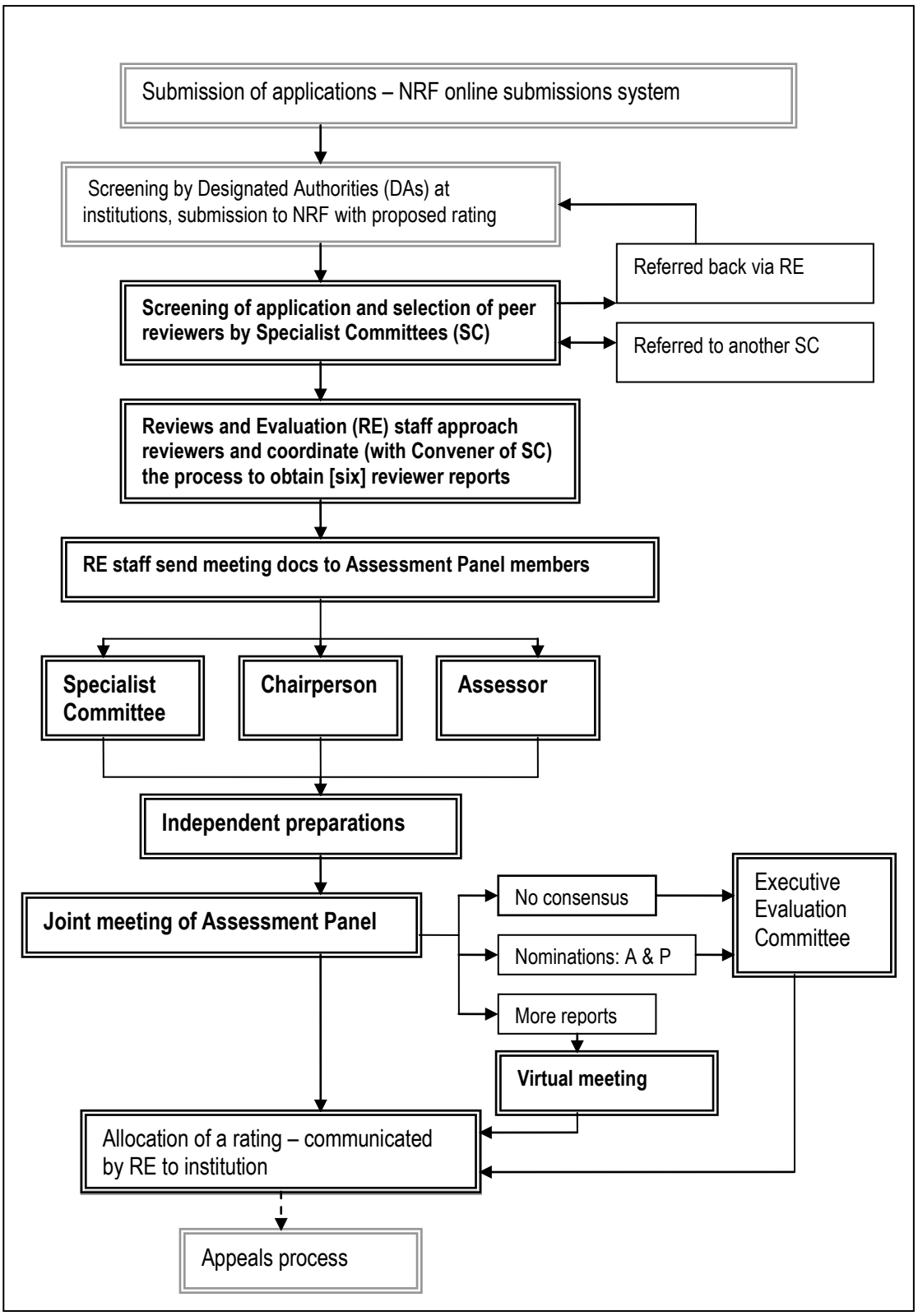
2025

# NRF Rating

INFORMATION PACKAGE

# Process to evaluate and rate individual researchers

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## Evaluation and Rating Application Types

There are four types of applications:

***New***
Researchers who have *never applied* for rating in the past or researchers who previously applied for rating, but the application had been *withdrawn* before it was processed.

***Re-evaluation by invitation***
Researchers who are currently rated A, B, C, P or Y will be invited by the NRF to submit documents for re-evaluation in the *fifth year of their cycle*. Their applications will be evaluated in the sixth (and final) year of this cycle while their current rating remains valid. If successful, their new rating will become valid on 1 Jan of the next year.

***Re-evaluation***
Researchers that have chosen not to respond to the above invitation and whose ratings have therefore *lapsed* (no longer valid), or researchers whose application for rating was unsuccessful three or more years ago. Applicants whose rating application had been unsuccessful *must wait* for three years before they apply for re-evaluation. In these cases, the onus to apply for re-evaluation rests with the applicant.

***Special re-evaluation***
An applicant that is currently rated may apply for a special re-evaluation *sooner than the five-year cycle* (i.e. the year when he/she will be invited) if, since a previous evaluation, an applicant has shown such progress that, in the opinion of the relevant authority at the employing institution the existing rating is quite inconsistent with the applicant's present standing. A newly prepared application must be submitted to the NRF, together with a *motivation* from the appropriate authority stating the reasons why a special re-evaluation is requested. Applications in this category will be screened for validity of the claims before being processed.

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## Eligibility for Applicants

This section should be read by individual researchers and their employing institutions.

### 1. Eligibility

The following persons are eligible to apply for evaluation and rating:

- Researchers who are employed and remunerated on a full-time, part-time or contract basis at South African (SA) higher education institutions (HEIs) (including private HEIs in SA), museums or at NRF recognised research institutions1. (For retired academics/researchers bullet 6 applies.)
- Full-time temporary staff members at SA HEIs and SA museums who enjoy the conditions of service that normally also apply to their permanent full-time colleagues
- Postdoctoral fellows who are conducting research in a full-time capacity at SA HEIs.
- Persons who are being considered for full-time posts at SA HEIs and SA museums (i.e. applications from such persons can be submitted by the HEI considering their employment before they are actually employed).
- Persons holding joint appointments between a SA institution and a foreign institution who are actively involved in research capacity building locally. Such persons should be employed by the SA institution in a full-time capacity for a period of at least three months per annum and should spend at least three months per annum in SA.
- Retired academics/researchers who are
  - resident in SA, and
  - formally affiliated to a SA HEI (e.g. appointed as an emeritus professor, honorary research associate/professor, supernumerary/contract employee) and whose application for rating is formally supported and endorsed by a SA HEI to which he/she is or is anticipating to be affiliated, and
  - active researchers with a distinguished track record in research and postgraduate student supervision, and
  - still actively mentoring/training postgraduate students/young research staff.

### 2. Application for evaluation and re-evaluation

Applications are submitted electronically and can be accessed at: https://nrfconnect.nrf.ac.za . The instructions on how to complete and submit the application are available at the same internet address.

***Re-evaluation Applicants***

Researchers at recognised research institutions who are currently rated A, B, C, P or Y will be invited to submit documents for re-evaluation in approximately five-year cycles. Should a researcher choose not to respond to this invitation, his/her rating will lapse and he/she will not qualify for funding from the Focus Area Programmes and Institutional Capacity Development. Applicants who are not placed in one of the above categories should wait for three years before they apply for re-evaluation. In these cases, the onus to apply for re-evaluation rests with the applicant.

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An 'NRF recognised research institution' is one that meets all the following minimum requirements:

- any South African institution that conducts basic research or applied research,
- of a pre-competitive nature,
- for the benefit of the long-term knowledge base,
- within the declared NRF focus areas,
- containing a research training component leading to master's degrees and doctorates, while being committed to equity and redress.

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EVALUATION AND RATING

# Considerable International Recognition (CIR)

## A Guide for NRF Specialist Committees and Assessment Panels

**Updated Oct 2023**

# 1. Introduction

In drawing together the principles and practices that underpin its internationally benchmarked system of evaluating and rating researchers, the National Research foundation (NRF) must take cognisance of the variety of disciplinary and academic conventions and practices that it represents. The notion of considerable international recognition (CIR) requires contextualisation within the broad area of research undertaken. In other words, there is not *a priori* set definition but research and scholarly work must be placed in the context of the diverse academic research practices that characterise humanities, social science and natural science research in South Africa and internationally.

It is this diversity in academic research practices that has frequently led to different perceptions amongst panel members and assessors of the concept of "considerable international recognition" as a prerequisite for placement in the B-category of rated researchers. This is leading annually to lengthy debates in panels about the placement of candidates in the C1 or B3 rating categories and in frequent non-consensus referrals to the EEC for a final decision.

This attempt in clarifying the concept must not be seen as an attempt to find a "one size fits all" definition, but rather to obtain clarity of the concept, given differing conventions and practices in certain disciplines.

This document has been informed by specialist committee specific articulations on CIR developed in the 2009 – 2011 period. In defining CIR, we aim to balance the tension between a workable definition that aims for equity of process across the vast academic terrain that the NRF rating covers, as well as the context specific dynamics and networks that shape knowledge production and its dissemination in particular disciplines and cognate areas of research across the humanities, social sciences, engineering and natural sciences. This is a difficult mix, reflected in this document in a set of principles, as well as the more specific guide that suggests indicators that help us identify and assess CIR through the reviewing and rating process. It can generally be applied to all the disciplines and sub-disciplines with the possible exception of a few sub-disciplines with a strong local or regional emphasis (See item 3, below).

As a starting point, there is a need to differentiate between research that results in a researcher achieving international standing and research of international standard. As the quality of research is benchmarked internationally by way of peer review processes, the NRF expects **all research it supports to be of an international standard**. This implies that any researcher who submits for rating should conduct research that meets internationally accepted standards of quality, i.e., the research should be of a nature that it would, everything being equal, be accepted in a widely recognised international journal of quality. However, conducting research of international standard does not necessarily automatically afford the researcher concerned international standing.

# 2. Towards a common understanding of CIR

Scholarly research has different qualities that help us place a body of work in relation to the question of CIR. Broadly, these are sketched below in three categories.

1. Researchers are participants in an ongoing disciplinary discussion, following wellestablished protocols and paradigms, actively doing research and writing in important, though predictable ways that constitute a disciplinary conversation, but do not impact it significantly. It is generally regarded as solid and useful, and adds incrementally to new knowledge. This may be appreciated and recognised as such by the international community of scholars and hence afford the researcher some international recognition

2. The research has depth and provides a new twist on an argument, a theory, or a method. In doing so, the body of work adds new life, making a substantive contribution, not just participating in a debate. This type, level and quality of research usually has international impact.

3. The research demonstrates leadership in a field and discipline. It offers a definitive contribution to theoretical or methodological debate. This research cannot be ignored by the field as it challenges and changes the paradigms and theories that underpin disciplinary debates. Such leadership through globally significant, paradigm shifting research is rare.

## 2.1 The output and outcome perspectives

The output dimension of a publication interrogates aspects such as the quality, methodology, and rigour of the research and must adhere to internationally accepted standards and norms of scientific publication in the disciplines concerned. These dimensions on their own do not afford a researcher CIR. The outcome of the publication on the other hand is the extent to which the research has impacted on the discipline and/or has useful applications, and it is largely this dimension of the published research which can afford the scholar the level of recognition required to comply with CIR in the rating system.

From an output and outcome perspective the description of the second category, which is normally applicable to CIR, can be expanded by considering the definitions such as:

- "Work should be recognised as being fundamental in her/his specific field of research; fundamental in the sense that it contributes to new thinking, a new direction and/or a new paradigm in the field of research, and to contextualise it in the international arena even if it relates to/engages mainly with local issues." Important here is to differentiate between "contributing" and "leading" with the latter referring to leaders in the field.
- "Researchers ...that ... have recently produced research that is internationally excellent in terms of originality, significance and rigour, and which substantially advances knowledge and understanding in the field." (Where international excellence equates with high quality and impact).

