation of species information according to the FBIP / EoL requirements.

Publications for the scientific literature will also be generated, and data sets will be handed over to the FBIP / SANBI for long-term archiving, dissemination, integration and application as detailed in Strategic Objective 2.

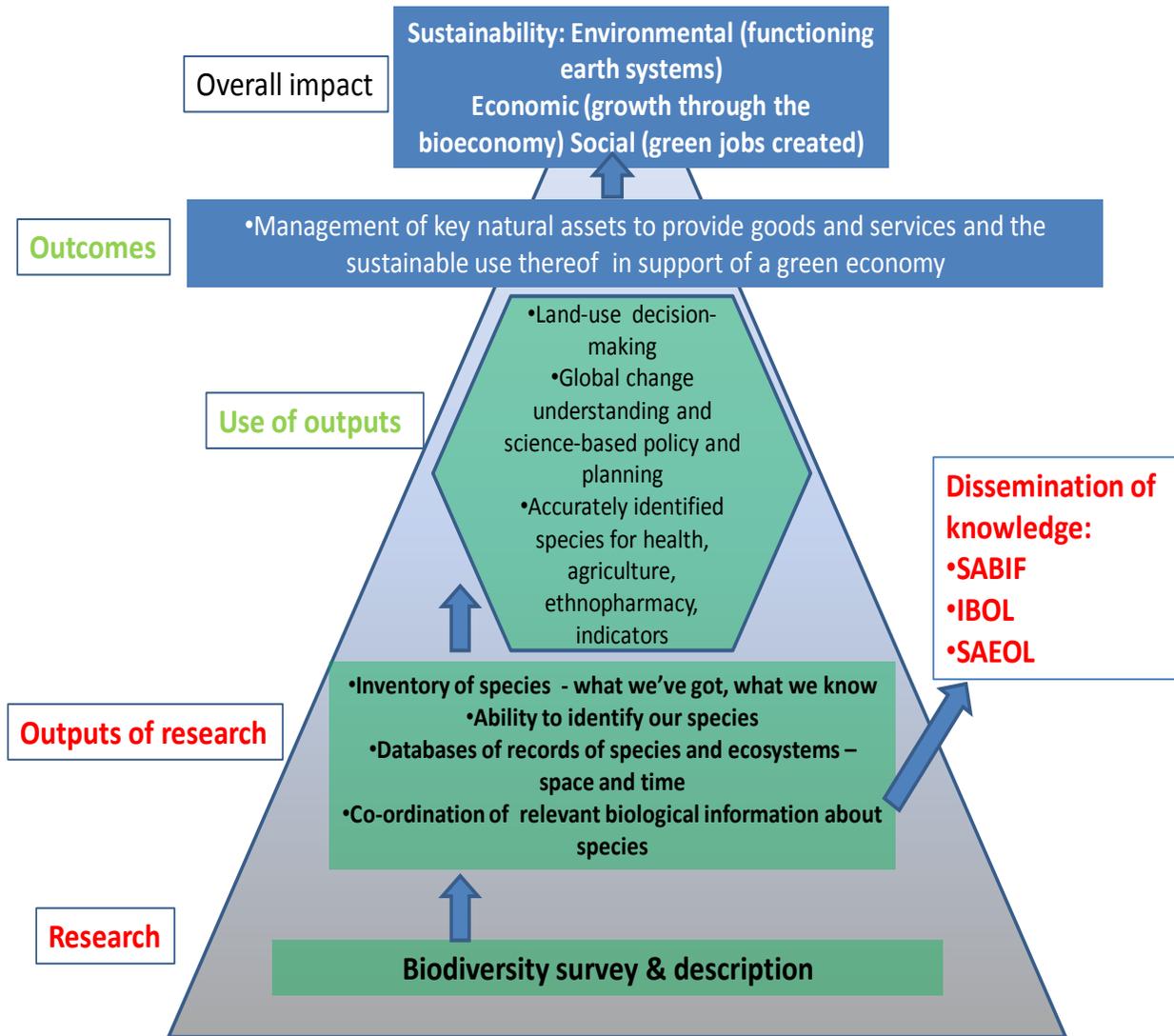


Figure 1: Framework for aligning knowledge generation and data mobilization with needs of users in the field of global change and the bio-economy. Red text = components of the value chain that will be funded Green text = components of value chain that must inform the focus of the foundational biodiversity knowledge generation and dissemination that is funded.

