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Call for proposals, Water-Energy-Food nexus in the urban context, Nederlandse Organisatie voor Wetenschappelijk Onderzoek

Cooperation South Africa (NRF) - The Netherlands (NWO) programme

National Research Foundation (NRF) and NWO-WOTRO Science for Global Development

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1 Introduction

1.1 Background

There is a long history of scientific collaboration between South Africa and the Netherlands. The Dutch Research Council (NWO), through the Merian Fund¹, and the National Research Foundation (NRF) of South Africa aim to further stimulate long term research collaboration between their two countries by funding joint research, to strengthen the international position and global impact of their research. Funding is provided for interdisciplinary and transdisciplinary consortia of South African and Dutch research groups and stakeholder partners, for high quality research that has the potential for societal and scientific impact.

NWO and NRF have agreed on strategic knowledge and innovation agendas. A call for proposals on a jointly agreed theme based on this agenda is published annually. Funded research should be aligned with national research agendas, as well as international initiatives such as the UN Sustainable Development Goals. The collaboration is characterised by an impact-focused approach towards broad societal challenges, is interdisciplinary in nature, and involves societal partners throughout the process.

1.2 Available budget

The total budget for this call is $M \in 1.4$ on the Dutch side, and R6 Million (i.e. $\in 360,000$) on the South African side. NWO and NRF aim to fund two projects of three (on the South African side) to four (on the Dutch side) years. Projects can apply for a maximum of $\in 700,000$ at NWO for four years and a maximum of R3 Million (i.e. $\in 180,000$) from the NRF for three years (not more than R1 Million, i.e. $\in 60,000$, per annum).

The Merian Fund is an initiative of NWO, and aims to stimulate long-term collaboration with important (emerging) science nations. The Merian Fund focuses on broad scientific themes of societal importance that require a mission-oriented approach. The Merian Fund cooperates with seven partners in five countries: FAPESP (Brazil), NSFC and CAS (China), DST and DBT (India), RISTEKDIKTI (Indonesia) and NRF (South Africa). WOTRO Science for Global Development is responsible for the implementation of the calls under the Merian Fund.For more information, see: www.nwo.nl/merianfund.



1.3 Validity of the call for proposals

The 2020 Merian NRF-NWO call for proposals has three phases:

- an initiative announcement and matchmaking phase;
- a preliminary proposal submission phase;
- a full proposal submission phase.

The deadline for the submission of research initiatives (not mandatory), which are to be submitted to NWO, is 1 October 2020, 14:00:00 hours CET.

The deadline for the submission of preliminary proposals (mandatory), which are to be submitted to NWO, is **3 November 2020, 14:00:00 hours CET**.

The deadline for the submission of proposals is:

- 30 March 2021, 14:00:00 hours CEST (for the submission of full proposals to NWO)
- 31 March 2021, 23:59:59 hours SAST (for the submission of full proposals to NRF)

2 Aim of the programme

Many societal challenges are global in nature, and require flexibility and creativity to find solutions. The collaborative research financed by NWO and NRF in this programme is intended to work towards scientific knowledge and innovative solutions for high scientific and societal impact. At the same time, NRF and NWO aim to enhance and strengthen sustainable research collaboration between their two countries, by inviting consortia in which researchers from knowledge institutions from both countries will work with societal partners from public, semi-public and private organisations, in order to increase the societal relevance of their research.

This programme therefore, serves as a national and regional research platform designed to provide the knowledge needed to support transformations towards sustainability. The programme seeks to:

- Build and connect knowledge to increase the (societal) impact of research;
- Explore new development pathways, and;
- Find new ways to accelerate transitions towards sustainable development.

Through this programme, South Africa and the Netherlands aim to bring together partners in society to co- create the knowledge needed to support decision-makers and contribute to societal change at all scales and in diverse contexts, by focusing on the Water-Energy-Food (WEF) nexus as the main research area. This nexus is a global, regional and national challenge that cannot be solved by one country alone. It requires multi- country partnerships, multi- and interdisciplinary research.

For South Africa it is imperative that the WEF nexus approach is closely aligned to the National Development Plan (NDP). For the Netherlands, alignment to the National Research Agenda (NWA) is important, including in the way the project is executed, such as through greater involvement of the entire knowledge chain. Proposals should furthermore link to the SDGs, particularly to SDGs 2 (zero hunger), 6 (clean water and sanitation) and 7 (affordable and clean energy).

2.1 Thematic call focus: The Water-Energy-Food nexus

The aim of this call is to support research into the WEF nexus with a view to enable suitable policy responses at particularly the local government level in urban contexts. Studies should have a clear methodology explaining how the WEF nexus approach can be integrated in governance and planning to support decision making for resilient cities.

2.1.1 The Water-Energy-Food nexus

The Water-Energy-Food (WEF) nexus has attracted interest over the years from academics and policy makers. The WEF nexus, first conceptualised at the Bonn 2011 conference, implies that the production and consumption chain of water, energy, and food resources are all intricately related and cannot be easily separated². Composition and production patterns of one sector affects the other, for example, decline in rainfall may mean inability to produce hydroelectricity as well as poor food security due to decline in crop yields. Thus there is a need to integrate water-energy-food in development planning. The WEF nexus therefore looks at the gleaning, interactions, that is – interlinkages, synergies, and

Mahlknecht, González-Bravo, & Loge (2020) Water-energy-food security: A Nexus perspective of the current situation in Latin America and the Caribbean.
Energy, 194, 116824



trade-offs – between water, energy and food³. Comprehending the spatial, temporal, governance, capacity building dimensions of the WEF nexus are crucial in facilitating planning that leads to progress towards attaining the Sustainable Development Goals (SDGs)⁴, climate change mitigation and adaption and better human well-being particularly the poorest in society⁵.

2.1.2 Urbanisation and the WEF nexus

An increasing part of the global population is living in urban areas. Urban areas are complex Socio-Ecological Systems (SES) that are deeply interconnected, allowing changes and events to cascade through the entire system, often creating surprising consequences. Ecological systems provide ecological infrastructure and services without which we cannot survive. The societal component of the SES includes the economic, social, legal, political, financial and governance systems that underlie organised societies. While the natural environment determines the availability of essential resources such as water, energy and food, access to these resources is governed by social systems. Consequently, there can be a disconnect between the availability of WEF resources and a community's access to them.

2.1.3 South Africa and Urban WEF nexus challenges

Sub-Sahara Africa is one of the world's fastest urbanising regions⁶. In particular, South Africa is rapidly urbanising, with 65 percent of its nearly 60 million people already living in small towns, cities and metropolitan regions. The urbanisation rate in South Africa is expected to rise to about 80 percent by 2050⁷, with the majority of people living (71 percent) in large cities, some 8 percent in small towns and dense rural settlements and only one-fifth of the population in rural areas. This implies that of the 17 million additional people in South Africa by 2050, 13.4 million will need homes, water, energy and access to food in urban areas. The challenge of meeting these needs is enormous given the WEF problems already facing the country:

- South Africa is already water stressed and climate change is already affecting the availability of water to urban areas⁸. Water is also a critical input for agriculture and uses about 70 percent of the available water
- Energy has become a crisis in the country as Eskom struggles to keep up with demand and
 electricity tariffs have increased dramatically, reducing the affordability of electricity for the poor.
 Furthermore, South Africa is committed to move from its heavy reliance on coal powered energy
 to renewable energy.
- A recent Oxfam report⁹ has warned that food insecurity is a growing problem in South Africa, and this problem was exposed during the COVID-19 lockdown.

The challenges urban areas face in South Africa are similar to problems in other cities around the globe. Therefore, research into the urban WEF nexus in South Africa will also be highly valuable for other contexts.

2.1.4 Research foci

The research projects funded in this call should focus on at least one of the following research foci:

The current state of the WEF nexus in urban areas

The WEF nexus looks at interlinkages, synergies, and trade-offs between water, energy and food. Research proposals can focus on the current state of WEF in urban areas, with a focus on low income townships and informal settlements. This includes the challenges that communities and local governments face in providing potable water, affordable and sustainable energy and healthy food. This pertains to household and local level challenges including temporal and spatial dimensions, as well as their systemic and cumulative impacts.

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³ Biggs et al., 2015 (4); Mahlknecht, González-Bravo, & Loge, 2020 (1); Conway et al., (2015) Climate and southern Africa's water-energy-food nexus. Nature Climate Change, 5(9), 837–846. doi:10.1038/nclimate2735

United Nations (2015) Transforming our World: The 2030 Agenda for Sustainable Development. New York: United Nations.
 Biggs et al. (2015) Sustainable development and the WEF nexus: A perspective on livelihoods. Environmental Science & Policy, 54. 389–397.

Saghir & Santoro (2018) Urbanization in Sub-Saharan Africa. Washington, DC: Center for Strategic & International Studies.

Data Sourced from Draft National Spatial Development Framework, 2019

E.g. Beaufort West, Kroonstad. Cape Town was also in dire straits in 2016–2018. Warnings have been sounded regarding low dam levels providing water to the Gauteng region. sounded regarding low dam levels providing water to the Gauteng region. https://m.engineeringnews.co.za/article/dam-levels continue-to-drop-in-south-africa-2020-06-25

https://www.news24.com/fin24/Economy/South-Africa/thousands-may-die-daily-from-hunger-due-to-covid-19-and-sa-is-a-new-hunger-hotspot- 20200710?isapp=true



Research could also focus on technical innovations that could be implemented in urban areas related to these interlinkages, synergies, and trade-offs in the WEF nexus.