It may be more appropriate to reconfigure CIR as c**onsiderable scholarly recognition internationally / globally**, i.e.: Excellence in scholarship that reaches beyond the local circle and registers in terms of international / global scholarly debate appropriate for significant work in a particular field**.**

## 2.2 Outcomes and impact measures

There is general consensus amongst most panels that there are quite a number of clear indicators of CIR. These should be addressed in support of any statements by reviewers regarding the standing of the applicant in their reports. Indicators of CIR include the following, in no specific order of importance:

- Citations and h-indexes, i.e., a reflection of the influence on the research of others, but with due acknowledgement that these vary greatly depending on disciplines and evensub-disciplines and the databases used for their calculation. These can never be used as a hard and fast rule as a measure of CIR, but can provide valuable guidance;
- Impact Factors of journals, where known, otherwise in internationally recognised quality journals with a wide readership;
- Books/monographs published by well-known international publishing houses and used by international researchers as scholarly texts;

- Invitations to contribute chapters to books published by well-known international publishing houses;
- Invitations to write major reviews on the topic of specialisation;
- Invitations as keynote/plenary speakers at high profile international conferences;
- Invitations to act as external examiner of PhD theses by prominent scholars in the field;
- Co-supervisors of PhD students of prominent scholars in the field;
- Awards by international scientific societies/organisations;
- Leader of or leading role in international collaborative research projects.

The list is not definitive. None of these indicators individually is a necessary condition for CIR and none is a decisive indicator. It is the **collective weight** of a number of these indictors highlighted in the reviewers' reports that could point towards a person enjoying CIR. A reviewer's opinion would be questionable if it is not based on some of these indicators and the scoring of the review report should then reflect this deficiency.

## 2.3 Qualified outcomes and impact measures

This includes invitations to serve on or become a member of, e.g.:

- Editorial Boards of Journals;
- Committees of international societies, advisory boards, conference organising committees, international research programmes;
- Convener/organiser of international conferences.

Although invitations are in many instances an acknowledgement of a researcher's international standing, this is not necessarily always the case, as such invitations may also be due to the need for regional representativeness on committees and boards or a recognition of the person's managerial, administrative and/or communication abilities. In the latter case there are often some indications in reviewers' reports that the research outputs do not equate with the standing based on these considerations.

## 2.4 Conventions and practices in disciplines

In assessing whether a researcher enjoys CIR, cognisance needs to be taken of different traditions in different disciplines. For example, the publication of a book or monograph by a reputed publisher and positive reviews published in international journals are considered to be essential outputs for CIR in many human and social sciences disciplines, rather than a series of publications in scholarly journals. In other, fast evolving disciplines, e.g., Information and Communication Technology, peer reviewed conference proceedings are often the preferred publication avenues for rapid dissemination of research findings.

For example, the specialist committee for the Performing and Creative Arts and Design panel has differentiated scholars in the field who conduct "formal" research and where the same kind of criteria for CIR referred to above apply, and Creative Practitioners.

Similar to the earlier example, the list is not definitive. Also, none of these listed indicators is a necessary condition for CIR and none is a decisive indicator. It is the collective weight of a number of these indictors that could point towards a person enjoying CIR.

# 3. The issue of regional/local relevance

A concern expressed by some specialist committees in the social science, law and humanities (particularly languages) is the difficulty of obtaining CIR when focussing on research topics that are of great local importance and significance but where there is little or no interest globally. In the social sciences 'theoretical' work is often given undue precedence over

empirical work, reflective of the ways in which debates and academic practice are configured in the global North. In the South African and more broadly in Southern contexts, original empirical knowledge is often crucial, leading not only to a better understanding of our societies but also to innovative theoretical work. The question that needs to be considered by assessment panels in such cases is not only whether the research is really so isolated that local or regional insights cannot be explored to develop innovative theories or testing of existing theory and thereby contribute to the international body of knowledge, but also whether it should not be the applicant's duty to do so? Related to this are concerns expressed by some specialist committees where such work does not resonate with research and knowledge practices of the Anglo-American social science and legal contexts, i.e., the environments where the notion of CIR is traditionally contextualised for most other disciplines by virtue of their academic dominance. Senior scholars in these fields should publish locally as well as in disciplinary journals globally as they in particular are best placed to propagate an alternative 'Southern' voice and thereby attain CIR.

Despite this, there are examples from languages, law and some other fields in which research is conducted of which the quality and impact conforms to the features of that described in item 2.1, but because the impact is on local issues they are at a disadvantage for a variety of reasons. This may be because the scholarly community is small (e.g. research into some of the country's national languages), or the subject matter is not of international interest (e.g. research into the work of a national literary figure as opposed to one with global stature or iconic status), or the research is primarily of national interest (the law of procedure or tax law), or the research has a strong locality focus, aimed at resolving social problems in local communities. The importance of these kinds of research activities may not be underestimated and hence care must be taken that the rating system does not become a disincentive to scholars to engage in local problems and challenges and result in deliberate decisions to alter focus or to engage in the one area above the other at the expense of the community that the research is intended to serve. Such decisions should be on scientific grounds and not be influenced by a rating system.

## 4. Extent of Specialisation

Numerous researchers engage in more than one area of specialisation with different levels of recognition by peers. A researcher may, e.g., be regarded as having CIR in one area of specialisation but not be as highly regarded in another area. In such cases reviewers' reports collectively tend to result in a C1 rating. In fairness to the researchers, assessment panels should in such cases solicit more reports in the areas of indicated CIR to confirm or challenge this standing.

Related to this is the size of the area or a high degree of specialization within a small subdiscipline, or within an African context, but often also emerging new research areas. In all such cases the community of researchers in such fields can be small and hence the choice of peers is limited. A frequent occurrence in such small communities is an overestimation of the importance of the research. Important considerations for CIR in such cases are issues such as comments by peers on their importance and impact within a broader disciplinary context, the standing of peers within the broader community, and evidence of contextualisation of the area of specialisation in a broader knowledge domain.

## 5. Selection of reviewers

It needs to be recognised that the NRF rating system was conceptualised as an internationallybenchmarked system. It is for this reason that peers/reviewers internationally must recognise the research as such and that specialist committees in the selection of

reviewers, should select peers beyond the borders of South Africa if they believe that an applicant may on the basis of his/her research be afforded CIR.

CIR transcends international boundaries and is best done in the context of a community of scholars. What counts, though, is the expertly-informed nature and level of peer recognition in quality reports. There is general consensus amongst the different specialist committees that reviewers themselves should ideally enjoy CIR in order for their opinion to carry weight. This does not exclude South African reviewers who are established researchers and who are well suited to assess such work in relation to broader global debates, and hence well qualified to express an opinion regarding CIR.

## 6. Conclusions

This document provides a general outline of what is meant by CIR and identifies criteria for CIR that can generally be applied across the various assessment panels. Specialist committees do however play a crucial role in articulating the principles outlined in this document within the context of disciplinary conventions and practices, i.e. in ways that are relevant and appropriate for CIR in the areas of scholarly research considered in the rating applications. Furthermore, specialist committees not only play a key role in the identification of appropriate reviewers, but also in contextualising and with the necessary nuance any notion of CIR as it plays out in the individual ways in which the rating review process assesses individual South African researchers.

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**Interpretation of CIR: Specialist Committees for 2023**

Anthropology, Development Studies, Geography, Sociology and Social Work

Basic and Applied Microbiology

Biochemistry, Molecular and Cell Biology

Chemistry

Communication, Media Studies, Library and Information Sciences

Earth Sciences

Economics, Management, Administration and Accounting

Education

Engineering

Health Sciences

Historical Studies

Information Technology

Law

Literary Studies, Language and Linguistics

Mathematical Sciences

Performing and Creative Arts, and Design

Physics

Plant Sciences

Political Studies and Philosophy

Psychology

Religious Studies and Theology

Veterinary and Animal Productions Studies (previously A&V 2) and

Zoological Studies (previously A&V 1)

**Anthropology, Development Studies, Geography, Sociology and Social Work (ADGSS)**
In principle and in practice, the ADGSS panel requires a thick, contextual definition of 'international recognition'. For three reasons we have an imperative to define 'international' carefully and contextually.

First, in assessing 'international recognition' panel members must be wary of prioritizing and rewarding a particular sort of research and knowledge that reflects the biases and practices of Anglo-American social science and its dominance in the academy. All too easily 'international' equates with publishing and review in and by North American and UK-based experts. Panel members must not simply equate work published in these northern contexts with international recognition and thus a high quality assessment. And, the inverse: a local journal should not by definition be disqualified as a source of 'international recognition'. In parallel, panel members should weigh carefully their assessment of reviewer reports, ensuring that we do not overly prioritize those outside of South Africa, on the basis that they are 'international'. Local peers are often in as good or a better position to judge the quality of our work, able to assess it critically locally and in relation to broader regional and global debate and standard.

Second, this Specialist Committee (SC) is constituted by a diversity of disciplines. This diversity demands a broad notion of 'international' that appropriately and contextually responds to the ways in which knowledge and its networks are configured in the disciplines which ADGSS review for rating. Cognizance and careful weighting of journals, for instance, and their significance cannot be read solely off so-called 'international' indices. Indices are one source of assessment, but their weightings reflect different disciplinary bases and power (a paper published in an economics journal will be more highly ranked than one from an anthropology journal, for instance); moreover, they are reflective of a particular prioritisation of journal-based social science dominated by the English speaking world, the northern academy in particular. In some disciplines, the publishing of monographs and of book chapters is of greater importance.

Third, panel members must pay careful attention to the ways in which notions and assessment of 'international recognition' weight empirical (for instance, field-based primary research) as secondary, as of less importance 'internationally' than theoretical knowledge production. In the social sciences 'theoretical' work is often given undue precedence over empirical work, reflective of the ways in which debates and academic practice are configured in the global North. In the South African and in southern contexts, original empirical knowledge is often crucial, leading not only to a better understanding of our societies but also to innovative theoretical work. Panel members must be careful not to replicate through review processes and their assessment of 'international recognition' a narrow notion of 'international' that conservatively pushes South African scholars to write in particular ways and on particular topics that do not reflect South African priorities. Senior scholars should publish locally as well as in disciplinary journals globally.

SA ADGSS researchers work in a globalised world, where many of the problems resonate elsewhere, and they learn from and contribute to debates and research undertaken outside of SA's borders.

The ADGSS SC suggest instead that the panel must holistically and fully assess research on a wide array of standards and criteria that are reflective of South African and southern research imperatives, that are thus global, and thus reflect a contextual and appropriate notion of what is 'international'.

**Basic and Applied Microbiology**
A microbiologist / plant pathologist should be rated as having considerable international recognition if they have:

- An ISI Web of Science core collection h-factor of at least 15,
- A majority of their publications as senior author in high impact international journals,
- Been invited to give presentations at international meetings,
- Regularly reviewed manuscripts for international journals,
- Regularly reviewed grant proposals from local and international funding bodies,
- Editorship or associate editorship of international journals,
- Organised or been on the scientific advisory committee of international conferences.

**Biochemistry, Molecular and Cell Biology (BIOC)**

International recognition is reflected by the following (roughly in order of decreasing weight):

1. Peer reviewed publications are seen as being of high quality. Some evidence for this could be that papers have been published in high impact journals, are held as excellent examples of a particular research field, or data (tables or figures) from the work is included by international authors in seminal reviews, book chapters or books.
2. Research publications (in peer reviewed journals) are being regularly cited by international peers. Evidence for this would be high numbers of citations of several papers, and a high h-factor.
3. Publications that are judged by international peers to have had a wide impact in Biochemistry, Molecular or Cell Biology science.
4. Authorship of a book or book chapter(s) that are held in high regard and used by international researchers as scholarly texts s).
5. Invitation by international peers to contribute book chapters or subject reviews.
6. Research itself is seen by international peers as ground-breaking or leading the way.
7. Collaboration with international researchers – this must be more than 'tokenism' e.g. simply providing specimens. Researcher must be seen as an equal partner. Considerable international recognition could mean being a leader of an international research project.
8. Invitation by conference/symposium organisers to present plenary lectures or key noteaddresses at international conferences (an international conference can be within the
borders of South Africa). Someone with **considerable** international recognition would have received several such invitations.
9. Invitation to edit an international journal or be part of an international editorial board. Invitation to review papers for non-South Africa journals also attests to some international recognition.
10. Any awards by international scientific societies.
11. Being voted onto the executive committee of an international society.
12. Being invited to serve on international scientific advisory boards.
13. Being invited to examine international PhD theses.