Strategic Objective 2. Contribute content to an integrated information management and dissemination system to provide long-term access to outputs from the FBIP.

The main content outputs from the FBIP for management and dissemination include:

- A national inventory / checklist of all South African species, which is updated according to the latest research findings.
- Co-ordinated species pages for South African species including photographs / illustrations, information on biology, ecological role and interactions, links to DNA barcode / sequence data, distribution maps, indigenous knowledge, existing and potential use, threat status, population trends and literature through the Biodiversity Heritage Library.
- Primary data sets (species occurrence) which include specimen identity, date of collection, locality of collection, collector details, origin of record and where possible other data such as habitat description, biological notes, abundance, in accordance with the Darwin Core standard.
- Peer-reviewed, scientific publications relating to foundational biodiversity knowledge and information (these are used to provide content or update other outputs).

Strategic Objective 3: To attract, develop and up skill people to ensure appropriate capacity for biodiversity knowledge generation, dissemination and application. This includes:

- Training of postgraduate students in the generation, management, dissemination and application of foundational biodiversity knowledge.
- Development of capacity for application / use of the knowledge / data amongst practitioners.
- Provision of opportunities for emerging researchers.
- Training of researchers / data managers who work with foundational biodiversity information in capture and management of data.
- Training of researchers in novel approaches to identifying biological material

Strategic Objective 4: To develop an understanding of best practices for ensuring that foundational biodiversity knowledge generated and disseminated is taken up for use and application in decision-making and sustainable use (bio-economy) by

testing different approaches to project development and implementation and monitoring and measuring uptake and impact of each approach.

3.3 NRF perspective

The NRF vision seeks to create:

- World-class research,
- A transformed society, and
- A sustainable environment.

The Programme will contribute to addressing all three of these items. The integrated approach being proposed is innovative and publication of the research outputs in formal scientific literature is one of the Programme outputs. The approach is also transformatory in that it addresses the traditional individualistic and self-serving approach of researchers, and the Programme recognises the need to include the development of previously disadvantaged people, whether these are students, scientists or communities. The work of the Programme is foundational to a sustainable environment.

The Programme aligns with the following strategic objectives of the NRF:

- Promote competitive research as the basis for the knowledge economy
- Grow a representative workforce in South Africa.

The Programme will deliver products that contribute to the fulfilment of objectives included in the Aichi Targets of the Strategy of the Convention on Biological Diversity for 2011-2020, the Global Taxonomic Initiative of the CBD, the National Biodiversity Act, National Biodiversity Framework, the Global Change and Bio-economy Grand Challenges of DST and its programme on Indigenous Knowledge Systems.

3.4 Institutional structure

SANBI manages the implementation of the Programme, and the NRF, through the Global Change Programme and the Grants Management and Systems Administration (GMSA), manages the project proposal review and grant allocation process.

The Programme Manager and Co-ordinator are based at SANBI and work with the NRF GMSA team and the Global Change Programme Director to ensure that the strategic objectives of the Programme are met through the grants, and to meet both financial and performance reporting requirements of the DST.

The GMSA's role is to establish (with input from the Programme Manager and Co-ordinator) and distribute the proposal submission and review process for grant applications, to distribute allocated grants, and to track and report to the Programme Co-ordinator (SANBI) and the Global Change Programme Director (NRF) on allocation to and expenditure by grant holders.

3.5 Financing support

The Programme is funded by the DST through the Global Change Programme. SANBI provides in-kind co-funding in terms of the salary of the Programme Manager, and the salaries of other staff who will be involved in aspects of data management and dissemination, provision of office space and associated facilities, and access to IT infrastructure.

3.6 Key stakeholders

The key stakeholders include:

- Academics and researchers at higher education institutions, government departments, science councils and parastatals, museums, herbaria and other natural science collection facilities. Role: generation of knowledge and use and application of knowledge and data.
- Decision-makers, including spatial planners and policy developers in municipal, provincial and national government and institutions such as SANBI. Role: identification of gaps and knowledge needs, application of knowledge generated for science-based policy and decision-making and planning.
- Civil society and communities. Role: contribute as citizen scientists to generation of knowledge; users of knowledge.
- Private sector industry: users of knowledge and data for planning and for unlocking economic opportunities.
- Consultants (environmental impact assessment consultants). Role: contributors of information and users of knowledge.