Governance challenges and socio-technical arrangements

There is a strong social component to the WEF nexus, as WEF resources are governed by social systems. Research proposals can focus on governance challenges, including the capacity of small urban municipalities, in delivering WEF to their communities. Looking for clarity on how those sectors which operate according to intrinsic logics could actually be better aligned and how 'integrated' WEF policies could be designed and implemented. Such attempts at reconciling and integrating established water, energy, and food regimes come with considerable complexities that need to be addressed more systematically. Research could also focus on socio-technical transformations across system boundaries or progressive transformations for technological interconnections, operational, financial and institutional interdependencies and governance interfaces of WEF transformations.

The provision and use of water, energy and food services in South African cities depend on heterogeneous SES and hybrid socio-technical arrangements with multiple combinations of networked and non-networked infrastructures, of public, private and self-organized service (co)providers, or of publicly planned and incrementally developed service provision. Vulnerabilities to WEF crises but also progressive nexusing initiatives vary considerably within a city. What is required is research and progressive policies that can better address how WEF transformations are shaped by, and shape, those place-based contexts (e.g. livelihoods, economic, ecological and conditions).

Capacity building

Capacity building at local community, all spheres of government and the educational sector. There is a need for more research that can address how the WEF nexus can be mainstreamed in education and training; challenge existing structure, teaching pedagogies, perceptions and practices; and focus on citizen sciences and training where citizens co-learn, co-create, co-generate knowledge together with practitioners and researchers in comprehending the WEF nexus in cities.

Scaling for a regional/global perspective

Research into the urban WEF nexus in South Africa has the potential to be highly valuable for other contexts. The challenges urban areas face in South Africa are similar to problems in other cities around the globe. Therefore, research proposals can include a focus on the potential for scaling up or out to regional or global levels.

2.2 Integrated and flexible research approach

The challenges addressed in this call are interrelated and multi-scalar, and to reach impact require a holistic approach that spans the entire research and innovation chain. The consortia should crosscut scientific disciplinary boundaries (interdisciplinarity) and integrate scientific and practitioners' knowledge in joint research (transdisciplinarity). Research should focus on the entire knowledge chain, from fundamental to applied and practical research. The proposed research itself should be characterised by integrated perspectives. It should evolve in a process of co-creation with different partners: researchers from both countries and societal partners should be actively involved throughout the entire project, in (advising on) defining and conducting the research as well as in communicating the progress and results, in order to jointly produce a mutually valued outcome. Added value may be achieved by integrating and synthesising various sources of knowledge to create new knowledge and by creating sustainability through the development of long-term knowledge relations.

Proposals should be based on a thorough review of existing knowledge and should preferably be complementary to existing research initiatives and reinforce these were possible. Project teams are encouraged to use a combination of quantitative and qualitative and quasi-experimental research methods, including operational research, and should include research-into-use approaches.

Research consortia have to adopt a flexible and stepwise research approach and project management, in order to accommodate the intermediate feedback and/or changing realities in policy and practice and to maximise the relevance, potential for use and the sustainability and scalability of results. Throughout project duration, consortia will proactively engage with relevant stakeholders, including policy dialogues. As a consequence, research protocols, planning, design and budget may need further refinement or revision along the way to maximise the relevance and potential impact of research findings. Kick-off and mid-term stages in project execution are formal moments to reflect on and adapt the research process.



Projects are also expected to collaborate with the other project awarded in this call, so as to enhance the impact of the call aim as a whole. As a part of this, projects will be expected to contribute to (and attend) a joint kick-off, midterm and final workshops, as well as a final call conference. Projects should budget for this accordingly.

2.3 International collaboration

Proposals should furthermore be characterised by equal partnership and sustainable collaboration between the South African and Dutch partners. This includes inter-institutional cooperation, a balanced contribution to the proposed research, a focus on capacity building and a frequent exchange between the partners, including exchange visits by both senior and junior researchers.

Proposals should furthermore be characterised by equal partnership and sustainable collaboration among the South African and Dutch partners and with stakeholders. This includes inter-institutional cooperation, a balanced contribution to the proposed research, gender equality, a focus on capacity building and a frequent exchange between the partners and stakeholders and taking into consideration the South African transformation agenda¹⁰.

2.4 Impact Plan

The research conducted in this call for proposals should have relevance and potential for impact beyond the academic world, such as in societal, technical, economical or cultural realms. This is why, in addition to having a societal or industry partner within the consortium, consortia should consider how relevant stakeholders can be involved in, or benefit from, the design and realisation of the proposed research project.

To further enhance the potential for impact of the proposed research, the proposal should state how approaches for achieving impact are integrated in the research design and conducted by the consortium in engagement with end users, such as practitioners, policymakers, and industry. To this end, applicants are asked to elaborate an Impact Plan in the proposal that sets out the potential for impact of the proposed research. A gradual elaboration, refinement and regular adaptation of the Impact Plan is requested. The preliminary proposal should include the Theory of Change and an outline of strategic activities, the full proposal and Impact Plan.

An Impact Plan consists of the following elements:

- Productive interactions: Exchanges between researchers and stakeholders in which knowledge is produced and valued that is both scientifically robust and socially relevant. Examples of productive interactions are: formulation of research questions and approaches jointly with potential end-users (co-design), joint execution of research projects and interactive dialogue on research results (co-creation). Interactions can be direct/personal, indirect or financial. The quantity as well as quality of the productive interactions forms an indicator for the potential for societal impact.
- A Theory of Change describes how the research process can contribute to societal/economic change, taking into account the context, actors involved and describing the sequence of logically-linked consequential relations. Developing a Theory of Change in a joint effort with research partners as well as stakeholders allows for making explicit which (and whose) problem is being tackled, and how the desired change is perceived to happen through research efforts. Projections on expected change will be based on a myriad of assumptions; documenting these assumptions allows for reflection on whether and how expected pathways to impact remain adequate or need adjustment. A Theory of Change is not fixed, but rather reflected on continuously throughout the research process. For this reason, it is also used as part of the monitoring, evaluation and learning trajectory.
- The Impact Pathway, which is part of the Theory of Change, is the visualisation of the change process following from research execution as described in the Theory of Change. It makes explicit how the research activities will lead to results (output) and how exchange of knowledge and the uptake of research output will contribute to desired changes in behaviour, relationships, actions and activities of partners and stakeholders (outcome) that are considered essential to achieving the desired impact.
- A Strategic Activity Planning spells out how the proposed productive interactions contribute to achieving outcomes. Outputs do not automatically lead to outcomes, thus strategies are needed of the research consortium to plan and monitor how their efforts will enhance the potential for outcomes. This planning should include specific activities for:
 - Stakeholder engagement: Who are the relevant stakeholders to engage with according to context analysis, how are the productive interactions organised and when?

 $^{^{10}\,}$ See https://www.dst.gov.za/images/2019/White_paper_web_copyv1.pdf



- Communication strategy: How are engagement dialogues organised and results exchanged and translated, and whose responsibility it is?
- Monitoring, Evaluation and Learning: How are results of activities monitored and evaluated, such that assumptions can be tested and activities adjusted accordingly and whose responsibility is it?
- Capacity strengthening: How are required capacities (of consortium partners and stakeholders) strengthened in order to achieve the outcomes, how is this organised and whose responsibility is it?
- A Risk assessment entails a description of potential risks for the successful execution of your project and options for handling or mitigating these risks.

Please ensure to budget for activities related to your impact plan, being:

- Stakeholder engagement (e.g. consultation workshops, expert meetings, roundtable meetings etc.);
- Communication (e.g. international exchange events, videos, blogs, newsletters etc.);
- Monitoring, evaluation, and learning, including your project's kick-off, midterm, and final workshop, learning events and participation in the programme kick-off, midterm, and final workshop; and
- Capacity strengthening (e.g. (development of) trainings for researchers or stakeholders (organisations).

These activities should be placed under the budget module 'Knowledge utilisation' in the NWO budget or can be requested from the NRF budget.

For more information on knowledge utilisation, please read this leaflet.

3 Guidelines for applicants

3.1 Who can apply

Eligible consortia are composed of researchers based in the Netherlands and in South Africa, with active involvement in the project of a senior Principal Investigator (PI) on both the Dutch and the South African side. Specifically, the Dutch and South African sides of the consortium must fulfil the following requirements:

Dutch side of the consortium:

- One Principal Investigator who fulfils the requirements of 3.1.1.

South African side of the consortium:

- One Principal Investigator who fulfils the requirements of 3.1.1;
- If the Principal Investigator is not employed at a historically disadvantaged university, a co-applicant who fulfils the requirements of 3.1.2 and is employed at a historically disadvantaged university (see Annex 6.2).

On the Dutch side or the South African side of the consortium:

 A collaboration partner from the public, semi-public or private practitioner organisation (for-profit or not-for-profit) who fulfils the requirements of 3.1.3.

The consortium may also include other co-applicants or collaboration partners, as long as they are eligible according to the criteria in 3.1.2 or 3.1.3.