**Chemistry**

Chemistry is inherently carried out in an international context. The techniques and methodologies used are developed all over the world and it is critical for a chemist (even one working exclusively on South African problems) to keep up to date with global research. Conversely, one measure of the value of our research is its acceptance into the international media.

The degree of recognition is measured by the number of original and regular articles published in high to very high impact factor journals. This will lead to invitations to conferences, to review/write articles, collaborations, awards, etc. Peer review systems conducted by international established leading researchers will recognize this. International recognition is all of this, but judged by or in relation to researchers in those countries that drive fundamental and applied research worldwide. The careful use of h-index in the context of the narrow

research field could also be an indicator. Local or regional trouble shooting research will do very little to draw international recognition, unless it results in more generalized conclusions.

The term “considerable” international recognition means that the researcher is well known to his peers for his innovative work in his field of research and to some degree known by other scientists working outside the narrow field of specialization.

Summarizing: international recognition can be deduced from whether the candidate

- has a demonstrable record of being invited for Keynote and Plenary lectures at notable international conferences
- has received international awards/prizes etc.
- is invited to write major reviews, and regularly acts as referee to major journals
- has a high H-factor (although great caution should be exercised to this metric)
- is on advisory/editorial boards for important journals
- serves on important scientific organizations, boards etc.
- is “known” by other important scientists, even if outside of their scientific specializations.

**Communication, Media Studies, Library and Information Sciences (CMLI)**
Considerable International Recognition in this panel means that an applicant's work should be recognised as being fundamental in his/her specific field of research. Fundamental in the sense that it contributes to new thinking, a new direction and/or a new paradigm in the field of the research.

In other words, if for instance a South African communication/media/journalism researcher's work in the field of South African audience studies contributes to a new approach/new thinking about media audiences in general and is considered to be as such by (all) the reviewers, then the applicant's work receives "considerable international recognition". One can publish numerous articles in an ever growing list of international indexed journals, without being original and without contributing something fundamentally new to the field. We don't think that necessarily constitutes "considerable".
Some indicators of considerable international recognition would be the following:

- Clear statements by leading scholars about the international impact of the work
- Several publications in international journals indexed in reputable indices
- Authorship of a significant academic monograph that was well-received internationally
- International awards for scholarly work
- Invited plenary and keynote lectures at international conferences (i.e. not just being accepted to present a paper at an international conference)
- Editor or associate editor of international journals
- Reviewer of international grants
- Member of international advisory panels
- Authorship of book chapters in internationally edited books
- Invitations to write review articles in international journals
- Organising international meetings
- International research collaboration
- Recipient of international grants

**Earth Sciences**
The meaning must imply that the person being evaluated must enjoy recognition internationally and not just locally, and that this can be reflected in a number of indices of international standing, such as:

- publications appearing in high-impact international journals relevant to the particular

sub-discipline
- a high level of citation, as reflected in their h-index
- involvement in collaborative projects with other internationally recognised scientists and groups
- invitations to be plenary or keynote speakers at major international scientific gatherings.

To have achieved CIR the person must have some combination of some of these indices in their research profile.
The term “CIR” also suggests that the person is recognised by peers as an international authority in a discipline, but without necessarily being considered a global leader in the field.

**Economics, Management, Administration and Accounting (EMAA)**
A researcher with CIR could work on SA or Africa alone but could be world class on the basis of his/her contribution to the international body of knowledge through the content and its application to theory and also through the techniques being used. International recognition would require publishing in leading international journals in the field. An example would be an economist working on competition theory who is using SA as a case to explore and test existing theory but then is able to further contribute to the international body of knowledge. The use of SA as a case is incidental but there must be a contribution to the international body of knowledge which is recognized by international peers.
Indicators of considerable international recognition include, amongst others:
- Publication in high impact international journals,
- Invitation as keynoter to premier international conferences in the discipline,
- International awards or recognition for research contributions to one's field,
- Editor or Associate editor of well recognized international journal, and
- Research contributions to peer reviewed chapters in edited volumes for reputable international publishers.

**Education**
International recognition is reflected by the following:
- More than occasional publication in the top tier of journals in the applicant’s field* Publication of books under the imprint of non-South African publishing houses - including international publishing houses with branches in South Africa - or under the imprint of South African publishing houses known to reach beyond the country's borders
- Presentations and requests to deliver keynote addresses or present in plenary sessions at conferences involving more participants from other countries than from South Africa (but also including itinerant international congresses being held at that time in South Africa)
- Citations of an applicant’s research in top-tier journals or by known leaders in the field, and
- Invitations to contribute to, consult with or participate in projects involving non-South African colleagues, to sit on editorial boards of non-South Africa-based journals, and to act as external examiner or co-supervisor with known experts and leaders in the field.

**Engineering**
In deciding whether or not an applicant enjoys “considerable international recognition”, we must rely principally on the opinion of the reviewers who, after all, are representative of the peers in the field. What this implies is that even if, for the sake of argument, an applicant does not have a particularly high number of publications, or does not have a particularly high h-index, the applicant could still be considered as having “considerable international standing” (or even as a “leading international researcher”), if the majority of peers in the field

say so (as evidenced by the reviewers' reports). This is because there are several other important indicators of "international recognition". So, it is important that the reviewers themselves enjoy "considerable international recognition" in order for their opinion on an applicant to carry any weight in this regard.

So how do we decide if an applicant enjoys "considerable international standing"?
If the reviewers explicitly include statements to this effect in their reports, we can accept this if the statements are supported by satisfactory evidence. If there are no explicit statements within a reviewer's report, we should look for praise for the candidate's recent work. This praise may be for example for one of more of the following:

- A breakthrough or a significant step forward in theory or design practise
- Significant multiple smaller contribution(s) to the field or subfield.
- Creativity, innovation, etc.

The essence is the quality, and to a lesser extent the quantity of work within the sliding window of the review period. If the quantity is not commensurate with the discipline/subfield, reviewers usually point this out, while they also tend to acknowledge quantity achievements. The reviewers report can be verified using the impartial indicators presented below. If there is a significant discrepancy, more reports should be requested form reviewers of an international standing. In general, the following indicators can be considered as evidence of "considerable international standing" (including "high" international standing):

- Applicant has a substantial number of recent high-quality publications in the leading international journals in one's field, as testified by the reviewers Most of the applicant's publications are on the international level: reputable conferences, journals or book publishers. This is discipline specific, for example in electrical engineering the sponsorship will most probably be by the professional societies the IEEE or IET. Consequently international peers of significant standing have read, or at least know about the applicant and his/her work.
- applicant is regularly invited to review manuscripts for the leading international journals in one's field (this shows the applicant's knowledge of the subject and scientific judgement are respected and valued by peers)
- applicant is an editor or serves on the international editorial board of one or more of the leading international journals in one's field (leading international journals only appoint researchers of high standing to their editorial boards)
- The applicant has an international presence, and participates in international forums. He/she is occasionally invited to participate at international conferences as a "keynote speaker" or an "invited speaker"
- applicant facilitates interaction and dissemination of research findings within the international scientific community by organising or chairing important international conferences
- applicant has been elected to prestigious Fellowships within one's field (e.g. Fellow of the Royal Society; Fellow of a prestigious academy of science or engineering), or holds one or more honorary doctorates from reputable universities
- applicant has won prestigious international awards or prizes for their work (including engineering designs for products or processes) or for the quality of particular research outputs
- applicant has a strong international presence through serving on several scientific committees and advisory boards of international conferences
- the applicant has facilitated wide-ranging communication and interaction between international researchers and research groups
- applicant holds international patents especially when these have been licensed to third parties
- applicant has received numerous recognitions including honorary doctorate degrees

from the universities although this probably indicates an international leader

An applicant should satisfy preferably at least a number of these indicators in order to be deemed to enjoy “considerable international recognition”, but in certain cases, even one such indicator may be sufficient.

**Health Sciences (Public Health / Clinical Health and Basic Health Sciences)**
Considerable International Recognition (CIR) indicates that a researcher is recognised beyond the African continent for the high quality, impactful scholarly body of work that he/she has produced over the eight year period of review (realising that CIR often develops over a period of time and thus need not necessarily be based just on recent work. The research will be discussed extensively by others beyond Africa and beyond the researcher’s immediate circle of collaborators, who do not necessarily know the applicant personally, but who work in the same /related field. The research will have substantially contributed to new thinking, a new direction and/or a new paradigm within the field. Consequently, CIR within the broad discipline of Health Sciences will be evidenced by many of the following criteria which are ranked in a general order of weighting.

**(Note**: The list is not definitive. None of these indicators is individually a necessary condition for CIR and none is a decisive indicator. It is the collective weight of a number of these indictors highlighted in the reviewers’ reports that could point towards a person enjoying CIR).

- Publication of original research articles in respected high-tier, relevant journals in the field (impact factor) with a major author position
- High citation rates (citation index) indicating that publications appear in literature searches, and are frequently cited in international journals by researchers outside South Africa.
- The above criteria will be reflected in the h-index of the researcher, which will be among the upper scores of researchers in the cognate field. The use of this bibliometric will be applied judiciously by the panel, acknowledging that it is not an absolute measure
- Principal Investigator on prestigious international grants
- Initiator or major partner in international collaborations (i.e. evidence of inputs into the conceptualisation, design and evaluation and interpretation of the collaboration projects)
- Invitations to write reviews for leading journals in the field
- Invitations from reputable international publishing houses to write book chapters/edit books in the field of specialisation, which are used by international researchers as scholarly texts
- Regular invitations to give keynote addresses/plenary lectures at high profile international conferences
- Awards from prestigious international scientific societies/organisations, higher/honorary degrees
- Elected a fellow/member of learned international societies/academies and scientific advisory committees
- Appointment as advisor to high level international organisations engaged in globally defining policy recommendations and guidelines pertaining to the improvement of health systems (e.g. WHO)
- Editorial board positions on reputable international journals
- Chairing sessions/organising international meetings/conferences
- Fellowships/visiting professorships/honorary or adjunct professorships at international institutions
- Invitations to act as external examiner of PhD theses by prominent international scholars in the field

- Reviewer for prestigious international journals

**Historical Studies**
Historians in South Africa can be said to enjoy international recognition if their work has had an impact beyond the southern African region. This would involve their work having been noticed, discussed and/or used by scholars elsewhere, for example for teaching or research purposes. While international publications are not the only benchmark for assessing international recognition, publishing in leading international journals and/or with respected international publishers will usually be the basis for a scholar's claim to have found an international audience.

**Information Technology**
Besides the classic indicators for CIR* based on publication venues and impact factors (including h-index), we also consider the following indicators:

- Programme chair for major conference
- Keynote speaker
- Program and Organizing committee membership (especially for major conferences)
- Steering committee for major conference
- Elected to high ranking positions in, for example, the ACM, IEEE, IFIP and AIS?

*With regards to the term 'international' we would like to exclude the meaning where a researcher has worked in a number of research groups in more than one country and that this would be seen as having an 'international' status. We would rather like to see it as having an impact in a community wider than national and other than that in which the researcher is/was closely related.

**Law**
International' should be defined carefully and contextually. In assessing 'international recognition' care should be taken not to prioritise and reward a particular kind of research and knowledge that reflects the biases and practices of Anglo-American social science and its dominance in legal literature. All too easily 'international' equates with publishing and review in and by North American and UK-based experts. There is an increasing and laudable tendency for South African legal academics to engage in international research in a regional and African context. Recognition by African peers must accordingly bear an equal weight to recognition by peers from elsewhere in the world.

Law is constituted by a diversity of disciplines. This diversity demands a broad notion of 'international' that appropriately and contextually responds to the ways in which knowledge and its networks are configured in the disciplines which we review for rating.