3.7 Risks/barriers

3.7.1 Current barriers to achieve the stated objectives

While “Foundational Biodiversity Knowledge” plays an essential role in facilitating understanding of ecosystem services and goods, its link to sustainable use of biodiversity for societal benefits and policy input is indirect. This often makes its relevance less attractive compared to other more exciting areas of research where the outputs can directly feed into societal benefits or policy. In addition, this aspect of research often deals with descriptive science and is therefore not perceived as cutting-edge.

An additional challenge is that researchers who generate the information on essential biodiversity variables, and those practitioners who use this type of information in research or decision-making generally work in isolation from each other, resulting in misalignment in what knowledge is generated and what is needed and used. The uptake of the outputs of this foundational science by practitioners further up the value chain and closer to the science-society and science-policy interfaces is rather low due to these blockages.

Traditionally there has been little alignment between priorities and focus areas, which reduces the impact of the outputs, and there is also duplication of effort, loss of data and little synergy in shared expertise across projects. There are also many uncoordinated mechanisms for storing and disseminating the knowledge and data generated and no generally accepted means of ensuring long-term security and broad, open access.

3.7.2 Risks to Programme achieving its objectives and proposed measures to address risks

- **Insufficient participation**

There are approximately 200 taxonomists who are responsible for generating the type of knowledge that is the focus of the Programme. This is a fairly substantial capacity base but there is a risk that insufficient individuals will be willing to participate in a programme that requires extensive collaboration and team work, and that has an untraditional approach, deliverables and scope.

This risk must be addressed through a communications strategy to promote the Programme and highlight the outputs and their impacts. A regular forum is a mechanism to generate interest in participation. These communication activities will be the responsibility of the Programme staff.

- **Negative impact on the discipline of taxonomy**

The need for ring-fenced funding for taxonomy, because of its importance to other biodiversity-related disciplines, and the decline in capacity and outputs was recognised by the DST in 2002 and was the rationale for the establishment of SABI.

The FBIP funds a limited number of projects and while these involve large teams of researchers, it is likely that some researchers will not be able to align their expertise within any of the funded projects. The work that they do may be highly relevant and of high quality, and without access to funding, the research could collapse. In order to address this risk, limited funds will be allocated for strategic interventions. The extent of this funding must, however, remain capped to ensure that the bulk of the research funding is directed towards achieving the strategic objectives. There are also other funding streams through the NRF that taxonomists can access.

- **Loss of focus**

There is a risk that funding applications to the NRF will be referred to the FBIP even if they fall outside its scope. There is also a risk that funds become diverted to activities higher up the value chain at the expense of the foundational knowledge generation, or that projects funded do not produce the outputs required by the FBIP. This will need to be monitored by the Programme Manager and Co-ordinator, and the scoring criteria for proposal assessment will need to ensure that FBIP objectives are addressed.

- **Lack of delivery of data / knowledge outputs by grant holders**

While SABIF required that funded projects deliver the data mobilized to SANBI, NRF-funded research does not have this requirement. This means that there could be low levels of delivery of data, either because researchers are reluctant to share data, or the data may not be in an appropriate form to enable its integration and application, or there may simply be a lack of delivery on the outputs stated in the project proposals. Approaches to address these risks include the development of guidelines for delivery of data outputs, the ineligibility of grant holders who have not delivered data for future grants, and training to ensure that data standards are met.

4. Modus Operandi

4.1 Funding approaches

There are two different funding approaches in the Programme:

- Large, integrated team projects: two- step process, i. Concept document call, evaluation and selection for full development (4 concepts selected); ii. Development of full proposals for selected concept documents, evaluation, selection of 1 to 2 full proposals for funding for a three-year period.
- Small grants: managed through the NRF to address key strategic gaps in information and knowledge. A call will be distributed for applications annually and projects will usually be funded for one year only. Depending on funding cycles and availability, two year grants may also be made but this will be specified in the call.