Together, the consortium members will

- 1) formulate relevant research questions and approaches;
- 2) formulate and submit the proposal through the Principal Investigators;
- 3) conduct the project activities;
- coordinate knowledge sharing and support the application, dissemination and communication of the project results to a broader group of possible knowledge users that are not a member of the consortium, and;
- 5) take responsibility for the adequate and timely reporting conditions.

Each Principal Investigator and consortium can only submit one proposal.

This call aims at knowledge chain-wide collaboration, to enhance demand articulation, ownership, and the effective uptake of results. For this reason, all consortium partners, as well as relevant stakeholders, are expected to be engaged in all phases of the project execution, from its inception to sharing the (emerging) results. Evidence of such active engagement will be an important element in the



assessment of project proposals and may be demonstrated through references to involvement in project preparation, active involvement as a project partner and links between the proposed research project and ongoing projects of NGOs, private enterprises, and/or policy implementation.

A Consortium Agreement to regulate consortium governance, task division, resource management and ownership of results between the collaborating consortium organisations is obligatory (see section 3.5 for details).

3.1.1 Principal Investigators

A proposal should have two Principal Investigators: one based in the Netherlands or at a university established in the Kingdom of the Netherlands, and one based in South Africa. The two Principal Investigators will serve as the recipients of the grants from their respective countries. They will submit the proposal to both organisations. The Dutch Principal Investigator will serve as contact point for NWO, and the South African Principal Investigator will serve as contact point for NRF. The Principal Investigators' organisations will take responsibility for the project secretariat, the day-to-day management and all financial affairs of the research project.

Netherlands-based Principal Investigator

For scientists based in the Netherlands or at a university established in the Kingdom of the Netherlands, the NWO eligibility criteria apply. Full, associate and assistant professors and other researchers with a comparable appointment, with a PhD or an equivalent qualification, can be the Dutch Principal Investigator if:

- they are employed (i.e. hold a salaried position) at one of the following organisations:
 - O Universities established in the Kingdom of the Netherlands;
 - University medical centres;
 - NWO and KNAW institutes;
 - o the Netherlands Cancer Institute;
 - the Max Planck Institute for Psycholinguistics in Nijmegen;
 - the DUBBLE Beamline at the ESRF in Grenoble;
 - NCB Naturalis:
 - Advanced Research Centre for NanoLithography (ARCNL);
 - Princess Máxima Center.
- and also have an appointment period for at least the duration of the application procedure and the
 entire duration of the research for which the grant is being applied for. Personnel with a zero-hour
 appointment is excluded from applying. An exemption can be made for researchers on a 'tenure
 track' contract at one of the institutions above.

South African-based Principal Investigator

For South African applicants, the NRF eligibility criteria apply, as follows:

- Only working researchers/ scientists residing in South Africa and affiliated with a recognised South
 African public higher education or research institution such as a university, university of technology or science council are eligible to apply.
- Private higher education institutions are not eligible to apply under this programme.
- The SMEs, private companies/ industries, and NGOs cannot serve as a Principal Investigator but can form part of the research consortium.
- It is 'obligatory' for South African principal investigator based at historically advantaged institutions to include, as part of the consortium, a research partner from any of the historically disadvantaged institutions. Proposals submitted by an applicant based at a historically advantaged institution without a research partner from a historically disadvantaged institution will be ineligible (and will not be submitted for review). The research partner from the historically disadvantaged institution in this case can serve as a co-applicant in the proposal (see section 3.1.2 below on 'co-applicants').

Applicants based at historically disadvantaged institutions are allowed to submit proposals without the involvement of researchers based at historically advantaged institutions if they so wish.

3.1.2 Co-applicants from research institutions

A co-applicant is a participant in the consortium and receives funding through the Principal Investigator.



Netherlands-based or South African-based co-applicants

The first type of co-applicant from a research institution based in the Netherlands or South Africa is:

a researcher from one of the institutions listed in 3.1.1, who has an employment contract for at least the duration of the application procedure and the duration of the research the grant is applied for and who has a PhD or an equivalent qualification. Researchers with a zero-hour contract at one of the institutions above cannot be a co-applicant. An exemption can be made for researchers on a 'tenure track' contract at one of the institutions above.

Netherlands-based co-applicants

The second and third type of co-applicants from a research institution based in the Netherlands are:

- a researcher from a university of applied science funded by the Dutch Ministry of Education,
 Culture and Science, who has an employment contract for at least the duration of the application
 procedure and the duration of the research the grant is applied for (funded in accordance with
 Article 1.8 of the law on higher education and scientific research) and who is an experienced
 researcher (a professor, assistant professor, or a researcher with a similar appointment);
- a researcher (in case of an organisation that is not a university of applied sciences nor listed in paragraph 3.1.1), who has an employment contract for at least the duration of the application procedure and the duration of the research grant applied for, who has a PhD or an equivalent qualification and whose organisation meets the following cumulative criteria:
 - o is based in the Netherlands:
 - is a public institute and carries out its research independently;
 - o receives at least 50 percent public funding;
 - o is not-for-profit other than for the purpose of carrying out further research;
 - o its researchers enjoy freedom of publication in international scientific journals.

Please note: these conditions will be assessed by NWO prior to submission of the preliminary proposal. To this end, the co-applicant's organisation must submit the following documents by email to southafrica-merian@nwo.nlno later than ten working days before the submission deadline:

- a recent extract from the Chamber of Commerce register;
- the deed of incorporation, articles of association or other formal document indicating the public task and the non-profit status;
- the latest available annual accounts accompanied by an auditor's statement.

If NWO has not assessed the applicants in advance, it cannot take the preliminary proposal into consideration. *Please note:* If new applicants are added to the consortium in the full proposal, a further assessment based on these conditions will have to take place. Here too, the above documents should be submitted by email no later than ten working days before the submission deadline.

3.1.3 Collaboration partners from public, semi-public or private practitioner organisations

A consortium includes at least one partner from a public, semi-public or private practitioner organisation (for-profit or not-for-profit). Public and/or private practitioner collaboration partners are partners from the public and/or semi-public sectors and/or industry. They are closely involved with the research and impact plan.

Please note: personnel of these organisations are excluded from payment of salaries and research costs from the NWO or NRF grant, unless they are hired through the module 2 – work by third parties (see 3.2.2).

All organisations participating in a consortium must be registered as a legal persona.

3.2 What can be applied for

Different costs can be reimbursed from the NRF and NWO grants. The application form allows you to specify which organisation you would like to cover a certain cost. You should complete two budgets, one specifying the costs to be covered by the NWO grant and one specifying the costs to be covered by the NRF grant.

3.2.1 Reimbursable costs NRF budget

The NRF Online Submission System has a section for budget requirements. South African applicants must ensure that they complete this section of the application form in line with Annex 6.1 (i.e. NRF budget allocation per allowable research activities).



3.2.2 Reimbursable costs NWO budget

For a research proposal in this round, a maximum of € 700,000 can be applied for on the Dutch side. The budget modules (including the maximum amounts) that are available within this call for proposals are stated in the table below. You should only request that which is essential for realising the research.

Budget module	Maximum amount		
PhD	According to VSNU or NFU rates ¹		
Professional Doctorate in engineering (PDEng)	Positions in combination with PhDs and/or postdoc(s), according to VSNU or NFU $\rm rates^1$		
Postdoc	According to VSNU or NFU rates ¹		
Non-scientific staff at (NSS) universities	\in 100,000, according to VSNU or NFU rates 1 , in combination with PhDs and/or postdoc(s)		
Other scientific staff (OSS) at universities	€ 100,000, in combination with PhDs and/or postdoc(s)		
Research leave	5 months, 1 fte, according to VSNU or NFU rates ¹		
Personnel universities of applied sciences and other institutions (such as applied research organisations (TO2) and SMEs)	Rates based on Handleiding Overheidstarieven 2017 (HOT)		
Material costs	€ 15,000 per year per scientific position		
Investments (up to € 150,000)	maximum of € 150,000		
Investments (€ 150,000 to € 500,000)	greater than or equal to \in 150,000 (for data collections, a minimum of \in 25,000 applies) and less than or equal to \in 500,000		
Knowledge utilisation	€ 25,000 per module, up to 20 percent of grant		
Internationalisation	€ 25,000 per module, up to 20 percent of grant		
Money follows Cooperation	less than 50 percent of the total budget applied for		

¹ For personnel outside the Netherlands, the local rates are reimbursed up to a maximum of the VSNU rates.

Explanations of the budget modules can be found below.

Involvement of civilians, so-called 'citizen science', might have an added value to the quality of science. They could offer data and insights that would not be available for science in other set-ups. NWO wants to finance citizen science as well and offers the possibility from 2020 onwards to apply for reimbursement of citizen involvement in research projects via the budget module 'material, project-related goods or services, work by third parties'. This module offers researchers a possibility; this is by no means an obligation. Researchers can decide whether the involvement of citizens is desirable and how the budget is used for this (e.g. reimbursement of expenses for civilians, offering skill training or technical aids for participating citizens).

Explanation of budget modules for personnel

Funding for the salary costs of personnel who make a substantial contribution to the research can be applied for. Funding of these salary costs depends on the type of appointment and the organisation where the personnel are or will be appointed.