International recognition is therefore clearly a multi-faceted concept and is achieved in a number of ways and suggested criteria are listed below. Broadly speaking the **possible ways** by which a researcher could claim to have international recognition would include:-

- Publishing research (in peer reviewed journals and books), which is regularly cited by international (or internationally acknowledged) peers.
- Producing research which is regarded as being of high quality by international and internationally acknowledged peers. Some evidence for this could be that papers have been published in high impact journals; are held as excellent examples of a particular research field; or data from the work is included by international authors in seminal reviews, book chapters or books.
- Producing publications that are judged by international or internationally acknowledged peers to have had a wide impact in legal scholarship or practice.
- Authoring of a book or book chapter(s) that are held in high regard and used by international and internationally acknowledged researchers as scholarly texts.
- Receiving invitations by international or internationally acknowledged peers to contribute book chapters or subject reviews; to collaborate on multi-partner,

international projects; to participate in workshops, seminars and colloquia which attract an audience reaching beyond the South African legal sphere.
- Generally producing research which itself is seen by international or internationally acknowledged peers as ground-breaking or leading the way.
- Collaborating with international researchers. Researcher must be seen as an equal partner.
- Receiving invitations by conference/symposium organisers to present plenary lectures or key note addresses at international conferences. (An international conference may also be within the borders of South Africa.)
- Invitation to edit an international journal or be part of an international editorial board. Invitation to review papers for non-South Africa journals also attests to some international recognition.
- Any awards by international scientific societies.
- Being voted onto the executive committee of an international society.
- Being invited to serve on international scientific advisory boards.
- Being invited to examine international LLD theses.
- Being consulted on the basis of his/her expertise by legal practitioners / government / institutions beyond immediate national boundaries.

**Literary Studies, Languages and Linguistics**

Linguists as well as Literary Scholars in South Africa can be said to enjoy international recognition if their work has had an impact outside South Africa. This would involve their work having been noticed, discussed and/or used by scholars elsewhere, for teaching or research purposes. Considerable international recognition will be when the Scholar's work is used and / or discussed widely by scholars elsewhere.

The disciplinary nature of certain investigations in the humanities in particular is extremely specific. An obvious example would be the study of Shakespeare in English literature - there are many journals across the world devoted exclusively to research on Shakespeare, and a large number of journals for Renaissance English literature. It is quite possible to get international recognition, because the phenomenon of Shakespeare studies is inherently international. If one were to conduct research in exactly the same manner, i.e. highly specialised work on the oeuvre of a major author in another literature, and that literature happens to be a South African one, then there is a very extensive risk that one may never attain considerable international recognition. This applies equally to literatures written in Afrikaans and in indigenous African languages. If one were to write about these literatures in English and conduct comparative research, there is the potential of reaching an international audience. However, this implies research of a more sociological nature, exploring how a literature or an individual text engages its social context. This is but one way of studying literature, and certainly not the way that is most highly regarded by literary scholars. Close textual hermeneutics, the most central activity in literary studies, is of necessity bound to the language of the text, and lost upon readers who are not fluent in the language of the text.

The dilemma, is that the same scholarly activity potentially gives one a shot at a B rating if the literature itself happens to be English or another European language (thus, there are Brated scholars in French, German and even Russian literature), but specialists on individual South African languages find it excruciatingly hard to get above C2. Afrikaans scholars with higher rating almost invariably have a secondary interest in something else, or focus on Dutch literature too, to give them a shot at the higher rating.

Scholars focussing on African literatures generally have ratings above C2, but those engaged in the textual hermeneutics of individual languages and their texts are trapped.

So, it is not merely a case of working differently: the two avenues - hermeneutics and sociological, represent different research paradigms, contested by literary scholars, and a choice for the one above the other should be made on scientific grounds, and not be forced upon scholars by a rating system.

By contrast, linguistics is by nature a much more comparative enterprise, and the major theoretical movements are shared across languages. Linguists commonly read about research conducted on languages they do not themselves speak or understand, whereas it is extremely odd for literary scholars to do so.

**Mathematical Sciences**

A mathematician enjoys a considerable international recognition if he/she satisfies several of the following criteria:

- Is invited as a plenary speaker at international conferences and workshops (international means with organizing committee and significant number of participants drawn from more than two countries);
- Is invited as an external examiner/co-supervisor of PhDs internationally;
- Is a member of Editorial Boards of journals or book series which are either ISI rated or published by main publishing houses (Elsevier, Springer, Taylor-Francis, etc.);
- Is an author of research monograph(s) published by one of the main publishing houses, review articles or seminal papers;
- Received fellowships/visiting professorships/honorary or adjunct professorships internationally;
- Is regularly invited for research visits or lectures at overseas universities;
- Received higher/honorary degrees, awards etc. for research achievements, is elected a fellow/member of learned societies/academies;
- Is invited as member of scientific committees at international conferences;
- Receives considerable number of citations and has an h-index or other indexes of high enough (area related) value.

**Performing and Creative Arts, and Design (PCAD)**

[Comment from Specialist Committee: The panel did not wish to restrict the text to CIR: we felt that greater clarity and definition would be gained if we contrasted 'some' and 'considerable', in relation to international recognition. In the experience of our panel, many applicants have 'some' IR; in order to avoid ambiguity, therefore, we have recognised this, and shown that this is not the same as 'considerable' IR. Hence our submission leaves no doubt that CIR is the touchstone]

The PCAD panel deals with applicants of the following sorts:

1. *Researchers* – such as art historians, design or architecture historians, musicologists, ethnomusicologists, music educationists, and theorists of theatre and dance. [These are dealt with in ‘A’, below.]
2. *Creative Practitioners* – whether in art, music, theatre, design or architecture. [These are dealt with ‘B’, below.]
3. Those who work as *Researchers* and as *Creative Practitioners* – whether in equal proportions or not.

**A: Scholars of Creative Arts and Design, Music, or Drama, who operate in the arena of Formal Research**

**Examples of clear markers of international recognition**:

- Has authored articles in refereed scholarly journals published outside of South Africa which are widely regarded as important journals in the discipline or field; or has edited such a journal.
- Has authored or edited books which have been published by publishing houses outside South Africa which have wide reach.
- Has contributed chapters or essays to books which have been published by

publishing houses outside South Africa which have wide reach.
- Has presented papers at conferences held outside South Africa.
- Has been invited to deliver keynote addresses at conferences outside South Africa; to visit universities to deliver lectures which have prestige value attached to them; to take up senior-level research fellowships, etc.
- For Art Historians (normally): Has been the recipient of invitations to curate exhibitions at major – i.e., international – museums or to produce essays for their catalogues.
- Has been invited to contribute to encyclopaedias, readers, *Festschriften*, etc., published outside South Africa.
- Has served as a member of the council or executive committee of a reputable, international academic body.

**Example of some international recognition:**

- Has authored articles in refereed scholarly journals published in South Africa but with a readership that is not limited to a local community; or has edited such a journal.
- Has authored or edited books which have been published by South African publishers, but whose texts have a reach wider than South Africa alone.
- Has contributed chapters or essays to books which have been published by South African publishers, but whose texts have a wider reach than South Africa alone.
- Has presented papers at conferences in South Africa which have attracted delegates who are not only local, and/or which have been organised by professional associations with memberships (or sub-entities) in a number of countries.
- Has curated exhibitions and contributed essays to catalogues that, while local, have attracted international viewers and readers.

A person with a ***considerable international reputation*** will have a large number of outputs which are clear markers of international recognition.
Markers of ***some international recognition*** may figure in this profile, but would need to coexist with clear markers of international recognition for the individual to be deemed to have a 'considerable' international reputation.

**B: Creative Practitioners, who operate in the arena of Creative Arts and Design, Music, or Drama**

**Examples of clear markers of international recognition:**

- Has held one-person exhibitions, or has been a featured creative artist, playwright or composer, at prestigious venues outside South Africa; and the featured works have been critically reviewed in appropriate publications.
- Has participated in (critically reviewed) art, music, or drama performances or exhibitions outside South Africa.[1]
- Has received commissions for public art, musical compositions, plays, theatre designs, design projects, and the like, outside South Africa.
- Has been invited to do curatorial work or installations, or to direct or choreograph productions, or to design sets, costumes or lighting for productions, or to dance, act, play
  or sing, in theatres, concert halls, major museums or other recognised venues, outside South Africa; and this work has been critically reviewed in appropriate publications.
- Has released music recordings on reputable labels, or has had work significantly featured in programmes on major radio or television stations, outside South Africa – and this work has been critically reviewed in appropriate publications.
- Has had play scripts or musical compositions published by internationally recognised publishers – and these have been critically reviewed in appropriate publications.

*[1] Where such work has taken place outside of art venues such as museums, galleries, concert halls or theatres, it should have been on invitation from, or under the auspices of, a recognised body or institution outside South Africa.*

- Has had play scripts or musical compositions published by internationally recognised publishers – and these have been critically reviewed in appropriate publications.
- Has won first prize, or been a finalist, in a prestigious international competition in the appropriate field/ discipline.
- Has produced creative work which has been the topic of scholarly books, articles or chapters in books published outside South Africa.[2]
- Has produced creative work which has been the topic of substantial and scholarly reviews in newspapers and journals published outside South Africa.
- Has works in public collections outside South Africa.
- Has been invited to speak about his/her creative outputs at prestigious venues such as universities or museums that are outside South Africa.
- Has taken up residencies outside South Africa.

**Example of some international recognition:**

- Has participated to a limited degree – for example in group exhibitions – in (appropriately reviewed) art, music, or drama performances or exhibitions at prestigious venues outside South Africa.
- Has produced creative work (of the sorts mentioned above) which has been the topic of scholarly books, articles or chapters in books published in South Africa but which have a wider reach than South Africa alone.[3]

A person with a ***considerable international reputation*** will have a large number of outputs which are clear markers of international recognition.
Markers of ***some international recognition*** may figure in this profile, but would need to coexist with clear markers of international recognition for the individual to be deemed to have a 'considerable' international reputation.

**Physics**

Physics is a truly international branch of science that knows no geographical boundaries, and whose common body of knowledge is of relevance across the globe. For physics, "considerable international recognition" means precisely that, i.e. recognition by one's peers worldwide for the quality and impact of one's research. Impact is measured e.g. by citations, the discernible influence on the research of others in the field and the high profile participation in international collaborations. Recognition comes in the form e.g. of invited plenary talks at international conferences, membership of international panels and other bodies, and international awards.

There are some research topics in physics which have a regional association with South Africa, such as the physical properties of diamonds and platinum group metals, astronomy of the southern skies and ionospheric behaviour in the southern hemisphere, but even in these areas, a researcher should have attracted considerable attention outside of southern Africa for his/her work to qualify for "considerable international recognition".

The primary research outputs in physics that are regarded as having the greatest weight are publications of original research in peer reviewed journals, and scientific monographs. It is widely accepted that the reviewing process for so-called peer reviewed conference proceedings are less stringent than for ISI-indexed journals, and the rejection rate much lower, and so in physics these are better regarded as secondary outputs. In physics, software development is usually part of a process that culminates in the publication of one or more journal papers. It is the papers that are regarded as the primary output, rather than the "computational research tool". Publications in high impact factor journals are accorded more

*[2] One is referring here to items authored by others. One is also assuming publications which have not been self-initiated.*
*[3] One is referring here to items authored by others. One is also assuming publications which have not been self-initiated.*

weight than those in low impact journals. In this regard, Physical Review Letters and Nature stand out as journals of particularly high repute. In some areas of physics, extensively multiauthored papers are the norm. An effort should be made in these cases to ascertain how significant the contribution of the candidate's is to the group effort. Patents have the weight of journal papers.

**Plant Sciences**
The following guidelines are proposed for the definition of "Considerable International Recognition" for applications to the Plant Sciences panel. Note that this is a criterion required for researchers to be placed in B or A category.