4.2 Call for proposals

- Integrated team projects: A call for concept notes opens during the year. All endorsed concept note applications must be submitted electronically via the NRF's Submission system at <https://nrfs submission.nrf.ac.za>.
- Concept notes will be assessed by a panel and a limited number (usually 4) will be selected for further development into full proposals. There will not be an open call for full proposals.
- Small grants: A call for small grants opens during the year. All applications must be submitted electronically via the NRF's Submission system at <https://nrfs submission.nrf.ac.za>.
- All applications **must** be endorsed by the research office of the principal applicant before submission to the NRF. It is the responsibility of each applicant to familiarise themselves with the internal closing date, set by their institution in order to meet the NRF closing date. Incomplete OR late submissions will not be accepted.
- At each phase of the integrated team projects (Concept note and Full proposal) and for Small grants, applicants must ensure that their Curriculum Vitae are updated on the NRF Submission system.
- All outputs that were entered by researchers on the NRF Online system were migrated to the NRF Submission system. When logging on to the NRF Submission system, researchers are requested to verify their outputs on the Landing Page by selecting the type of output under the heading "To be Reviewed" and verifying each output individually until there are none left to be reviewed.

4.2.1 Eligibility

- Researchers working towards the generation and mobilization of foundational biodiversity knowledge are the priority target group for accessing programme funding.
- Only researchers based at NRF recognized research institutions in South Africa are eligible to apply as a principal investigator. Team members and collaborators can be based at other institutions, or be associated with appropriate citizen scientist associations.
- For the integrated team projects, funding will only be allocated to projects involving more than one institution, but teams

must be led by an identified principle investigator. Funds will be made to a recognised research institution under the name of the principle investigator who can allocate part of the grant to team member institutions.

4.2.2 Programme focus areas

Integrated team projects:

Projects falling within the following focus areas have been identified for support in 2015/16:

1. Resolution of taxonomic problems, and documenting distribution and abundance of plant and animal species used for medicinal purposes in South Africa.
2. Biological control: identification of potential biocontrol agents through being able to identify the pest / pathogen / alien and its origin, the identification of natural predators / pathogens of it, and close relatives of the host and potential agents.
3. Coordinated surveys for soil organisms and identification of functional roles in agri-ecosystems and natural areas and the co-ordination of existing information on soil organisms in South Africa.
4. Biodiversity functionality. Better understanding of key functional attributes of different species in ecosystems, and the key interactions between them, focusing on terrestrial regulatory services systems (developing an understanding of the system using a functional approach). Regulatory services include invasion resistance, pollination, climate regulation, carbon sequestration, pest and disease control in agricultural systems.
5. Multi-taxa surveys of strategic geographic areas (eg. new or proposed protected areas, areas targeted for development, areas with high levels of dependence on biodiversity for livelihoods, areas of importance for providing ecological infrastructure) that produce inventories, integrated information for species recorded (species pages, DNA barcodes, species occurrence and abundance data). Mobilization of existing records for the species recorded or for the area could also be included in the project.

Small strategic grants:

These will be called for on an annual basis. The criteria are:

- The strategic value of the data or knowledge that will be generated / made accessible through the grant must be clearly explained and motivated (what will change because the knowledge is generated / data made available?).
- The data / knowledge should be clearly and directly linked to the main focus of the Programme (bio-economy and global change), but it may fall outside of the five focus areas listed above.
- Grants can be used for taxonomic research, mobilisation of primary data (specimen records), generation of DNA barcodes, compiling species information or for data management / dissemination innovations.
- The grants must result in the release of the data to the FBIP / SANBI for archiving, integration, management and dissemination.

4.2.3 Eligibility criteria

The following eligibility criteria are applicable for the large integrated team projects:

- Projects must include postgraduate training.
- Projects must include a minimum of five team members from a minimum of three institutions, but teams that involve all relevant specialists will be favoured.
- Project teams must include at least one young researcher (younger than 40 at the time of application) and ensure adequate mentorship and involvement as necessary.
- Projects must identify specific users of the knowledge generated and information co-ordinated and must indicate how engagement with users has been or will be addressed to ensure that data needs are met in terms of what is generated and mobilized and how it is accessed by users.
- Projects must indicate the impact of the project on understanding and mitigation of global change and / or the bio-economy.
- Projects must generate primary biodiversity data sets.
- Projects must contribute to the compilation of species pages for the EoL.
- Projects must provide specimens for barcoding or produce DNA barcodes.
- Projects must be in line with one of the priorities identified.
- Successful applicants must sign the Conditions of Grant (COG) agreement.