- For university appointments, the salary costs are funded in accordance with the VSNU salary tables applicable at the moment the grant is awarded (www.nwo.nl/salary-tables);
- For university medical centres, the salary costs are funded in accordance with the NFU salary tables applicable at the moment the grant is awarded (www.nwo.nl/salary-tables);
- For personnel from universities of applied sciences and other institutions, the salary costs are funded on the basis of the collective labour agreement salary scale of the employee concerned, based on the *Handleiding Overheidstarieven 2017*.
- For the Caribbean Netherlands, the Dutch government employs civil servants on Bonaire, Sint Eustatius and Saba under different conditions than in the European part of the Netherlands (https://www.rijksdienstcn.com/werken-bij-rijksdienst-caribisch-nederland/arbeidsvoorwaarden).

The rates for all budget modules are incorporated in the budget format that accompanies the application form. For the budget modules 'PhD', 'PDEng' and 'Postdoc', a one-off individual bench fee of € 5,000 is added on top of the salary costs. This bench fee is intended to encourage the scientific career of the project employee funded by NWO. Remunerations for PhD students/PhD scholarship students at a Dutch university are not eligible for funding from NWO.

The available budget modules are explained below.

PhD (including MD-PhD)

A PhD is appointed for 1.0 fte for a duration of 48 months. The equivalent of 48 full-time months, for example an appointment of 60 months for 0.8 fte is also possible. If a different duration of appoint-



ment is considered necessary for the realisation of the proposed research, then as long as this is properly justified, the standard time can be deviated from. However, the duration of appointment must always be at least 48 months.

N.B.: please note that in this call, you can only apply for funding for a maximum of 48 months from NWO.

Professional Doctorate in Engineering (PDEng)

Funding for the appointment of a PDEng can only be applied for if funding for a PhD or postdoc is also applied for.

The appointment for a PDEng position is a maximum of 1.0 fte for 24 months. The PDEng trainee is employed by the institution applying for funding and can realise activities within the research at an industrial partner for a specified time. If the research proposal is awarded funding, then an agreement must be concluded with the industrial partner(s) concerned. The underlying 'Technological Designer Programme' should be described in the funding proposal.

Postdoc

The size of the appointment of a postdoc is at least 6 full-time months and at most 48 full-time months. The size and duration of the appointment is at the applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months. The material budget is available to cover the costs of a more limited appointment of a postdoc.

Non-scientific staff (NSS) at universities

Funding for the appointment of non-scientific personnel necessary for the realisation of the research project can only be applied for if funding for a PhD or postdoc is also applied for. A maximum of € 100,000 can be requested for NSS. This includes personnel such as student assistants, programmers, technical assistants or analysts. Depending on the level of the position, the appropriate salary table for non-scientific staff at MBO, HBO or university level applies.

The size of the appointment is at least 6 full-time months and at most 48 full-time months. The size and duration of the appointment is at the applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months.

The material budget is available to cover the costs of a more limited appointment of non-scientific personnel.

Other scientific personnel (OSS) at universities

Budget for other scientific personnel such as AIOS (doctor training to be a specialist), ANIOS (doctor not training to be a specialist), scientific programmers or employees with a master's degree can only be applied for if funding for a PhD or postdoc is also applied for. For this category, a maximum of € 100,000 can be applied for.

The size of the appointment is at least 6 full-time months and most 48 full-time months. The size and duration of the appointment is at the applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months.

Research leave for applicants

With this budget module, funding can be requested for the research leave costs of the main and/or coapplicant(s). The employer of the applicant concerned can use this to cover the costs of relinquishing him or her from educational, supervisory, administrative or management tasks (not research tasks). The time that is released through the research leave grant can only be used by the applicant(s) for activities in the context of the project. The proposal must describe which activities in the context of the project the applicant(s) will carry out in the time relinquished.

The maximum amount of research leave that can be applied for is the equivalent of five full-time months. NWO funds the research leave in accordance with the salary tables for a senior scientific employee (scale 11) at the time the grant is awarded (www.nwo.nl/salary-tables).



Personnel universities of applied sciences and other institutions

For the funding of salary costs of personnel employed at a university of applied sciences or other type of institution (such as TO2 or SMEs), the following maximum rates (hours/day) are used in accordance with the *Handleiding Overheidstarieven 2017* (HOT). For the Taskforce for Applied Research (NPRO SIA), the HOT table *kostendekkend* is used, and for the Netherlands Initiative for Education Research (NRO) and other institutions, it is the HOT table *kostenplus*.

Explanation of budget module Material costs

For each fte scientific position (PhD, postdoc, PDEng) applied for, a maximum of € 15,000 material budget can be applied for per year of the appointment. Material budget for smaller appointments can be applied for on a proportionate basis and will be made available by NWO accordingly¹¹. The applicant is responsible for distributing the total amount of material budget across the NWO-funded personnel positions. The material budget that can be applied for is specified according to the three categories below:

Project-related goods/services

- consumables (glassware, chemicals, cryogenic fluids, etc.)
- measurement and calculation time (e.g. access to supercomputer, etc.)
- costs for acquiring or using data collections (e.g. from Statistics Netherlands), for which the total amount may not be more than € 25,000 per proposal
- access to large national and international facilities (e.g. cleanroom, synchrotron, etc.)
- work by third parties (e.g. laboratory analyses, data collection, citizen science, etc.)
- personnel costs for the appointment of a post-doc and/or non-scientific personnel for a smaller appointment size than those offered in the personnel budget modules

Travel and accommodation costs for the personal positions applied for

- travel and accommodation costs
- conference attendance (maximum of two per year per scientific position applied for)
- fieldwork
- work visit

Implementation costs

- national symposium/conference/workshop organised within the research project
- costs for Open Access publishing (solely in full gold Open Access journals, registered in the 'Directory of Open Access Journals' https://doaj.org/)
- data management costs
- costs involved in applying for licences (e.g. for animal experiments)
- audit costs (only for institutions that are not subject to the education accountants protocol of the Ministry of Education, Culture and Science), maximum € 5,000 per proposal; for projects with a duration of three years or less, a maximum of € 2,500 per proposal applies.

Costs that cannot be applied for are:

- basic facilities within the institution (e.g. laptops, desks, etc.);
- maintenance and insurance costs.

If the maximum amount of € 15,000 per year per full-time scientific position is not sufficient for realising the research, then it may be deviated from if a clear justification is provided in the proposal.

Explanation of budget module Investments (up to € 150,000)

In this budget module, funding can be requested up to a maximum of € 150,000 for investments in equipment, datasets and/or software (e.g. lasers, specialised computers or computer programs).

Explanation of budget module Investments (€ 150,000 to € 500,000)

In this budget module, funding can be applied for project-related investments in scientifically innovative equipment and/or data collections of national and international importance. The costs for

Per 0.2 fte scientific employee at a university of applied sciences (junior, medior and senior level, with a minimum appointment of 0.2 fte for a period of 12 months), a maximum of € 15,000 material budget can be applied for each year of the appointment.



these project- related investments should be adequately specified and justified in the proposal. The minimum amount that can be applied for is \in 150,000. The maximum amount that can be applied for is \in 500,000.

The costs for investments should be adequately specified and motivated in the proposal.

Funding can be requested for:

- costs for investment in scientific equipment;
- costs for investment in datasets;
- personnel costs for the setting up of databases and the initial digitisation of the bibliographical equipment, if these cannot be purchased;
- personnel costs for employees with specific, essential technical expertise needed in order to build or develop an investment.

If funding for personnel costs is applied for, then the need for these personnel costs should be justified. If the applicant does not have this expertise available, then it should be stated that this expertise needs to be procured with these costs. The internal procurement procedures and/or quidelines of the applicant apply.

Funding cannot be requested for:

- costs of infrastructure facilities that can be regarded as part of the usual infrastructure;
- data collections and any associated software and bibliographies that are already available in other ways;
- other personnel costs, including personnel costs required to operate and conduct research with the facility;
- maintenance and use of equipment. The costs for researchers using equipment for a project can be covered via the material budget.

Explanation of budget module Knowledge utilisation

A maximum of 20 percent of the grant, € 140,000, can be requested under this call as funding for knowledge utilisation activities. This means that this module can be requested a maximum of six times. The following conditions apply **per** module:

- The aim of this budget module is to facilitate the use of the knowledge that emerges from the research¹²;
- The budget applied for may not exceed € 25,000;
- Because knowledge utilisation takes many different forms in different scientific fields, it is up to the
 applicant to specify the costs required, e.g. costs of producing a teaching package, conducting a
 feasibility study into potential applications, or filing a patent application;
- The budget applied for should be adequately specified in the proposal.

NB: please take into account requirements of knowledge utilisation stated elsewhere in this call for proposals, such as budgeting for kick-off, midterm, and final workshops and 2.4 Impact Plan.

Explanation of budget module Internationalisation

A maximum of 20 percent of the grant, € 140,000, can be requested under this call as funding for internationalisation. This means that this module can be requested a maximum of six times. The following conditions apply **per** module:

- The budget for internationalisation is intended to encourage international collaboration;
- The budget applied for may not exceed € 25,000;
- The amount requested must be specified;
- If the maximum amount is not sufficient for realising the research, then it may be deviated from if a clear justification is provided in the proposal.