We recognize that a feature of much Plant Sciences research in South Africa is related to our plant species diversity, thus there is research on indigenous/endemic groups of plants or ecological systems that have a local focus. However, new knowledge and principles within these topics are relevant to the international community, and thus the definition of "International" does not need to be adjusted for Plant Sciences applications.
The following criteria should be considered when an applicant is evaluated for "Considerable International Recognition" in Plant Sciences **(in order of priority**):

- Assessment statements by leading scientists about the international impact of the work
- Publications in high impact factor international journals (ISI listed)#
- Citation profile (including h-index (Web of Science)).
- Authorship of a significant scientific book
- International awards for scientific work
- Invited plenary and keynote lectures at international congresses
- Editor or associate editor of international journals
- Reviewer of international grants
- Member of international advisory panels
- Authorship of book chapters in significant scientific books
- Invitations to write review articles in international journals
- Chairing sessions/organising international meetings
- International research collaboration
- Reviewer for international journals (taking into account impact factor of journal and frequency of reviews)
- Other lectures given at international congresses

**Political Sciences and Philosophy (PSP)**
Considerable (international recognition) should be a qualitative and not just a quantitative notion. What should count is the expertly informed nature and level of peer recognition. A researcher whose work is highly rated by a large number of reviewers who are not closely involved in the specific area of research and/or are at a relatively less senior level themselves should count for less than one whose work is highly rated by a lesser number of those directly involved in the specific area of research and/or are established world leaders themselves. A qualitative norm of this kind will require informed judgment in its application but this is precisely where the responsibility and function of members of the expert panel come in. If the idea is to develop an assessment grid that can mechanically be applied and monitored by outsiders then that goes against the basic principle of peer evaluation.
That said, we can recognise a number of indicators as being relevant to establishing international recognition, including (in no particular order):

- Authorship of a significant (e.g. with an international academic publisher and/or critical acclaim by peers) book
- Invited plenary and keynote lectures at international meetings
- Invitations to contribute to volumes or collections edited by international peers
- Substantial research collaboration with international peers
- Executive membership of international academic bodies

- Editor or associate editor of international journals with high standing
- Being asked to act as a reviewer for journals with high standing
- Being asked to act as an external examiner by institutions of high standing
- Publishing in journals with high standing
- Citations and h-indexes, or other reflections of the influence on the research of others
- Publications used by international researchers as scholarly texts;
- Invitations to write major reviews on the topic of specialisation;
- Invitations to act as external examiner of PhD theses by prominent scholars in the field;
- Co-supervisors of PhD students of prominent scholars in the field;
- Awards by international scientific societies/organisations;
- Leader of or leading role in international collaborative research projects.
- Publications that are judged by international peers to have had a wide impact in the relevant field within Philosophy or Political Science.
- Research itself is seen by international peers as ground-breaking, pioneering or leading the way.
- Organised or been on the scientific advisory committee of international conferences

The reports of reviewers may draw attention to indicators not on this list in the course of arguing for the international standing of the research by an applicant, and these comments should be assessed on their merits. International standing should be counted as "considerable" when a majority of reviewers argue that the applicant has international standing according to the criteria above.

**Psychology**

International recognition: recognition by academic peers, based in a number of different countries, as indexed by citations of one's work, or directly elicited written notice (e.g. in reviews) of the significance of the work.

Considerable international recognition is a distinction of degree by means of more frequent citation or acknowledgement, or great quality.

Less entrenched areas of psychology are also probably less thoroughly tested or debated areas, and recognition for work in such an area is not the same as recognition for work in more heavily patrolled waters. For example, if somebody doing work in Neuropsychology (well established field, using, for the most part, well established methodologies) is compared with somebody doing work in Indigenous Psychology or Postcolonial Psychology (both in their infancy, with limited appeal in the "First World", methodology variable).

The issue of "recognition" is also complicating, in the sense that somebody may produce work of very high "international" quality which, because of the nature of the work done, receives very little recognition in the form of citations, invitations to present etc.

**Religious Studies and Theology**

The distinction between *participation* in scholarly discourse, making a *substantive contribution* to such discourse and offering *academic leadership* in such discourse (see section 2 above) is particularly helpful in the field of Religious Studies and Theology. All three require recognition but recognition of different kinds. All three also require a recognition of the inherent quality of a scholar's work. By contrast, the distinction between local, national and international recognition is less helpful for several contrasting reasons:

- Firstly, the fields covered are organised in terms of a large number of small guilds sometimes working on fairly narrow and highly specialised areas of interest (e.g. on one particular sacred text or on the work of one famous figure), while other areas are much larger, rather amorphous and not organised in terms of such guilds. The size of

such areas of specialisation therefore matters. A scholar may be regarded as amongst the top 10% of persons with a PhD working in a small guild (of 20 people), but may be regarded as amongst the top 25% of scholars if a somewhat wider area of interest is considered. Nevertheless, given the emphasis on specialisation, very high standards of excellence may well be maintained in the smaller guilds.

- Secondly, many of these guilds are already thoroughly internationalised through regular conferences, journals and book series. Mere participation in such guilds requires a certain standard of quality which then guarantees some form of international networks and recognition (whether considerable or not), but this does not imply that a substantive contribution within the field of specialisation would be recognised by others in the guild or in the wider discipline in which a scholar is working.
- Thirdly, the barriers for wider recognition are not necessarily geographic in nature – they may be related to the narrow area of specialisation – so that colleagues with the same area of specialisation may have regular contact across vast distances while the same contact may not be maintained with others who are close by but working in a slightly different area of specialisation. The barriers may also be related to particular religious traditions, confessional traditions and theological schools. Thus, for example, a South African Calvin scholar may relate with other Calvin scholars worldwide but not necessarily with those working in the field of black theology.
- Fourthly, the fields covered include areas of specialisations that are often highly contextual given the topics addressed but also the interlocutors selected – so that it would make little rhetoric sense to publish research outputs outside that particular context. Wider recognition is then based on the depth of work done in a very local context – which may take somewhat longer to become evident.
- Fifthly, the international centres of excellence for particular areas of specialisation are quite varied and certainly cannot be restricted to Europe, the UK or North America. In most cases such centres of excellence are already internationalised through participants in the various guilds. At the same time the academic standards maintained in such centres of excellence may also vary from one sub-discipline to another so that prudence is required in judging the comments from reviewers.

What, then, would be considered as criteria for the “wider” recognition of the “substantive” contribution made by a scholar in the fields covered under Religious Studies and theology? As in other disciplines, this has to be based on three forms of evidence, namely an assessment of the inherent and innovative *quality* of the scholar’s best work, an assessment of the *impact* that such work as made in the narrower field of specialisation (or discourse) and in the wider sub-discipline or discipline and an assessment of the academic *standing* of the scholar, preferably in somewhat larger fields of interest (e.g. Pauline literature rather than the letter to Philemon):

- The *quality* of a scholar’s work (whether this has indeed made a substantive contribution within the field) can only be judged by reviewers reading and critically assessing the best research output but some indications would be evident from the standing of the journals (local journals included) in which articles are published and especially from published scholarly monographs (still the benchmark in all the fields covered) and the standing of the particular publisher. In some cases awards for particular publications may also be helpful.
- The *impact* of the scholar’s work cannot yet be determined in terms of a citation index as this is employed unevenly. The value of such citations is that they go beyond a network of contacts: an outstanding scholar would be recognised and cited by others elsewhere in the world who are not known by that scholar. It should also be noted that citations may be positive or negative – so that those with far-fetched but highly publicised ideas may well be widely cited by those who seek to refute such ideas. Indicators of impact may include books reviews, review symposiums (at conferences or

in journals), and articles / theses / books / Festschriften on the work of the scholar. A better indicator of impact may be in terms of the academic standing of a scholar.

An assessment of the *standing* of a scholar is necessarily subjective but may also be influenced by the contested nature of various approaches within each sub-discipline. A scholar working in one school of thought may offer incisive criticisms of the work of a scholar established in another school which other peers may not recognise. It is therefore important to select reviewers who work inside and outside the school within which an applicant tends to move. As indicated above, it is also crucial to take the size of the field (the number of persons worldwide, with a PhD, and who regard this as one of their main current areas of specialisation) into account. In general, such standing would be evident from editorial roles in significant edited volumes (especially where a conceptualisation of the topic requires some academic leadership and not merely networking or language-editing skills), leadership positions in international academic societies, planning committees for larger research projects, various high profile and prestigious invitations, for example to deliver keynote / plenary addresses at major conferences (albeit that the need for multiple forms of representivity also play a role in such invitations) or to act as external examiner at prestigious universities, and finally various distinguished research awards.

**Veterinary and Animal Productions Studies (previously A&V 2) and Zoological Studies (previously A&V 1)**

International recognition is clearly a multi-faceted concept and is achieved in a number of ways and suggested criteria are listed below. Of these the most important are 1-6 as other recognition is linked to the track record and quality of research publications. For someone to have 'international recognition' they would therefore be some evidence of points 1-6. For anyone to have 'considerable international recognition' they would be enjoy most of the forms of recognition listed below.

Possible ways by which a researcher could claim to have international recognition would include:-

- Research publications (in peer reviewed journals) are being regularly cited by international peers. Evidence for this would be high numbers of citations of several papers, and a high h-factor.
- Peer reviewed publications are seen as being of high quality. Some evidence for this could be that papers have been published in high impact journals, are held as excellent examples of a particular research field, or data (tables or figures) from the work is included by international authors in seminal reviews, book chapters or books.
- Publications that are judged by international peers to have had a wide impact in zoology or veterinary science.
- Authorship of a book or book chapter(s) that are held in high regard and used by international researchers as scholarly texts (this would not include undergraduate text books).
- Invitation by international peers to contribute book chapters or subject reviews.
- Research itself is seen by international peers as ground-breaking or leading the way.
- Collaboration with international researchers – this must be more than 'tokenism' e.g. simply providing specimens. Researcher must be seen as an equal partner. Considerable international recognition could mean being a leader of an international research project.
- Invitation by conference/symposium organisers to present plenary lectures or key note addresses at international conferences (an international conference can be within the borders of South Africa). Someone with **considerable** international recognition would have received several such invitations.
- Invitation to edit an international journal or be part of an international editorial

board. Invitation to review papers for non-South Africa journals also attests to some international recognition.

- Any awards by international scientific societies.
- Being voted onto the executive committee of an international society.
- Being invited to serve on international scientific advisory boards.
- Being invited to examine international PhD theses.

**__END__**

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## Definition of NRF Rating Categories

The definitions of the rating categories are given below. Descriptions of sub-categories in the A, B C and Y categories have also been indicated. The definition of research at the end of the table should be consulted to clarify the interpretation of research as indicated in the various categories.

It must be borne in mind that the peer evaluation process is intricate and not mechanistic. Ultimately the judgement of the members of the Assessment Committees and their wisdom which has some intangible components must be relied upon. Hence interpretation of words such as 'broad field', 'narrow area', 'considerable', etc. form an important part of the Assessment Committees' task in their role of assessment of reviewers' reports.

| Cat | Definition | Sub-category | Description |
|---|---|---|---|
| A | Researchers who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs. | A1 | A researcher in this group is recognised by all reviewers as a leading scholar in his/her field internationally for the high quality and wide impact (i.e. beyond a narrow field of specialisation) of his/her recent research outputs. |
| | | A2 | A researcher in this group is recognised by the overriding majority of reviewers as a leading scholar in his/her field internationally for the high quality and impact (either wide or confined) of his/her recent research outputs. |
| B | Researchers who enjoy considerable international recognition by their peers for the high quality and impact of their recent research outputs. | B1 | All reviewers are firmly convinced that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs, with some of them indicating that he/she is a leading international scholar in the field. |
| | | B2 | All or the overriding majority of reviewers are firmly convinced that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs. |
| | | B3 | Most of the reviewers are convinced that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs. |
| C | Established researchers with a sustained recent record of productivity in the field who are recognised by their peers as having:<br>• produced a body of quality work, the core of which has coherence and attests to ongoing engagement with the field<br>• demonstrated the ability to conceptualise problems and apply research methods to investigating them. | C1 | All of the reviewers are firmly convinced that the applicant is an established researcher as described and who, on the basis of the high quality and impact of his/her recent research is regarded by:<br>Some reviewers as already enjoying considerable international recognition;<br>OR<br>The overriding majority of reviewers as being a scholar who has attained a sound/solid international standing in their field, but not yet considerable international recognition;<br>OR<br>The overriding majority of reviewers as being a scholar whose work focuses mainly on local and/or regional issues and who as a scholar at a nationally leading level has substantially advanced knowledge and understanding in the field by contributing to new thinking, a new direction and/or a new paradigm.* |
| | | C2 | With the exception of no more than a single reviewer raising some minor concerns, all other reviewers are firmly convinced that the applicant is an established researcher as described. The applicant may, but need not, enjoy some international recognition for the quality and impact of his/her recent research outputs. |
| | | C3 | Most of the reviewers concur that the applicant is an established researcher (as described). |

*This definition is restricted to those researchers whose area of research prevents (or precludes) them from meeting the requirements of either definition 1 or definition 2.