For the small grants (and Biodiversity Surveys when called for) the following eligibility criteria are applicable:

- Only researchers at NRF recognized research institutions in South Africa are eligible to apply as the principal investigator.
- Researchers / citizen scientists not based at an NRF recognised research institute can be a team member or co-investigator on a small grant proposal but then there must be a principle investigator (PI) who is based at a research institute on the proposal.
- Projects must identify specific users of the knowledge generated / information co-ordinated and must indicate how the data will be made accessible.
- Proposals must indicate how the project will impact on understanding and mitigation of global change and / or the bio-economy.
- The data generated or mobilized through the grant must be provided to the FBIP / SANBI in an appropriate format at the end of the project. This is to ensure that the data can be archived, integrated and made accessible for a range of applications and products.
- Successful applicants must sign the Conditions of Grant (COG) agreement.
- Grant holders from the previous round of funding who have not submitted data from their project are not eligible to receive further funding from the FBIP until the data have been submitted.

4.3 Rules of participation

For the Concept Note applications (large integrated team projects) to the Foundational Biodiversity Information Programme, the core research team consists of a principal investigator and a co-investigator(s). In addition, the principal investigator (i.e. the applicant) must be an active researcher who takes intellectual responsibility for the project, its conception, any strategic decisions called for in its pursuit, and the communication of results. The principal investigator must have the capacity to make a serious commitment to the project and cannot assume the role of a supplier of resources for work that will largely be placed in the hands of others. S/he will take responsibility for the management and administration of resources allocated to the application.

A co-investigator is an active researcher who provides significant commitment, intellectual input, relevant expertise into the design and implementation of the research application. S/he will be involved in all or at least some well-defined research activities within the scope of the application. South African-based co-investigators are eligible to receive NRF funds from the grant if the team's application is successful. (Please note that post-doctoral fellows, students, technical and support staff should not be listed as co-investigators.)

The project may also include research associates / collaborators. These are individuals or groups who are anticipated to make relatively small but meaningful contributions to the research endeavours outlined in the application. Research associates/collaborators will not actively participate in the design and implementation of the research application. They are not considered a part of the core research team.

4.4 Application process

Table 1: Guidelines to application process

Assessment Process	Panel-peer review: Panels will be selected based on their broad experience in terms of the respective knowledge field and their research standing.
Assessment criteria	The score card below (Table 2) will be used
Where and how to apply?	All applications must be submitted via the NRF's Submission System https://nrfs submission.nrf.ac.za . Please select the Foundational Biodiversity Knowledge and Information Research Funding Programme Call under Create New Application.
Documentation required	All documents must be submitted online and these include the following: <ol style="list-style-type: none">1. Completed application form (please ensure that CV is updated)2. Letters from co-investigators confirming their participation in the proposed research3. Any additional supporting documents
Funding decision	In general, the NRF's funding decisions are informed by the review panels' total

process	weighted score for each assessed application. The NRF will fund the top-scoring applications within the programme specific budget.
Feedback	In principle, feedback on the assessment of the application is regarded as a crucial value-adding function of the NRF. In a limited number of cases, feedback from panel members who evaluated your application will be sent. These selected comments will be provided to give insight into some of the thinking that informed the grant decision-making process, and to give constructive support to applicants.

Table 2: NRF Scorecards for assessment

Each criterion is graded on a scale as follows:

Scoring scale to be used		
Score	Meaning of score	Notes
4	Excellent	It is clear that the proposed research and application could not be improved within the specific context.
3	Above average	The proposed research and application is above average but could still be improved within the specific context.
2	Average	Both the research application and proposed research is average within the appropriate context.
1	Below average	The application and proposed research is below average. This could be improved with amendments/revisions.
Context		
Note: The scoring process must be made with sensitivity to the context in which the proposal is made. The context will include the research field or discipline. It will also include other relevant influences such as societal and institutional textures.		

Concept documents (Large integrated team projects):

Foundational Biodiversity Information Programme: Concept documents					
*Alignment to Programme and focus areas must score minimum of 3 to be scored further					
Criteria	Subcriteria	Details	Score / 4	Weight (total = 100%)	Weighted score (total=4)
Track record of PI	Past record in research and leadership / management	Publications, conference presentations, project management experience		20%	
*Concept alignment to Programme		Foundational biodiversity knowledge / information generation, co-ordination, dissemination and application. Project concept within one of the focus areas identified		20%	
Feasibility		Is there a workplan with reasonable timeframes for activities and team?		30%	