Funding can be requested for:

- travel and accommodation costs in so far as these concern direct research costs emerging from the international collaboration and additional costs for internationalisation that cannot be covered in another manner, for example from the bench fee;
- travel and accommodation costs for foreign guest researchers;
- costs for organising international workshops/symposia/scientific meetings.

NB: please take into account the requirements for internationalisation stated elsewhere in this call for

¹² In this budget module, the definition for 'knowledge transfer' used by the European Commission in the Framework for State Aid for research and development and innovation applies (PbEU, 2014, C198).



proposals, such as in 2.3 International Collaboration.

Explanation of the budget module Money follows Cooperation (MfC)

The module Money follows Cooperation provides the possibility of realising a part of the project at a publicly funded knowledge institution outside of the Netherlands. The applicant must convincingly argue how the researcher from the foreign knowledge institution will contribute specific expertise to the research project that is not available in the Netherlands at the level necessary for the project. This condition does not apply if NWO has concluded a bilateral agreement concerning Money follows Cooperation with the national research council of the country where the foreign knowledge institution is located. On this NWO web pageyou will find an overview of research councils that signed a bilateral MfC agreement with NWO.

The budget applied for within this module cannot be more than 50 percent of the total budget applied for.

A co-applicant from the participating foreign knowledge institution should satisfy the conditions set for co-applicants in Section 3.1 of this call for proposals, with the exception of the condition that the co-applicant should be employed in the Kingdom of the Netherlands.

The rates for the personnel costs of researchers at the foreign knowledge institution are calculated on the basis of the correction coefficients table of the Marie Skłodowska-Curie grants (EU, Horizon 2020), based on the Dutch VSNU rates. The table can be can be found on this web pageof NWO.

The main applicant receives the grant and is responsible for transferring the amount to the foreign knowledge institution and for providing accountability for the MfC part of the grant. The MfC part will be part of the overall financial accountability of the project.

The exchange rate risk lies with the applicants. Therefore, gains or losses due to the exchange rate are not eligible for funding. The applicant is responsible for:

- The financial accountability for all costs in both euros and the local currency, for which the exchange rate used must be visible;
- a reasonable determination of the size of the exchange rate. If requested by NWO, the applicant must always be able to provide a description of this reasonable determination.

If more than 125,000 Euros is requested within this module, the final financial statement must be accompanied by an auditor's report.

NWO will not issue any funding to co-applicants in countries that fall under national or international sanction legislation and rules. The EU Sanctions Map (www.sanctionsmap.eu) is guiding in this respect.

3.3 When can applications be submitted

The deadline for the submission of research initiatives (not mandatory), which are to be submitted to NWO via email, is 1 October 2020, 14:00:00 hours CET.

The deadline for the submission of preliminary proposals, which are to be submitted to NWO via ISAAC, is 3 November 2020, 14:00:00 hours CET.

The deadline for the submission of proposals is:

- 30 March 2021, 14:00:00 hours CEST (for the submission of proposals to NWO via ISAAC)
- 31 March 2021, 23:59:59 hours SAST (for the submission of proposals to NRF via the NRF Online Submission System)

When you submit your proposal to the online submission systems of NRF and NWO you will also need to enter additional details online. For example, in ISAAC (the submission system that NWO uses) you will need to enter the names and institutions of both Principal Investigators and of your co-applicants and collaboration partners. You should therefore start submitting your application at least five working days before the deadline of this call for proposals.

Proposals submitted after the deadline to either NWO or NRF will not be taken into consideration.

3.4 Preparing an application

The 2020 call consist of three phases:

1. Announcing of initiatives



- 2. Preparing a preliminary proposal
- 3. Preparing a full proposal

3.4.1 Announcing of initiatives

Before submitting the preliminary proposal, main applicants are invited to announce their initiative online on the Merian Fund South-Africa programme page. This may enable potential partners to contact an applicant and possibly join a consortium or it may give reason to merge certain initiatives. A virtual matchmaking event will be organised for those involved in an announced initiative and potential partners.

An initiative should include a brief explanation of the research question, an initial indication of the parties involved in the consortium, the Principal Investigator and the contact details. Announcing your initiative can be done by filling out and submitting the research initiative form. A link to the form can be found on the Merian South Africa funding page. NWO will post the submitted initiatives on the programme page.

Registered initiatives will be invited to a virtual matchmaking event. Partners interested in joining a specific initiative should make themselves known through e-mailing the applicant or the NWO bureau that are Interested potential applicants and potential partners will be invited to a virtual matchmaking event, in which the call and its conditions will be further highlighted.

3.4.2 Preparing a preliminary proposal

Preliminary proposals are submitted to NWO. Submitting a preliminary proposal is compulsory. Only successful applicants from the preliminary proposal phase will be allowed to enter the full proposal phase.

- Download the application form for a preliminary proposal from the electronic application system ISAAC or from NWO's website (on the grant page for this programme);
- Complete the application form;
- Save the application form as a pdf file and upload it in ISAAC.

3.4.3 Preparing a full proposal

Full proposals are submitted to NWO and NRF.

For NWO:

- Download the application form and budget Excel form from the electronic application system ISAAC or from NWO's website (on the grant page for this programme);
- Complete the application form and budget Excel form, using the guidelines in the application form and call for proposals;
- Save the application form (including the annexes) as a pdf file and upload it in ISAAC;
- Save the budget form as Excel and upload it as separate document in ISAAC.

For NRF.

Applications must be submitted through an online application process to the NRF on the NRF Online Submission System at https://nrfsubmission.nrf.ac.za/.Please make use of the 'General Application Guide 2021' for assistance on the steps to follow when applying for international research grants. The quide can be accessed through the following link:

https://www.nrf.ac.za/funding/framework-documents/funding-framework-documents

Full proposals should include:

- The application form for full proposals;
- A completed budget;
- A letter of commitment from the organisations of the Principal Investigators, co-applicants and public or private collaboration partners, in which the institution confirms that they agree to the conditions required for the execution of the project. The letter must be signed by the Dean of the faculty or director of the organisation and be printed on the letterhead of the institution or organisation. See the format in Annex 6.3;
- A draft consortium agreement;
- CVs of both Principal Investigators and all co-applicants and public/private collaboration partners;
- A list of literature references;
- In case of co-financing: a letter of guarantee from the co-financing organisation confirming the numeric amount that will be provided as co-financing. In case the organisation of a consortium member provides co-financing, this confirmation can be included in the letter of commitment. Letters of guarantee are unconditional and do not contain any opt-out clauses.



It is not permitted to include other documents than those requested above. Applicants will be asked to remove any additional documents.

3.5 Conditions on granting

NWO

The NWO Grant Rules 2017 and the Agreement on the Payment of Costs for Scientific Research apply to all grants provided by NWO.

The project should start within three months after the date of the grant letter. At least one researcher must be appointed to the project at the time of its start. If the project has not started within three months, the WOTRO Steering Committee can decide to revoke the granting decision.

The project can start if the following documents have been approved by NWO:

- A project notification form with information of project staff;
- A data management plan;
- A consortium agreement, signed by all consortium organisations¹³;
- (If relevant) approval of an ethics committee;
- (If relevant) receipt by NWO of the first tranche of in-cash co-financing.

NRF.

The NRF Conditions will be detailed in the 'Conditions of Grant' Contract to be signed between the researchers and the NRF during the award process. The project should start within three months after the date of the grant letter.

3.5.1 Reporting to NWO and NRF

Publications

When publishing the results of the subsidised research, the support by NWO and NRF should be mentioned. NWO and NRF expect that during the project's runtime, as well as in the years following the project, all forms of output related to the project are registered in ISAAC.

Kick-off

A joint kick-off workshop at the start of project execution is part of programme. During the kick-off of the projects, the Impact Plans of the projects will be subject of discussion. In view of the gradual development and elaboration approach from project idea via proposal development to project execution is taken, this is the first formal moment to adapt and refine the Impact Plans, taking into account the programme's aim and objectives. Three months after the kick-off meeting, projects are expected to submit a fully elaborated and refined Impact Plans.

Annual and final reports

The South African Principal Investigator will be expected to submit an annual report. On an annual basis the NRF publishes a national Call for 'Annual Progress Reports' due for each financial year. South African Principal Investigators are urged to look out for such notifications/calls. The South African Principal Investigator is required to ensure that they submit their final reports within three months after the end of the project.

The Dutch applicant will have to ensure reporting to NWO, i.e. submitting an annual report.

A substantive final report should be submitted within three months after the end of the project's runtime, detailing the research done and the achieved results, as well as a reflection on the project's Impact Pathway and its indicators. As part of this, projects will be asked to again complete a self-assessment, and hold a final workshop and a discussion with stakeholders from outside the project team. The final substantive report will again be evaluated by the joint review committee, constituted by NRF and NWO. The final workshop should again be taken into account in the consortium's budget.

Simultaneously, the Dutch Principal Investigator and the controller/financial manager of the principal investigator's institution should submit a signed financial end report, organised according to the budget lines of the approved budget requested from NWO. The report should detail, among others, the effective duration (period) and size (fte) of the personnel appointed to the project using the module

 $^{^{\}rm 13}\,$ A format can be found on the funding page for this programme.