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| Cat | Definition | Sub-category | Description |
|---|---|---|---|
| P | Young researchers (normally younger than 35 years of age**), who have held the doctorate or equivalent qualification for less than five years# at the time of application and who, on the basis of exceptional potential demonstrated in their published doctoral work and/or their research outputs in their early post-doctoral careers are considered likely to become future international leaders in their field. | | Researchers in this group are recognised by all or the overriding majority of reviewers as having demonstrated the potential of becoming future international leaders in their field on the basis of exceptional research performance and output from their doctoral and/or early post-doctoral research careers. |
| Y | Young researchers (40 years** or younger), who have held the doctorate or equivalent qualification for less than five years# at the time of application, and who are recognised as having the potential to establish themselves as researchers within a five-year period after evaluation, based on their performance and productivity of quality research outputs during their doctoral studies and/or early post-doctoral careers. | Y1 | A young researcher (within 5 years from PhD) who is recognised by all reviewers as having the potential (demonstrated by research products) to establish him/herself as a researcher with some of them indicating that he/she has the potential to become a future leader in his/her field.<br>OR<br>A young researcher (within 5 years from PhD) who is recognised by all or the overriding majority of reviewers as having the potential to establish him/herself as a researcher of considerable international standing on the basis of the quality and impact of his/her recent research outputs. |
| | | Y2 | A researcher in this group is recognised by all or the overriding majority of reviewers as having the potential to establish him/herself as a researcher (demonstrated by recent research products). |

## Definition of research

For purposes of the NRF, research is original investigation undertaken to gain knowledge and/or enhance understanding.

*Research specifically includes:*

- the creation and development of the intellectual infrastructure of subjects and disciplines (e.g. through dictionaries, scholarly editions, catalogues and contributions to major research databases);
- the invention or generation of ideas, images, performances and artefacts where these manifestly embody new or substantially developed insights;
- building on existing knowledge to produce new or substantially improved materials, devices, products, policies or processes.

*It specifically excludes:*

- routine testing and analysis of materials, components, instruments and processes, as distinct from the development of new analytical techniques.
- the development of teaching materials and teaching practices that do not embody substantial original enquiry.

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| For applications submitted 15 March 2024 | Guide to terminology: | |
|---|---|---|
| ** Up to 36 years of age is the norm<br>***40 years (or younger) as at 15 March 2024 (closing date) | Overwhelming majority:<br>Most:<br><br>Some: | ≥ 80% of the reports<br>= 50% plus one of the reports<br>≥ 2 (one (1) plus one (1)) |

**#Year in which PhD had been obtained by which applicants can apply for a Y/P rating: 2018**
Explanatory note: For 2024 applications the call closed on 29 Feb 2024 but only took outputs into account that was published in the period: 1 Jan 2016 to 31 Dec 2023 (eight full years). The date that a researcher "obtains" (in the broadest sense – anything from notification that it will be awarded to walking over the podium) his/her degree could be anytime in the year (i.e. 1 Jan -31 Dec). For 2024 applications it is calculated as follows:
Year 0: 2018 (any date between 1 Jan – 31 Dec of 2018)
Year 1: 2019
Year 2: 2020
Year 3: 2021
Year 4: 2022
Year 5: 2023 (any date between 1 Jan – 31 Dec 2023 (end of the period under review)

If the applicant has obtained his/her degree on 31 Jan 2018 he/she will benefit by almost 11 months but if he/she obtained it in Dec 2018 they will literally have just over five years.

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EVALUATION AND RATING

# KEY RESEARCH AREAS

# AND

# TYPES OF RESEARCH OUTPUTS

**Table of Contents**

## Introduction

Applicants require clarity about the research areas which individual Specialist Committees cover so that they can select the best panel to consider their application. They also need information about the profile of research outputs required in order to decide whether they should apply for rating. This document provides the following details for each Specialist Committee:

- Key research areas covered
- Research outputs taken into account in the rating process and their relative importance
- Boundaries and overlaps between Specialist Committees and committees, allowing applicants whose field of research straddle more than one committee to ascertain where their application is best handled.

**Specialist Committees for 2023**
The following Specialist Committees will consider applications for evaluation and rating during 2023:

Anthropology, Development Studies, Geography, Sociology and Social Work (3 sub-committees)
- *ADGSS 1 – Anthropology*
- *ADGSS 2 – Sociology and social work*
- *ADGSS 3 – GIS, Geography and Town Planning*

Basic and Applied Microbiology
Biochemistry, Molecular and Cell Biology
Chemistry (2 sub-committees)
- *CHEM 1: Computational chemistry, electrochemistry; analytical chemistry, materials science; materials chemistry & Physical Chemistry.*
- *CHEM 2: Organic Chemistry; Inorganic Chemistry; Polymer Chemistry; Medicinal/Pharmaceutical Chemistry; Catalysis.*

Communication, Media Studies, Library and Information Sciences
Earth Sciences (2 sub-committees)
- *EASC 1: Earth observation; Geographical information systems (GIS), Remote Sensing and GIS, Comparative Palaeobiology, Geoscience, Medical geology; Environmental health; Mineralogy; Geochemistry; Metamorphic petrology*
- *EASC 2: Physical oceanography; Climate variability; Numerical modelling; Agulhas; Climate change; Atmospheric physics; Atmospheric remote sensing; Atmospheric chemistry, Soil amendments; Soil chemistry; Soil conservation; Soil biology; Soil fertility; Soil management.*

Economics, Management, Accounting and Administration (4 sub-committees)
- *EMAA 1: Economics*
- *EMAA 2: Accounting and Finance*
- *EMAA 3: Marketing and Tourism*
- *EMAA 4: Management and Administration*

Education (2 sub-committees)
- *EDU 1 (Science education, mathematics education, technology education, geography education, environmental education, indigenous knowledge, educational management, curriculum & assessment, research methodology*
- *EDU 2: Social sciences education, foundations of education (sociology, history & philosophy of education), educational psychology, language education, higher education, TVET, Adult Education, teacher education.*

Engineering (4 sub-committees)
Health Sciences: (3 sub-committees)
- *HESC 1: Public Health*
- *HESC 2: Clinical*
- *HESC 3: Basic Sciences*

Historical Studies
Information Technology
Law

Literary Studies, Language and Linguistics(2 sub-committees)

- *LLL 1: Language*
- *LLL 2: Literature*

Mathematical Sciences (3 sub-committees)

- *MATHS 1: Applied Mathematics*
- *MATHS 2: Pure Mathematics*
- *MATHS 3: Statistics*

Performing and Creative Arts, and Design

Physics (3 sub-committees)

- *PHYS 1: Material Sciences*
- *PHYS 2: Nuclear Physics*
- *PHYS 3: Astro/Space Science*

Plant Sciences (2 sub-committees)

- *Plants 1: Applied Plant Sciences, Physiology, Plant Biochemistry and Molecular Biology*
- *Plants 2: Ecology, Systematics, Ethnobotany*

Political Studies and Philosophy

Psychology

Religious Studies and Theology (2 sub-committees)

Veterinary and Animal Production SciencesZoological Sciences (2 sub-committees)

Zoological Sciences (2 sub-committees)

**Notes**
The following notes are made to clarify some issues and to avoid repetition in each section of this document.

1. Because of the potential overlap in subject matter considered by the various Specialist Committees, it is possible that an applicant may have difficulty in deciding to which Committee an application should be submitted. If this is the case, an applicant can nominate up to three (in priority order) Specialist Committees; the conveners of Specialist Committees will confer and select the most appropriate Committee. If they decide on a committee other than these three, the applicant and institution will be contacted for permission.

2. For all Specialist Committees (with the possible exception of Performing and Creative Arts, and Design where other sorts of critique and assessment might be more relevant), for a product to be considered a significant research output it must ideally fulfil the following criteria:
   (i) It must be peer-reviewed
   (ii) It must be in the public domain and readily accessible.

3. Invitations to present keynote and plenary papers at international conferences, although not primary outputs, do attest to the peer-recognition of an applicant.

4. Products such as unpublished theses and conference abstracts/presentations do not fulfil the criteria under Note 2 above. It is the publications that emanate from theses and conference presentations that are the research outputs, not the theses or presentations themselves.

5. Undergraduate textbooks or other curriculum material are not considered as research outputs. If considerable research has gone into the development of curricula, this falls within the scope of the Specialist Committee for Education.

6. Developing public awareness and public education, while a laudable activity, is not considered to be a research output as such. However, as with undergraduate curriculum development, research into the best, or most appropriate or efficient approaches to public education would fall under the Education Specialist Committee

7. Please ensure that the publication date of a research output corresponds with its copyright date. In electronic pre-publication availability this date is indicated in the Digital Object Identifier (DOI).

8. While publication in high impact international journals is to be encouraged, it is also recognised that in certain instances, more specialist or local journals of lower impact factor may be more appropriate.

9. Similarly, the number of citations a paper has received is not an infallible measure of research quality. Different disciplines have different cultures with respect to citations, the size of a research field can influence citation numbers, and there is generally a lag between publication of a paper and it beginning to accumulate citations (and this lag can be a significant portion of an evaluation cycle).

10. It is admissible to list technical reports as “additional research outputs” provided that such reports are based on contract research. Technical reports based on routine consultation are not admissible. Ideally, technical reports included in the submission should be in the public domain. Where this is not possible due to confidentiality considerations, the applicant may consider including in his/her list of possible reviewers, individuals who can comment on the significance of the research output contained in such reports.

## Anthropology, Development Studies, Geography, Sociology and Social Work

### Key research areas

This Specialist Committee includes the following key areas

- Anthropology and related subfields of biological anthropology, social and cultural anthropology (including material culture studies, migration studies, anthropology of development, visual anthropology, performance studies, area studies and medical anthropology);

- Research conducted within the discipline of human geography (including political ecology, land and agrarian studies, environmental studies economic geography, development geography, social geography, cultural geography, historical geography, urban geography and planning theory;

- Development studies: Development generally refers to a process of social change through which standards of living are raised, and encompasses technological, economic, political, social, cultural, legal, institutional and environmental aspects. It also involves theoretical and empirical research to understand development as a process and often has a strong applied dimension, focussing on policies, programmes and institutional arrangements intended to promote development. Fields of development studies include theories of development, development economics, industrialisation and development, rural and agricultural development, regional development, development management, governance and development, community development, gender and development, environment and sustainable development, health and development, population and development and social policy and development.

- The fields of sociology, i.e. quantitative and qualitative, empirical and theoretical study of the social structures, cultures and everyday practices of advanced and developing societies, covering styles and material standards of living, opinions, values and institutions, and includes social theory and social research methodology. Fields of enquiry that could appear in submissions include sociological research on culture, economics and politics; class, ethnicity, gender, sexuality, and age; religion, education, health, and welfare institutions; the body; urban and rural areas; pedagogy; development and globalisation; demography; criminology; socio-legal studies; social studies of science and technology, work and organisation; social movements; and the philosophy of social science;

- Social work, its theory and practice and the context in which it occurs, including: methods of social work research; ethics and values; concepts of social justice; service user perspectives; issues of gender, ethnicity, visible minorities, sexuality, disability and age; social work education; higher education pedagogy of social work; socio-legal issues; probation and criminal justice; organisational management and administration; management and supervision of social workers; service delivery; social welfare policy and related legislation; personal social services; child welfare and child protection; community care; day care; residential care; elders; gerontology and studies of ageing; families and substitute family care; youth work; community work; group work; counselling; voluntary work; poverty and anti-poverty work; interventions in the fields of substance misuse; health, including mental health, disabilities, including learning difficulties. Issues relating to social development theory, practice and policy.