*Outputs and Impacts	Outputs Impacts	What are the anticipated outputs? What will the impact of the outputs be on global change understanding and / or the bio-economy? Are these realistic?		30%	
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Full proposals (Large integrated team projects):

Foundational Biodiversity Information Programme					
Criteria	Subcriteria	Details	Score / 4	Weight (total = 100%)	Weighted score (total=4)
Track record and team	Past record in research and leadership / management of team leader	Publications, conference presentations, project management		10%	
	Team members specified with expertise and role in project	Different institutions represented; relevant expertise involved. If the concept aims to include role players along the entire value chain has this been adequately addressed?			
Capacity development	Young researcher/s involved	Young researcher/s identified and role specified		10%	
	Postgraduate training opportunities outlined				
Proposal	Quality of the proposal document	Is there a clear aim and objectives that align with the objectives of the Programme? Are the proposed activities in line with the objectives? Are the anticipated outputs aligned with those of the Programme? Does the proposal indicate a solid understanding of foundational biodiversity knowledge generation and information sources and requirements?		20%	

Feasibility		<p>Is there a detailed workplan with specific activities and outputs? Is there a clear schedule and reasonable timeframes for activities and outputs?</p> <p>Are the roles and contributions of all team members specified?</p> <p>Is the budget reasonable considering the proposed activities and outputs?</p> <p>Is there sufficient detail in the budget to allow assessment of feasibility?</p>		30%	
Impacts		<p>Have the impacts on global change and / or the bio-economy been specified? Are these realistic?</p> <p>Have the users of the knowledge / information been identified?</p> <p>Will there be a direct or indirect change in global change understanding / mitigation or economic opportunities because of the project?</p> <p>Has consideration been given to the format in which the knowledge / information will need to be made accessible (even if this is not done by the project)?</p>		30%	

Small grants and Biodiversity Surveys (when offered):

<p align="center">Foundational Biodiversity Information Programme</p>					
<p align="center">*Applicants must score a minimum of 3 for Feasibility to be scored further</p>					
Criteria	Subcriteria	Details	Score / 4	Weight (total = 100%)	Weighted score (total=4)

Track record of applicant	Past record in research and expertise in foundational biodiversity information	Publications, conference presentations		10%	
Proposal	Quality of the proposal document	Is there a clear aim and objectives that align with a problem statement and with the objectives of the Programme?		20%	
*Feasibility	Workplan	Is there a detailed workplan with reasonable timeframes for activities and outputs? Are the roles and contributions of all participants specified?		30%	
	Budget	Is the budget reasonable considering the proposed activities and outputs? Is there sufficient detail to allow assessment of feasibility?		20%	
Impacts		Have the impacts on global change and / or the bio-economy been specified? Are these realistic? Have the users of the knowledge / information been identified? Has consideration been given to the format in which the knowledge / information will need to be made accessible (even if this is not done by the project)?		20%	

4.5 Management of Programme

SANBI is responsible for managing the implementation of the Programme in order to achieve the specified outputs in the Business and Strategic Plans. SANBI (Programme Manager) will liaise with the NRF Global Change (GC) Programme Director to report on the Programme to the DST. The GMSA manages the grant call distribution, the online submission system, the panel review process, grant disbursement, tracking of expenditure by grant holders and reporting to the Programme Manager and GC Programme Director on expenditure. A Steering Committee provides strategic direction for the FBIP.

5. Financials

5.1 Funding model

The funding is allocated from DST to the NRF as ring-fenced funds as part of the Global Change Programme grant.

Operating funds are allocated from the NRF to SANBI on an annual basis.

5.2 Funding ranges

- No funding is available for the development of the concept notes.
- Limited seed funding for meetings of the teams to develop the four selected concept documents to full proposals is available (R20,000 per team). For the full projects the range of funding available is R500, 000 to R2 million per annum for a three year period (R1, 500,000 - R6, 000,000 in total per project).
- For the small projects funding will range from R50, 000 – R200, 000 per annum.
- For selected strategic themes, biodiversity surveys or projects identified by the FBIP Steering Committee, the value of small grants may be higher than the usual maximum. .