Personnel, and, if applicable, how eventual replacements were arranged. The realised in cash and in-kind co-financing should also be accounted for. If the Dutch Principal Investigator is not based at a Dutch university, an external audit report must also be submitted. NWO reserves the right to conduct an external financial audit. NWO reserves the right to externally evaluate projects financed under this call for proposals. The project ends with the issuing of the grant settlement decision. This decision is taken after approval of the final document(s) by NWO.

Mid-term and final review

The projects will be evaluated after submission of the second annual reports and at the end. This includes workshops of the project teams organised by the consortia and a discussion of the results with stakeholders from outside the project teams. Consortia should include this workshop in their budget. The workshop has to include a reflection on and work towards the revision of the Impact Plan, including the underlying assumptions, the indicators and the strategic activity planning. The International Advisory Committee, composed by NRF and NWO, will evaluate the progress of the projects based on reports submitted by the consortia. Interviews or field visits may be organised to evaluate the progress and impact of the projects. The IAC will give recommendations based on their evaluation.

Programmatic coherence

The projects awarded under this call for proposals should contribute to Water-Energy-Food Nexus. To this end, Principal Investigators and researchers are expected to contribute to knowledge exchange and knowledge utilisation activities at the programme level, and to attend the meetings that will be organised for that purpose. This includes the programme's kick-off, mid-term and concluding workshops with the other projects funded under the Cooperation South Africa (NRF) – the Netherlands programme. This is in addition to the activities organised by the individual projects for this purpose. Consortia should budget for their attendance at these meetings.

Co-financing

- Co-financing by private and/or public parties is not a requirement for this Call, but if available, can take the form of in-kind or cash co-financing;
- It is possible for contributions to be partially in-kind and partially cash. The amounts of co-financing specified in the budget should correspond to the amount of co-financing specified in the guarantee letter or letter of commitment;
- The private and/or public parties that are part of the consortium should be involved in the research for the duration of the project;
- Co-financing provided by a South African institution or organisation should be included in the South African budget, and should be accounted for to NRF. Co-financing provided by other institutions or organisations should be included in the NWO budget, and accounted for to NWO;
- After a research proposal has been awarded funding, NWO will invoice the private or public party that has pledged an in-cash contribution if that in-cash contribution exceeds € 5,000. After the contribution has been received, the money will be awarded to the project. Cash contributions of less than € 5,000 are marked by NWO-WOTRO as in kind contributions. It is the responsibility of the Netherlands-based Principal Investigator to invoice these cash co-funding organisations

Consortium agreement

For research partnerships to be effective, they have to be fair. A consortium agreement should be signed by all consortium partners prior to the start of the awarded project, detailing agreements regarding rights (such as copyright, publications, intellectual property etc. of products or other developments in the project), knowledge utilisation, as well as affairs such as payments, progress- and final reports, and confidentiality. The agreement furthermore details agreements on governance of the consortium (to the extent that it gives sufficient guarantee for effective collaboration), finances, and if applicable, basic knowledge to be contributed, liability, disputes, and information sharing within the consortium. The agreement has to be drafted in a spirit of equity. The initiative for the concluding of these agreements lies with the Principal Investigators¹⁴.

The agreement will be checked on consistency with the NWO Grant Rules 2017. For Intellectual Property (IP) rights, the provisions as specified in Chapter 4 of the NWO Grant Rules 2.017 are applicable, according to which the IP-rights to the results belong to the research institution, whose employee generated the results in question (ownership follows inventor-ship). For the IP rights of the results of possible co-financing institutions, the percentages shown are applicable, unless an

 $^{^{14}\ \} For\ a\ format,\ see\ https://www.nwo.nl/en/documents/wotro/wotro---format-consortium-agreement$



appropriate reflection justifies the deviation from this. South African Principal Investigators and co-applicants should furthermore ensure that agreements regarding this are aligned and conform to their university policies.

Open Access

As a signatory to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003), NWO is committed to making the results of scientific research funded by NWO freely available in open access on the internet. In doing so, NWO is implementing the ambitions of the Dutch government to make all publicly funded research openly available. All scientific publications of research funded on the basis of this call for proposals should therefore be available in open access immediately (at the time of publication).

NWO accepts various routes:

- publication in an full open access journal;
- deposit a version of the article in a repository, or;
- publication in a hybrid journal covered by one of the agreements between the VSNU and publishers. See www.openaccess.nl.

Any costs for publication in full open access journals can be incurred in the project budget. NWO does not reimburse costs for publications in hybrid journals. These conditions apply to all forms of scholarly publications arising from grants awarded on the basis of this call for proposals. Also academic monographs, edited volumes, proceedings and book chapters. For more information on the NWO's open access policy, see: www.nwo.nl/openscience.

Data management

Responsible data management is part of good research. NWO and NRF want research data that emerge from publicly funded research to become freely and sustainably available, as much as possible, for reuse by other researchers. Furthermore NWO and NRF wants to raise awareness among researchers about the importance of responsible data management.

Data management NWO:

The results of scientific research must be replicable, verifiable and falsifiable. In the digital age this means that, in addition to publications, research data must also be freely accessible. As much as possible, NWO expects that research data resulting from NWO-funded projects will be made publicly available for reuse by other researchers. 'As open as possible, as closed as necessary' is the guiding principle in this respect. As a minimum, NWO requires that the data underpinning research papers should be made available at the time of the article's publication. The costs for doing so are eligible for funding and can be included in the project budget. In the data management section, and in the data management template if the project is awarded funding, researchers explain how they plan to manage the data expected to be generated by the project.

- 1. Data management section
 - The data management section is part of the research proposal. Researchers are asked to prospectively consider how they will manage the data the project will generate and plan for which data will be preserved and be made publicly available. Measures will often need to be taken during the production and analysis of the data to make their later storage and dissemination possible. If not all data from the project can be made publicly available, the reasons for not doing so must be explained in the data management section. Due consideration is given to aspects such as privacy, public security, ethical limitations, property rights and commercial interests.
- 2. Data management plan
 After a proposal has been awarded funding, the researcher should elaborate the data management section into a data management plan. In this plan, the researcher describes whether use will be

section into a data management plan. In this plan, the researcher describes whether use will be made of existing data, whether new data will collected or generated, and how the data will be made FAIR: Findable, Accessible, Interoperable, Reusable. The data management plan must be completed in consultation with a data steward or equivalent research data management support staff at the home institution of the project leader. The plan should be submitted to NWO via ISAAC as part of the starting documents. NWO will approve the plan as quickly as possible. Approval of the data management plan by NWO is a condition for disbursement of the funding. The plan can be adjusted during the research.

Further information on the NWO data management protocol can be found at www.nwo.nl/datamanagement-en.



Data management NRF:

South African Principal Investigators and co-applicants should ensure the above-mentioned data management plan also conforms to the data management standards and requirements of their university.

Nagoya Protocol

The Nagoya Protocol became effective on 12 October 2014 and ensures an honest and reasonable distribution of benefits emerging from the use of genetic resources (Access and Benefit Sharing; ABS). Researchers who make use of genetic sources from the Netherlands or abroad for their research should familiarise themselves with the Nagoya Protocol (www.absfocalpoint.nl). NWO assumes that researchers will take all necessary actions with respect to the Nagoya Protocol.

Ethical aspects

Any research proposal that raises ethical issues must be carefully considered in advance. The applicants need to assess what ethical challenges will be met in the proposed research, consider how these will be addressed, and how ethical clearance will be obtained. Once the project has started the research must be conducted in an ethically responsible way. If the applicant fails to do so, NWO and NRF shall reserve the right to withdraw the grant immediately.

Ethical aspects NWO:

In the Netherlands, certain research projects require a statement of approval from a recognised (medical) ethics review committee or an animal experiments committee. In addition, some research proposals require a licence under the Population Screening Act (WBO). Applicants must subscribe to and comply with the prevailing codes.

Applicants themselves are responsible for determining whether their research proposal raises possible ethical issues. If so, they are also responsible for obtaining any necessary statement of approval from the appropriate ethics review committees and/or license under the Population Screening Act or similar organisations. A research project can only start when NWO has received a copy of the necessary approving ethical statement and/or Population Screening Act license (if applicable). For complex questions related to ethical issues and in case applicants would question the need for ethical clearance, NWO reserves the right to consult an external adviser. If after consulting the applicant, NWO is of the opinion that an ethical assessment is needed for the application, then the applicant is obliged to take the necessary measures for such an assessment. If the applicant fails to obtain the necessary statement of approval from an ethics review committee then the grant shall be immediately withdrawn.

Ethical aspects NRF:

It is the responsibility of the South African Principal Investigator, in conjunction with the institution, to ensure that all research activities carried out in or outside South Africa comply with the laws and regulations of South Africa and/or the foreign country in which the research activities are conducted. These include all human and animal subjects, copyright and intellectual property protection, and other regulations or laws, as appropriate. A research ethics committee must review and approve the ethical and academic rigor of all research prior to the commencement of the research and acceptance of the grant. The awarded amount will not be released for payment if a copy of the required ethical clearance certificate, as indicated in the application, is not attached to the Conditions of Grant. Please also refer to the 'Statement on Ethical Research and Scholarly Publishing Practices' on the NRF website at https://www.nrf.ac.za/media-room/news/statement-ethical-research-and-scholarly-publishing-practices

3.6 Submitting an application

3.6.1 Research initiatives

The research initiatives (not mandatory) are to be submitted to NWO via email (southafricamerian@nwo.nl).