- Archaeology: research in archaeology can appear within and across the broad categories of natural and social science. The Specialist Committee will consider work in social archaeology including heritage conservation and management, metals in society, ethnohistory, resilient landscapes, coping with environments, living traditions, climate change and production, precolonial social organisation, the antiquity of hunting, group identities, the politics of human remains, historical trade, architectural heritage, social theory and archaeology, industrial past, and interpretations of power.

### Boundaries and overlaps

- Given its multidisciplinary character, development studies has many overlaps with a range of other disciplines, and possible overlaps could occur with the Specialist Committees dealing with Economics, Management, Administration and Accounting, with Political Sciences and Philosophy, with Health Sciences, and even with Engineering.

- There may be overlaps between sociology and anthropology on the one hand, and Economics, Management, Administration and Accounting; Health Sciences; Historical Studies; Psychology (social psychology); Political Sciences, Policy Studies and Philosophy; and Communication, Media Studies, Library and Information Sciences, on the other.

- Social work and social policy and administration are closely related subjects with a substantial degree of overlap but they differ in their emphasis; social policy and administration is distinguished by its focus on the theory, analysis and evaluation of social policies and their implementation, and social work by its focus on the theory and practice of social work; both subjects include attention to understanding of social context.

**Types of research outputs**

Research outputs should include the following:

- Peer-reviewed primary research articles in appropriate journals
- Academic publications of original research in **peer-reviewed journals (printed or electronic),** including invited articles and review articles
- Books of scholarship: these must be research-based and independently refereed, and aimed at the research community, as opposed to teaching material
- Chapters in scholarly books (again, aimed at the research community)
- Refereed full-length papers in conference proceedings and edited scholarly books will be assessed on their merits

In addition to the above published outputs, other evidence of the standing of a researcher will be considered; these include

- Book reviews
- Editorship of journals
- Officials positions in professional associations
- Visiting professorships
- Evidence that academic research has impact on policy (i.e. application of theory to practice and policy)

## Basic and Applied Microbiology

### Key research areas

The Specialist Committee considers applications from researchers in the following fields of basic and applied microbiology: bacteriology, bioinformatics, biotechnology, clinical microbiology, disease control, environmental microbiology, epidemiology, fermentation science, microbial genomics, host-plant interactions, industrial microbiology, metagenomics, microbial ecology, microbial phylogenetics molecular biology, mycology (including yeasts), parasitology, physiology, plant pathology, population dynamics, systematics, systems microbiology, taxonomy and virology.

### Boundaries and overlaps

The boundaries of this Specialist Committee overlap significantly with the Specialist Committees /sub-Committees for Animal and Veterinary Sciences; Biochemistry, Molecular and Cell Biology; Chemistry; Education; Engineering; Health Sciences and Plant Sciences.

### Types of research outputs

An important criterion in assessing outputs is whether they are peer-reviewed; although publication in 'high impact' journals is noted, sometimes publication in a specialist journal with a lower impact factor may be more suitable; the following classification gives an indication of the weight different outputs carry:

<u>Primary outputs</u>
- Publications of original research in peer-reviewed journals
- Review articles (subjected to peer review) in scientific journals
- Chapters in books aimed at the research community, and that have been subjected to peer-review
- Refereed conference proceedings (excluding abstracts)
- Scientific monographs

<u>Secondary outputs</u>
- Keynote or plenary lectures at conferences
- Patents
- Public biological databases

<u>Tertiary outputs</u>
- Other full-length conference proceedings (excluding abstracts).

<u>Other</u>
- Technical reports (these may be classified as primary, secondary or tertiary, depending on their nature and accessibility)

**Biochemistry, Molecular and Cell Biology**

**Key research areas**

Modern biochemistry, molecular and cell biology constitute a wide range of subjects, including the study of the structures and processes of life at the molecular and cellular level, whether it is in micro-organisms, animals or plants. Areas of research cover studies on individual biomolecules through to the structure and function of the cell, to the interaction of the cell with its environment, which can include other cells (cell-cell interactions). There are many ways in which to classify the subjects that fall under the broad discipline of biochemistry, molecular and cell biology. Since key research areas are rapidly changing and evolving the following research areas should be regarded as illustrative, rather than exclusive:

- The cell as biological unit - includes nucleic acids, regulation of gene transcription and translation, enzymes, metabolism and bioenergetics, intracellular signalling, protein transport and targeting including protein trafficking pathways, the cell cycle, cell growth, senescence and death;

- The cell in its environment - includes cell-cell interactions and cell-matrix interactions; cell motility; cell surface receptors and signal transduction; ion channels and transporters;

- Specialised functions of cells - includes cell differentiation; molecular immunology; cellular and molecular neuroscience; specialised microbial and plant cell function;

- Integrative and systems biology - includes genomics, transcriptomics, proteomics and metabolomics, functional genomics (integration of genomic information with the aim of identifying the biological function of proteins and their role in cell physiology), molecular evolution, bioinformatics and cellular dynamics, development of bioinformatics and simulation tools and supporting computing technology, computational systems biology, biotechnology.

**Boundaries and overlaps**

Modern biology is divided not so much along the traditional vertical lines of organismal groups but rather into hierarchical levels: molecules, cells, uni- and multi-cellular organisms, and populations of organisms. Biochemistry, molecular and cellular biology are usually at the more basic level, but since structure, function and behaviour are inseparable the boundaries are not clean and often overlap into the higher levels of biology; even population behaviour often has a biochemical basis (e.g. pheromone communication); anotherexample is the interface of molecular and evolutionary biology, where evolutionary processes, the functional organisation of the cell, comparative genomics and population behaviour come together.

There is no Specialist Committee for biotechnology, a field in which there is a wide overlap between the fields of biochemistry, microbiology, plant sciences, and chemical or bio-engineering; in cases of uncertainty applicants have the opportunity of nominating an alternate Specialist Committee in addition to the Committee for Biochemistry, Molecular and Cell Biology.

Since the NRF Specialist Committees are constituted more along the traditional demarcation between disciplines there are varying degrees of overlap between the areas covered by the Specialist Committee for Biochemistry, Molecular and Cell Biology and these Committees; the following lists the most important of these overlaps (with examples of the overlapping area in brackets):

- Animal and Veterinary Sciences (e.g. biochemical aspects of food and nutrition, physiology, veterinary medicine, animal virology, immunology)
- Chemistry (e.g. analytical biochemistry and spectroscopy, organic chemistry of biomolecules)
- Health Sciences (e.g. human and medical biochemistry and physiology, gene therapy, genetic basis of disease, metabolic diseases, molecular pharmacology, neurobiochemistry)
- Engineering (e.g. bio-engineering, biotechnology)
- Mathematical Sciences (e.g. biomathematics, mathematical biology, bioinformatics, computer simulation)
- Basic and Applied Microbiology (e.g. molecular microbiology, bacterial genetics, molecular mechanisms of plant resistance, plant virology, biotechnology)
- Physics (e.g. biophysics)
- Plant Sciences (e.g. plant biochemistry and cell biology, molecular phylogeny)

In practice, applications will have to be assessed individually in terms of which Specialist Committees are most appropriate to handle the application; as a rule of thumb, however, applications that are primarily considered by the Specialist Committee for Biochemistry, Molecular and Cell Biology should be based on research that makes a contribution to our understanding of life on a molecular and cellular level or applies such knowledge; applications where research outputs are based on biochemical and molecular biological techniques but are posing questions at a higher hierarchical level may be more suitable for consideration by another Specialist Committee.

**Types of research outputs**

The following classification of research outputs gives an indication of the weight each carries:

Primary outputs
- Publications of original research in peer-reviewed journals and peer reviewed electronic publications
- Reviews in recognised scientific journals
- Peer-reviewed conference proceedings (excluding abstracts)
- Scientific monographs
- Computational research tools
- Public biological databases

Secondary outputs
- Peer-reviewed chapters in books
- Keynote or plenary lectures at conferences
- Patents
- Biological database submissions

Tertiary outputs
- Other conference proceedings (including abstracts)

Other
- Technical reports (these can be classified as primary, secondary or tertiary depending on their scope and accessibility)

## Chemistry

### Key research areas

The Specialist Committee covers the areas of analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry, electrochemistry, chemometrics, environmental chemistry, catalysis, theoretical/ computational chemistry, solid state chemistry, organometallic chemistry, biological/medicinal chemistry, condensed matter and materials chemistry, polymers, applied chemistry, green chemistry and applied areas which lie within or between these bounds.

### Boundaries and overlaps

Chemistry is known as the central science and therefore overlaps with many of the other natural and applied sciences e.g. biochemistry, physics, material science, molecular biology, metallurgy, engineering, computer science, earth sciences etc.; If applicants are unsure as to whether their field lies within the ambit of the Chemistry Specialist Committee, they can nominate an alternate Committee. Research into chemistry education would fall under the Specialist Committee for Education.

### Types of research outputs

Primary outputs

- Academic publications of original research in peer-reviewed printed or electronic journals, including invited articles and review articles
- Peer-reviewed conference proceedings (excluding abstracts)
- Scientific monographs, books on specialist topics and chapters in books (but only if these are directed at the research community; it does not include undergraduate text-books)
- Patents
- Innovations and novel technologies (including computational research tools)

Secondary outputs

- Plenary or keynote lectures at conferences
- Artefacts and technology disclosures
- Creation and development of intellectual infrastructure for chemistry (e.g. databases)

Tertiary outputs

- Other conference proceedings (including ordinary oral and poster presentations, abstracts, session chairs)
- Other proof of national and international peer recognition (e.g. conference and workshop organisation, membership of editorial and scientific advisory boards, refereeing of journal articles, reviewing of proposals, examining of theses and dissertations, as well as other relevant research activities)
- Industrial collaboration and networking, but only if the outputs have been peer-reviewed and are in the public domain and readily accessible.

Other (may be classified as primary, secondary or tertiary depending on scope and accessibility)

- Technical reports.

**Communication, Media Studies, Library and Information Sciences**

**Key research areas**

The field of communications research covers the following nodes and the interconnections between them:

- Communications – is the generic study of the exchange of symbols or symbolic products among individuals, communities, and societies, in terms of the skills, talents, technologies, and relations via which symbols are exchanged or transmitted as messages.

- Communication studies – is the study of the individual, community and social conversion of semiotic resources into semiotic products distributed through channels or media of communication, and the modes of reception these channels or media make possible in terms of promoting, reproducing, or restricting the formation of this reception into further semiotic communications resources. This entails the study of the formats and genres through which these products occur, e.g. cinema, broadcasting and video, advertising and public relations, print, electronic, etc. Speech communication and visual communication are components of this overall category.

  Within the study of institutions is 'organisational, management and corporate communication', while more broadly in the wider society, the areas of 'group', 'intergroup' and 'interpersonal' communication are found

- Media studies – accounts for research into the institutions which organise the technologies through which communications take place, whether by accident or design. This may include the analysis and study of relations with other institutions in society, including political economy and regulation on the one hand, through media-society relations, to the social and corporate organisation of communication on the other. The form of inquiry both entails and presupposes knowledge and skill with the production of semiotic products (e.g. film, video, television, hypermedia), as do familiarity with institutional practices like digital encryption techniques.

- Marketing communication – research investigates the field of integrated communication while focusing on the analysis of the development and implementation of strategic brand messages.

- Journalism research – studies how news and popular writing is manufactured, the organisational conditions and institutional structures under which this is done, how news and other genres come to mean, how they influence public debate and how journalists make sense of these processes.

- Visual culture/visual critique – includes the study of media products (texts) via semiotic, ethnographic, sociological, literary, post-disciplinary, technical, social and psychological, and other forms of textual analysis.

- Cultural studies – examines the sociological, economic, political and historical contexts within which people, groups, and classes come to find their places and identities in the social and political relations that arise from the ways media institutions operate, communications are developed and managed, and from the activity of which messages and texts come to be produced.