Student support values

- | | |
|---|----------------|
| • Honours / Final year BTech student assistantships (full time) | R 20 000 p.a. |
| • Masters (full-time) | R 80 000 p.a. |
| • Doctoral (full-time) | R 120 000 p.a. |
| • Postdoctoral fellowship (pro rata per month) | R 200 000 p.a. |

Note: According to the NRF Bursaries, Scholarships Value, Rules and Guidelines document, for:

- Honours and Final year BTech student assistantships (full time), only South African citizens are considered, with a minimum of 50% black (inclusive of African, Indian and Coloured).
- Masters and Doctoral bursaries are awarded according to the following ratios: 87% South African (including permanent resident), 5% SADC, 4%; rest of African continent and 4% from non-African countries. These ratios need to be applied at the FBIP level.
- Postdoctoral Fellowships: No ratio applies.

5.3 Funding support

Seed funding is a once off payment in order to assist teams whose concept note is selected for further development, to develop full proposals.

A total of three full projects (including one already supported in 2013/14 and 2014/15 and two new projects)) will be supported in 2015/16, with one new project being added in 2016/17. All of these projects will run for three years.

For the small strategic grants, the amount of funding and the number of grants disbursed will depend on the number of applications submitted and the amount allocated to this part of the Programme by the FBIP Steering Committee.

All funding allocated through the Programme will be for research purposes under the auspices of the NRF standard grant and finance policies.

5.4 Programme budget

The total budget for the large integrated team projects is **R6 million for the year 2015/16**. The proposed budget for the small strategic projects is usually **R1.5 million per annum**, although additional funds are available in 2015/16 for strategic biodiversity surveys which was identified as a priority by the FBIP Steering Committee

5.5 Financial control and reporting

Financial reporting is done by GMSA; and a written approval for continuation of the large integrated projects will be given annually to the team leader of the project by the Programme Manager. Integrated projects will be supported for up to three years on condition that:

- Sufficient progress is demonstrated annually through the submission of an annual progress report (APR) and through the oral presentation of progress reports at an annual technical visit;
- There is sufficient evidence of scientific outputs/outcomes and critical mass involved in the project.

These grants are to be used for research purposes under the auspices of the NRF standard grant and finance policies. The money is released on acceptance of the conditions of grant both by the applicant and his/her employing institution. These grants will fall under the NRF audit requirements of beneficiary institutions.

6. Monitoring and evaluation of the Programme

6.1 Reporting

- Quarterly reporting: Grant uptake / expenditure for each project (GMSA to report to Programme Manager and Global Change Programme Director).
- Annual reporting: progress against outputs specified in the Performance Plan for the Programme (see table); total grant allocation and expenditure for the year, budget and expenditure against budget on items other than grants. (Programme Manager to Global Change Programme Director to integrate into overall reporting to DST on Global Change Programme).

Table 3: Key Performance Areas and Targets for annual reporting (2013-2017)

KPAs	Strategic Objectives	Targets	Timeframes
1. Allocation of funds to integrated projects which generate and provide foundational biodiversity knowledge according to priority needs	1. Generate knowledge and mobilise existing data to address priority knowledge / information gaps identified by consultation or involvement of relevant stakeholders who use and apply foundational biodiversity information in decision-making for sustainable use and development	3 projects funded and implemented	2013: 1 project funded and completed in 2016 2014: 1 project funded for completion in 2017 2015: 1 project funded for completion in 2018 2016: 1 project funded for completion in 2019
2. Co-ordination of	2. 1. Contribute content to an		2016/2017:

foundational biodiversity knowledge / information generated or compiled through the projects for dissemination	integrated information management and dissemination system to provide long-term access to outputs from the FBIP.	<p>Targets for 2017:</p> <p>i. A national inventory of all South African species to include 70% of South Africa's species</p> <p>ii. Co-ordinated species pages for priority species in South Africa: 900 species pages compiled</p> <p>iii. 700,000 specimen records (primary data) assembled</p> <p>iv. Barcode data obtained and co-ordinated for 900 species</p>	<p>inventory:</p> <p>100% plant species (24,000)</p> <p>80% animal species (50,000)</p> <p>50% fungi and microbe species (6,000)</p> <p>Species pages:</p> <p>2013: 100 species</p> <p>2014: 200 species</p> <p>2015: 300 species</p> <p>2016: 300 species</p> <p>Species occurrence records:</p> <p>2013: 100,000 records compiled</p> <p>2014: 200,000 records compiled</p> <p>2015: 200,000 records compiled</p> <p>2016: 200,000 records compiled</p> <p>Barcode data:</p> <p>2013: 100 species</p> <p>2014: 200 species</p> <p>2015: 300 species</p> <p>2016: 300 species</p>
	2.2. Publication of knowledge generated in the scientific literature	30 papers published	<p>2014: 10 papers published</p> <p>2015: 15 papers published</p> <p>2016: 15 papers published</p>
3. Capacity development for biodiversity knowledge generation, dissemination and application.	3.1. Training of postgraduate students in the generation, management and dissemination of foundational biodiversity knowledge.	<p>Minimum of 5 postgraduates involved in each large funded project (includes Hons, MSc and PhD)</p> <p>Minimum of 5 postgraduates involved in small projects per annum</p>	<p>2016/2017: 20 students graduated / registered</p> <p>2016/2017: 20 students involved in projects</p>
	3.2. Development of capacity for application / use of the knowledge / data.	<p>Minimum of 3 courses run for researchers involved in programme</p> <p>Minimum of 3 courses run for data users</p>	<p>2015: 2 courses run</p> <p>2016: 2 courses run</p>
	4.3. Provision of opportunities for emerging researchers.	Minimum of 2 emerging researchers involved in each funded project	<p>2013: 4 emerging researchers participating in programme</p> <p>2014: 8 emerging researchers participating in programme</p> <p>2015: 12 emerging researchers</p>

			participating in programme 2016: 12 emerging researchers participating in programme
4. Developing an understanding of best practices for ensuring that foundational biodiversity knowledge generated and disseminated is taken up for use and application in decision-making and sustainable use	4.1. Monitoring the uptake and application of the knowledge generated for decision-making and creating economic activities	Annual reporting by principle investigators on contribution of research to decision-making / economic benefits Annual measurement of the number of visits to integrated website, number of records downloaded Survey of application / use of data	Report produced on use of data provided on web site.
	4.2. Promotion of the programme and its outputs to increase use and application of the knowledge	Minimum of six media releases / articles per annum on programme and outputs (18 in total for period) Promotional information on programme and outputs and updates to be distributed electronically through list servers, on appropriate websites and at relevant conferences / forums (15 in total during reporting period)	2013: 6 media releases, 3 promotional releases distributed 2014: 12 media releases, 6 promotional releases distributed 2015: 12 media releases, 6 promotional releases distributed 2016: 12 media releases, 6 promotional releases distributed

6.2 Timeframes for evaluation

The Programme will be evaluated after three years. An evaluation panel (maximum of 3 members) will be constituted to evaluate the following:

- outputs of the Programme relative to the strategic objectives and targets,
- impact of the Programme in terms of the uptake and application of knowledge generated,
- financial aspects of Programme (administrative vs disbursement of grants),
- appropriateness of the governance structure and functioning.

6.3 Broad terms of reference for evaluation

Evaluation of the Programme will require that the following be assessed:

- To what extent were the targets specified in the Strategic Plan and Business Plan of the Programme achieved?
- To what extent were the broader strategic objectives achieved?
- What has the impact on the Programme been in terms of research, decision-making and economic opportunities?

This evaluation will require access to databases of outputs, but interviews with stakeholders who need and use the knowledge and information will also be required to allow a qualitative assessment.

The evaluation must also include an analysis of the expenditure in terms of administrative vs research operations vs capacity development, and an analysis of the governance structures and administrative efficiency and effectiveness.

The evaluation process should also include the identification of future priorities that need to be addressed in the projects funded.

6.4 Utilisation of the results of the evaluation

The evaluation will be used to review and revise administration and governance of the Programme, to review and revise the strategic objectives and targets, and to review and revise the priority themes and approach to projects and grants.

Contact details

REFER QUERIES TO	
Programme Co-ordinator:	Grant Officer:
Name: Dr Lita Pauw Tel: 012 843 5113 email: L.Pauw@sanbi.org.za	Name: Mmamokete Mabuela Tel: 012 481 4088 email: mmamokete.mabuela@nrf.ac.za

LIST OF ACRONYMS

CBD – Convention on Biological Diversity

DST – Department of Science & Technology

EoL – Encyclopedia of Life

FBIP – Foundational Biodiversity Information Programme

GC – Global Change

IBOL – International Barcode of Life

NFR – National Research Foundation

SANBI – South African National Biodiversity Institute

SABIF – South African Biodiversity Information Facility

SABI – South African Biosystematics Initiative