3.6.2 Preliminary proposals

The Principal Investigator based in the Netherlands or at a university established in the Kingdom of the Netherlands must submit the preproposal via his/her own ISAAC account (www.isaac.nwo.nl). Applications not submitted via ISAAC will not be admitted to the assessment procedure.



If the Principal Investigator does not have an ISAAC account yet, then this should be created at least five working days before the preliminary proposal is submitted to ensure that any registration problems can be resolved on time. If the Principal Investigator already has an NWO-account, then he/she does not need to create a new account to submit an application.

Please note that you will be asked to submit additional information when submitting your application in ISAAC, such as the organisations of your consortium members. For this reason, we strongly advise that you start submitting your application at least five working days before the deadline. For technical questions please contact the ISAAC helpdesk, see section 5.1.2.

3.6.3 Full proposals

Full proposals should be submitted to both NWO and NRF, by the Netherlands-based and South African Principal Investigators respectively.

Full proposals will not be taken into consideration if:

- the full proposal is not submitted to both organisations;
- the full proposal is submitted after the deadline, or if it has not been submitted to both application systems before the deadline;
- the Principal Investigators did not submit a preliminary proposal;
- the Principal Investigators submitted a preliminary proposal that was not approved.

Submission to NWO

The Principal Investigator based in The Netherlands or at a university established in the Kingdom of The Netherlands must submit his/her application via his/her own ISAAC account. Applications not submitted via ISAAC will not be admitted to the assessment procedure.

Please note that you will be asked to submit additional information when submitting your application in ISAAC, such as the organisations of your consortium members. For this reason, we strongly advise that you start submitting your application at least five working days before the deadline. If the organisation of your co-applicant(s) or collaboration partner(s) is not yet registered in ISAAC, you will need to contact the department 'Relatiebeheer' (relatiebeheer@nwo.nl) of NWO in order to add them.

For technical questions please contact the ISAAC helpdesk, see section 5.1.2.

Submission to NRF

Applications must be submitted through an online application process to the NRF on the NRF Online Submission System at https://nrfsubmission.nrf.ac.za/.Please make use of the 'General Application Guide 2021' for assistance on the steps to follow when applying for international research grants. The guide can be accessed through the following link:

https://www.nrf.ac.za/funding/framework-documents/funding-framework-documents

4 Assessment procedure

4.1 Procedure

Code for Dealing with Personal Interests

The NWO Code for Dealing with Personal Interests applies to all persons and NWO staff involved in the assessment and/or decision-making process. See also: www.nwo.nl/en/code

4.1.1 Preliminary proposal

Eligibility

NRF and NWO screen preliminary applications to ensure that they comply with the formal requirements of the scheme (see Chapter 3). Only those preliminary proposals that meet the conditions are eligible and will be taken into consideration by NRF and NWO.

If correction of the application submitted to NWO is possible and necessary, the Dutch Principal Investigator will be given the opportunity to adjust his or her application. If the application is not corrected within the given time frame, NWO and NRF will not include the application in the assessment process. Corrected applications will, after approval of eligibility by both NWO and NRF, be included in the assessment procedure.



Substantive assessment and Grant Advice

The IAC will make an assessment of the preliminary applications, without making use of external referees, according to the criteria in section 4.2.1. The IAC will subsequently rank all preliminary applications. The IAC will subsequently present a substantiated advice to the WOTRO Steering Committee and NRF RISA Executives regarding which consortia to invite to submit a full proposal.

Decision

The NRF RISA Executives and the NWO-WOTRO Steering Committee, on behalf of NWO, will check the assessment procedure of the preproposals has been carried out in accordance with the Call for Proposals, and will provisionally decide on which consortia to invite to submit a full proposal, based on the advice of the IAC. The decision becomes definitive when the NWO-WOTRO Steering Committee and the NRF RISA Executives have come to the same provisional decision.

Consortia whose preliminary proposals are judged not likely to be awarded grants will be notified that they are not invited to submit a full proposal. If consortia have legitimate grounds to object to this decision, they may send a reasoned response to NRF and NWO. On the basis of this response, the NRF RISA Executives and the NWO-WOTRO Steering Committee may change their decision and encourage the consortia to develop a full proposal.

4.1.2 Full proposal

Eligibility

The first step in the assessment procedure is to test whether an application is admissible. Only those proposals that satisfy the criteria stated in Chapter 3 are admissible and will be taken into consideration.

If correction of the application submitted to NWO is possible and necessary, the Dutch Principal Investigator will be given the opportunity to adjust his or her application. If the application is not corrected within the given time frame, NWO and NRF will not include the application in the assessment process. Corrected applications will, after approval of eligibility by both NWO and NRF, be included in the assessment procedure.

The remainder of the assessment procedure will subsequently be conducted through the online system of NWO.

Substantive assessment

All eligible applications will be sent to independent, (inter)national reviewers, who will assess the application based on the criteria specified in 4.2.2. Each application will be assessed by a minimum of three reviewers. The reports by the external reviewers will be made available to the Netherlands-based Principal Investigator, after which the consortium will have five working days to write a response to the reviewers' reports. The Netherlands-based Principal Investigator holds the responsibility to share the reviewers' report with the South Africa-based Principle Investigator. The response should be submitted by the Dutch Principal Investigator, via his or her ISAAC account.

Assessment and Grant Advice

The IAC will make a final assessment of the application, based on the application, the reviewer reports, and the response, according to the criteria in section 4.2.2 The IAC will subsequently rank all applications. The IAC will subsequently present a substantiated advice to the WOTRO Steering Committee and NRF RISA Executives regarding which applications are to be awarded.

Decision

The NRF RISA Executives and the NWO-WOTRO Steering Committee, on behalf of NWO, will check the assessment procedure has been carried out in accordance with the Call for Proposals, and will provisionally decide on the projects to be awarded, based on the advice of the IAC. The decision becomes definitive when the NWO-WOTRO Steering Committee and the NRF RISA Executives have come to the same provisional decision.

Qualification

Based on the IAC's final score, NWO and NRF will award a qualification to all full proposals, and will



make this known to both the Netherlands- and the South African-based Principal Investigators with the decision about whether or not the application has been awarded funding. Only applications that receive the qualification 'excellent' or 'very good' will be eligible for funding. For more information about the qualifications please see: www.nwo.nl/en/funding/funding+process+explained/ nwo+qualification+system.

Data management

The data management section in the application is not evaluated and therefore not included in the decision about whether to award funding. However, both the referees and the committee can issue advice with respect to the data management section. After a proposal has been awarded funding, the researcher should elaborate the data management section into a data management plan. Applicants can use the advice from the referees and the committee when writing the data management plan. A project awarded funding can only start after NWO has approved the consortium agreement.

Research initiatives

1 October 2020 Submission deadline of research initiative (not mandatory)

15 October 2020 Virtual matchmaking event

Preliminary proposals

3 November 2020 Submission deadline preliminary proposal by Dutch Principal Investigator
November-December 2020 Assessment preliminary proposals by International Advisory Committee

November-December 2020 Assessment preliminary proposals by International Advisory Committee

January 2021 Decision WOTRO Steering Committee and NRF RISA Executives on who to invite to submit a

full proposal

January 2021 Applicants are informed of decision

9 February 2021 Webinar for applicants who have been invited to submit a full proposal

Full proposals

30 March 2021 Submission deadline full proposal by Dutch Principal Investigator
31 March 2021 Submission deadline full proposal by South African Principal Investigator

April – June 2021 Referees are consulted

July 2021 Applicants can submit a rebuttal. Consortia have 5 working days to submit a rebuttal, via the

ISAAC account of the Dutch Principal Investigator

September 2021 International Advisory Committee meeting

October 2021 Decision WOTRO Steering Committee and NRF RISA Executives

October 2021 Applicants are informed of decision

January/February 2022 Applicants should start no later than January/February 2022 with the execution of their project

4.2 Criteria

4.2.1 Preliminary proposals

Assessment criteria for preliminary proposals are:

- I. Fit within the Merian South Africa 2020 call (75 percent weighting):
 - The consortium addresses a problem relevant to the WEF nexus in an urban context focus;
 - Adequacy of the inter- and transdisciplinary research approach, including the clarity and validity of the WEF nexus conceptualisation.
- II. Scientific importance and societal relevance of the proposed project (weighting 25 percent):
 - The problem definition is scientifically important.
 - The proposals societally relevant for the South African context.
 - There is a plausible likelihood of a societal and/or scientific breakthrough.

4.2.2 Full proposals

Full proposals will be assessed according to the following criteria:

- I. Quality of the research proposal
- II. Quality of the consortium
- III. Potential scientific and/or societal breakthrough

The criteria carry equal weight and each count for one-third of the final assessment. The assessment criteria are further operationalised below:

- I. Quality of the research proposal
 - Scientific importance of the proposed research in relation to the thematic focus of the Call;
 - Clarity of research questions, including the relation to the chosen specific region, province or local municipality;
 - Innovativeness of the research question and approach;
 - Complementarity to other research programmes or (inter)national research agendas;
 - Inter- and transdisciplinarity; the proposal incorporates the scientific disciplines necessary for addressing the problem, as well as knowledge from outside the scientific community;
 - Suitability and feasibility of the approach and methodology;
- II. Quality of the consortium
 - Quality of the involved research partners,



- Quality of the South African-Dutch collaboration, including equality in the partnership;
- Potential for long-term knowledge relations;
- Coherence and complementarity of the consortium, including organisation of the research and the genuine involvement of a South African historically disadvantaged university;
- Experience in supervising postgraduate students;
- Relevant (societal and/or governmental) partners for the successful execution of the project have been included and embedding of the research;
- Quality of knowledge co-creation, including attention to and involvement of the complete knowledge chain.
- III. Potential scientific and/or societal breakthroughs
 - Relevance for society, including the relevance of the proposed research for the focus of the call for proposals;
 - Degree to which the proposal aims for scientific and societal breakthroughs;
 - Quality of stakeholder analysis and involvement of wider public/specific target groups;
 - Quality of the Impact Plan, including Theory of Change, Impact Pathway and strategic activity planning;
 - Quality of communication plan for knowledge transfer, including outreach to industry, societal partners, and/or other stakeholders.

5 Contact details and other information

5.1 Contact

5.1.1 Specific questions

For specific questions about the Cooperation South Africa – The Netherlands and this call for proposals please contact:

Contact person NWO: Han van Dijk +31 70 344 09 45 | +31 70 344 09 72 southafrica-merian@nwo.nl

Contact person NRF: Teuns Phahlamohlaka +27 12 481 4385 Teuns.phahlam@nrf.ac.za

5.1.2 Technical questions about the electronic application systems

For technical questions about the use of ISAAC please contact the ISAAC helpdesk. Please read the manual first before consulting the helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours CE(S)T on +31 (0)20 346 71 79. However, you can also submit your question by email to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

For technical questions on the NRF online submission system please contact Mr Stephen Dlamini on tel. +27 12 481 4037 or email: dlamini@nrf.ac.zaOR the NRF Support Desk on email: supportdesk@nrf.ac.zaand tel. +27 12 481 4202.

6 Annexes:

Annex 6.1: NRF budget allocation per allowable research activities

Annex 6.2: List of historically disadvantaged universities

Annex 6.3: Format Letter of Commitment Annex

6.4: Format Impact Pathway

6.1 NRF budget allocation per allowable research activities

The purpose of this funding is to support joint research, human capacity development, mobility and research exchanges between researchers, Post-doctoral, Doctoral and Masters' students within the joint projects. From the NRF side, funding will be made available for the following joint research activities undertaken as part of the joint research project.



Research-related costs

Activities to be supported may include expenses relating to field work such as conducting interviews/ surveys/ laboratory experiments, research-related trips, etc. Airfare, accommodation, ground transport and subsistence should be calculated using rates as stipulated in institutional travel policies.

Staff exchange programmes

Short term mobility or travel expenses (i.e. transport, accommodation, subsistence, visa and health insurance costs) of the research teams between the partnering countries.

A 2-year post-doctoral position

The funds make provision for a post-doc position equivalent to the value of the NRF Free Standing post-doctoral fellowships. The responsibilities of this position may also include the management and administration of this project.

Up to 3 (3-year) doctoral positions

Applicants are to indicate the number of PhD students they wish to enrol. For further details on the eligibility criteria refer to the *NRF Postgraduate Funding Policy*.

NRF Postgraduate student funding policy:

The NRF has developed a new Postgraduate Student Funding Policy that will use postgraduate student funding as a lever to address the challenges of inequity of access, success and throughput. The policy is underpinned by the pursuit of research excellence in all of its dimensions and has transformation of the postgraduate cohort as the core objective. Its purpose is to retain high academic achievers in the system to pursue postgraduate studies up to the doctoral level, as part of a national drive to grow the next generation of academics to sustain South Africa's knowledge enterprise. The NRF is prioritising postgraduate students with research inclination, with the aim to grow the pool of early career researchers. Another motivation for this policy is to fast-track the development of postgraduate students in high-impact, priority and vulnerable disciplines critical for national socioeconomic development.

From the 2021 academic year onwards, the NRF will be phasing out the block grant nomination process as well as the grant-holder linked modalities of funding postgraduate students. All the postgraduate students will be expected to apply on the NRF Online Submission System by accessing the link: https://nrfsubmission.nrf.ac.za/. This single entry point will allow the NRF to co-ordinate the applications that have not yet had the financial means test conducted, this financial means test will be conducted by Ikusasa Students Financial Aid Programme (ISFAP). Postgraduate students will be funded either at Full Cost of Study (FCS) or Partial Cost of Study (PCS) under the new policy. To ensure equity of access to postgraduate studies, financially needy students (i.e., those whose combined household income is R350 000 per annum or less) and students with a disability will be funded at FCS. Academic high fliers achieving a distinction or first-class pass will also be eligible for funding at FCS. International students as well as any other South African students who could not be funded under FCS will be funded at PCS. The academic minimum requirements for NRF postgraduate funding is 65 percent in order to be eligible for FCS and PCS support.

Upon submitting an application to the NRF, the Principal Investigator (PI) will receive a **Reference number**. The PI is expected to encourage his or her Doctoral Students to apply when the call for postgraduate student support is published using the reference number of the PI. The use of the reference number will only apply if researchers have not yet been awarded their research grants. However Students of those PIs who have already been awarded their research grants should be provided with the PI's **UID number**. For further details on the NRF Postgraduate Funding policy, kindly refer to the framework document which is available on www.nrf.ac.za.

Further to this, the Principal Investigators are also advised to encourage their identified postgraduate students to apply for scholarships under the NRF/Nuffic partnership.

Doctoral and post-doctoral research placements

The placements should enable the postgraduate students within the project to:

- learn valuable new skills or techniques;
- access facilities or resources not readily available at home;
- build relationships with potential new collaborators; and



advance complementary collaborative research.

The duration of each placement is expected to be 3-6 months; with flexibility to split the placement into several shorter visits. Longer placements may be undertaken where this would add value and these should be justified within the application. Placements must enhance, not replace, the standard training and study support that the postgraduate students receive. These placements must be managed to fit within the original funded period of the studentship. Additional funding will not be made available through this Call to support studentship extensions for those undertaking international placements. Applicants should include information about how these exchanges will be managed within their proposal.

Knowledge sharing costs (research uptake and science communication)

In support of activities organised by the partners, such as joint workshops, seminars, conferences, symposia, lecture presentations, capacity building sessions, meetings, local/regional dissemination of results aimed at involving stakeholders, and/or end users from outside the consortium. Airfare, accommodation, ground transport and subsistence should be calculated using rates as stipulated in institutional travel policies.

Programme kick-off, mid-term and closing workshops

It's mandatory for researchers to make budgetary provisions (travel and accommodation) to participate at these workshops as they serve as part of the reporting requirements under this Programme.

Small equipment, consumables and accessories

Up to a maximum of 10 percent of the budget may be budgeted for this item.

The following will not be funded from the **South African** side:

- consultant's fees;
- salaries;
- temporary staff fees;
- large equipment, and;
- research operating costs.

The total amount requested from the NRF should not exceed R3.430 mil per project. Funding will be made available for a maximum of 3-years, to be paid in annual instalments and exclusively for research activities commencing in 2021. The funds per project have to be utilised as follows:

- R3 mil per project for research activities, mobility costs of the research team, small equipment and knowledge sharing costs per project (R1 mil per year).
- R430 000 for one post-doctoral position per project at R215 000 per annum for 2-years (R155 000 non- taxable stipend, R45 000 contribution towards research costs, and R15 000 compulsory institutional contribution).
- Support for identified doctoral students will only be released provided they meet the eligibility criteria as outlined in the NRF Postgraduate Funding Policy.

6.2 List of historically disadvantaged universities

The following universities qualify as historically disadvantaged universities:

- 1. University of Fort Hare
- 2. University of Limpopo
- 3. University of Venda
- 4. University of the Western Cape
- 5. Mangosutho University of Technology
- 6. Walter Sisulu University
- 7. University of Zululand
- 8. Sefako Makgatho Health Sciences University



6.3 Format Letter of Commitment

[Template letter of commitment for consortium organisation]							
[The letter should be printed on the stationery of the consortium organisation concerned]							
address main applicant]							
Concerns: Letter of Commitment							
[Location], [date							
Dear [name main applicant],							
Through this letter, I confirm that [name consortium organisation] is available and committed to participate in the proposed project, entitled '[proposal title]', which was submitted to the '[Title of Call]'.							
[outline the availability and commitment of the consortium organisation]							
[if applicable, indicate the consortium organisation's total contribution in cash, or quantify the in kind contribution. This amount should be the same as indicated in the application form .]							
ours sincerely,							
[signed by the head of the organisation/department]							
ocation: [] [signature]							
Date: [] [NAME + POSITION]							



6.4 Format Impact Pathway

Please note: this format is also included in your (full) application form.

Research outputs	Research outcomes	Impact
		1.
		2.
		3.