- Information and library science – deals with the collection, organisation and re-packaging, storage, archiving, retrieval, networking and dissemination of information via communications and other technologies.

- Development communication – paradigms cross and include all of the above, from social interaction to communication about, for, and by participants in, and recipients of, development projects.

- International communication – deals with process, spatial relations and structure, that is, information flows and comparative analysis of media structures, regulation and organisation. Falling within this field is the role of communication in international relations, international development, international political economy, with reference to the role of telecommunications and information and communication technology.

**Boundaries and overlaps**

- Communication studies primarily emerged from the disciplines of behavioural psychology, sociology, rhetoric and speech communication, and so could overlap with the Committees dealing with these disciplines. Communication studies include sub-fields such as organisational, business, marketing, group, intercultural and intergroup communication. Communication Studies could also overlap with Literary Studies, Languages and Linguistics.
- Media studies are directly linked to, and potentially overlap with, sociology, political economy, and increasingly, anthropology.
- Visual culture is primarily a literary or linguistic (semiological) derivative, drawing on theories of the text, and could overlap with Literary Studies, Languages and Linguistics.
- Cultural studies draw in history, sociology, politics, anthropology, literature and could have overlap with these fields.
- Development communication arises out of development studies
- Information science is an outgrowth of librarianship, now could overlap with computer sciences.

**Types of research outputs**

The following classification of research outputs ranks the weight that each carries:

Primary outputs (Peer-reviewed) (weighted according to standard of publication)

- Full articles in journals (print and electronic). Due weight will be given to journals of international standing, and national journals which have an international profile in authorship, editorial board and readership and/or
- Books and chapters in books contributing new knowledge or expanding the borders of knowledge. These contributions must have been peer-reviewed and rigorously edited
- Editorial activity which shapes a discipline, such as found in edited journal theme issues, book anthologies, comprehensive introduction to theme issues, and in complex debates in review essays. In such cases, it must be clear that the editor is not just administratively involved, but is the creative mind (with co-editors if also involved) in conceiving, planning and editing the book or journal theme issue, and if the book or journal has contributed to the expansion of knowledge

Secondary outputs

- Keynote or plenary addresses at international conferences
- Editing of peer-reviewed book series.
- Video and other productions which evidence a theoretical framework, and which are made in the pursuance of written research. Videos and other forms of electronic or performative presentation on their own will not constitute research in and of itself

Tertiary outputs

- Editorial activity on peer-reviewed journals (editing, refereeing, etc.)
- Refereed conference proceedings (excluding abstracts)
- Publication in professional (non-refereed) journals

Other

- Technical reports
- Articles and conference proceedings without a system of refereeing

## Earth Sciences

### Key research areas

The Specialist Committee covers the areas of archaeology, climatology/meteorology, mineralogy, physical geography, environmental analysis/management, hydrology, geomorphology, geology, geophysics/geodesy, marine geology, natural hazard analysis, oceanography, palaeontology and soil science. The field of archaeology is part of the Earth Sciences field in as far as it deals with palaeoanthropology, dating studies, material artefacts and the natural environment; in as far as archaeology deals with the development of ideas, culture and identity, this is considered to belong to the field of anthropology.

### Boundaries and overlaps

There are a number of overlaps with other Specialist Committees notably Chemistry (e.g. environmental chemistry/isotopes, atmospheric chemistry and geochronology), Physics (e.g. atmospheric physics, acoustics and physical oceanography), Animal and Veterinary Sciences (e.g. archaeozoology, some environmental studies), Engineering (environmental engineering, engineering geology), Mathematical Sciences (e.g. climate modelling, geostatistics and image processing), Plant Sciences (e.g. palaeobotany, palynology, some environmental studies).

### Types of research outputs

It is immaterial whether the research is basic or applied; it is the quality of the research, and the route through which it is placed in the public domain, that are important.

<u>Peer-reviewed research outputs</u>

- The most significant output is papers published in peer-reviewed journals; high-impact journals are weighed higher than second tier journals. The originality of the output in terms of the contribution to knowledge and understanding of the subject will be an important component in the assessment of quality
- Peer-reviewed research-based books, or chapters in books, and review articles in good quality journals carry considerable weight
- Published conference proceedings: in assessing the quality of published conference proceedings the applicant's referees will consider the status of the conference and publisher. (It must be noted that neither abstracts nor conference proceedings that are not peer-reviewed are included here.)

<u>Conference/workshop proceedings</u>

- Invited keynote talks at international scientific conferences.
- Technical and research reports to industry; the applicant should make sufficient information available on the research content of these reports and they should ideally be in the public domain so that they can be assessed by peers.
- Other forms of output and recognition are judged on their scientific merit.

## Economics, Management, Administration and Accounting

### Key research areas

The Specialist Committee covers the areas of agricultural economics; development economics and economic growth; economic history; environmental economics and accounting; financial economics; health, education and welfare economics; international economics and trade; institutional economics and industrial organisation; labour and demographic economics; market structure; micro, macro and monetary economics; public economics; spatial and transport economics, business management, marketing, financial management; public management and administration; strategic management; human resource management, accounting; development management; international management; management education; industrial relations; entrepreneurship; and tourism management.

### Boundaries and overlaps

Key research areas relevant to this Specialist Committee may overlap with those from agricultural, ecological and forestry sciences; anthropology, geography, sociology, social work and development studies; communication and information sciences; education and historical studies; health sciences; law; mathematical and statistical sciences; political studies; philosophy and psychology; however, for researchers to be assessed by this Specialist Committee, the core of their work must relate to the development or application of theory in its own key research areas.

### Types of research outputs

In general, the Specialist Committee for Economics, Management, Administration and Accounting will consider as research outputs materials that are of a scientific/scholarly nature and have been peer-reviewed. Contributions that add substantive new knowledge or insights to an existing body of knowledge will have a high weighting.

Scholarly outputs that satisfy these requirements may appear in a variety of forms, including peer-reviewed journal articles, research-based books, monographs, research reports (excluding consultancy-based reports), electronic publications (excluding web-based publishing) and computer software.

<u>The importance of peer-reviewed research outputs</u>

- The most significant outputs are published in peer-reviewed scientific journals, both those with a wide international readership, as well as those catering specifically for local conditions.
- In assessing the quality of published conference proceedings the applicant's reviewers will consider the status of the conference and publisher. (It must be noted that neither abstracts nor conference proceedings that are not peer-reviewed are included here).

<u>Other guidelines and exclusions</u>

- Consultancy-based outputs will not be considered unless they are research-based, peer-reviewed and in the public domain.
- Due to longevity concerns web-based publishing of outputs will not be considered.
- Books written for the professions and student textbooks, collections of previously published work, case studies, the editing of books or other pre-existing materials, edited versions of pre-existing books or other materials, translations, case notes, book reviews, new editions of existing outputs and similar outputs will generally not be considered.

## Education

### Key research areas

The Specialist Committee deals with research in all areas of education, including studies in curriculum, teaching, learning and assessment, and educational policy, administration and planning in all subject areas at all levels of the formal education system (early learning, primary, secondary and tertiary). Subject areas include mathematics, natural, life and health sciences, the social sciences and languages; the study of language within education includes applied language studies and applied linguistics, second language teaching and learning, and language education and literacy studies. Education also includes research in informal situations, such as home, work and leisure. It includes study within subspecialisms within education, including the sociology, philosophy, history of education, as well as educational policy and psychology.

### Boundaries and overlaps

There may be overlaps between education and a broad range of sectors in which educational research is conducted, such as accounting, business administration and management sciences; anthropology, geography, sociology; sexuality and gender studies ; social work; communication, media studies, library and information sciences; economics, agricultural economics and development studies; health sciences; historical studies; languages and linguistics; law; literary studies; performing and creative arts and design; political science, policy studies and philosophy; psychology; and religious studies and theology. Decisions about which Specialist Committee should deal with the applications in such cases could be based on whether or not the research relates to education (teaching and learning) in those sectors; in such cases it should be considered to be educational research; two specific Specialist Committees where overlap is likely to occur, and which could be exceptions to the rule, are Psychology, and Political Sciences, Policy Studies and Philosophy (in the field of policy); where expertise from these two areas is important in judging the quality of the research, education-related research might need to be considered by one of these panels.

### Types of research outputs

In general, credit is given to those outputs that contribute to the advancement of knowledge and show coherency, originality, methodological strength, scholarly rigour, and relevance for other researchers, policy makers and practitioners.

All work that is eligible for submission must be publicly available, so reviewers can access it.

Eligible materials include written outputs that report on the results of research (qualitative or quantitative) or scholarly works dealing with research-methodological issues; this includes papers in peer-reviewed research journals, research in peer-reviewed published conference proceedings, and books or chapters in books that include research-related aspects.

Artefacts and products such as curriculum materials (including course materials and textbooks) will be considered only where these are based on, or developed through, research and have been published. The inclusion of such items should be justified explicitly in submissions in relation to their contributions to new knowledge production with an underlying research base. It is the quality of the research alone that will be assessed: textbooks, technical reports, curriculum materials, and descriptions of new teaching and learning approaches will not be considered as research outputs unless they have been based on a firm theoretical foundation, have been accompanied by research and specifically report on these issues.

Reviewing and editing of books and journals will not normally be considered as research activities, unless the author has made a research-related input.

**Engineering 1**

This Specialist Committee considers applications in engineering science – i.e. engineering research oriented at the development of new/improved analysis and/or synthesis techniques, products, manufacturing processes etc. This includes both the invention or generation of ideas embodying new or substantially developed insights and the use of existing knowledge to produce new or substantially improved materials, devices etc.; the latter is often especially relevant in engineering.

**Key research areas**

- Architecture and the built environment**
- Chemical and process engineering
- Bio-engineering
- Civil engineering
- Metallurgical engineering

[**The "built environment" would typically include: quantity surveying; construction management; construction economics; project management; sustainable construction and sustainability; construction industry development; human development and wellness in construction; construction procurement; infrastructure delivery; property studies (e.g., property development, property and urban land economics, property management, property finance, property markets and valuations, and facilities management).

In identifying the most appropriate specialist sub-committee for your application, consider the nature of your **research focus** rather than simply your disciplinary field. For example,

- Researchers working in thermodynamics/thermal sciences may come from either/or the mechanical or chemical engineering fields;
- Researchers working on structures may come from either/or the civil or mechanical engineering fields;
- Researchers working on nuclear problems may (also) come from civil, mechanical or control of nuclear systems in electronic engineering.

There are thus several disciplines which could be placed in any of the two panels depending on the specific research focus of the researcher applying. Applicants can select up to three specialist committees/ sub-committees if they are unsure of the most appropriate one for them and also can to indicate if they work in an interdisciplinary way].

**Boundaries and overlaps**

- See comments above.
- In addition:
    - Research on the environmental impact of engineering may overlap with that covered by the Specialist Committees for Earth Sciences or Political Sciences and Philosophy.
    - Research primarily orientated at the societal impact of engineering may better be addressed to the Specialist Committees for Political Science and Philosophy or Anthropology, Development Studies, Geography, Sociology and Social Work.
    - Research orientated at engineering education should be considered by the Specialist Committee for Education.
    - Considerable overlaps with / between the Specialist Committee for Engineering are to be expected; in particular, computer engineering belongs primarily in engineering (Computer engineering addresses both hardware design aspects of computer systems and aspects of the design of software systems); topics such as operating systems, new languages, formal methods, new algorithms etc. will usually belong in the Specialist Committee for Information Technology; software engineering is problematic, and may have to be evaluated on a case-by-case basis with regard to the correct Specialist Committee to handle the application.
    - Some overlaps with both applied mathematics and physics are also to be expected.
    - Research in architecture may overlap with that covered the Specialist Committee for Performing and Creative Arts, and Design.

**Types of research outputs**

- Assessments in the field of engineering can sometimes be problematic due to the nature of the field. Activities in engineering at tertiary institutions - in common with other professional disciplines, such as

medical faculties and law - include both practitioners as well as researchers; this assessment process evaluates research outputs, with an emphasis (albeit far from exclusive) on scholarly engineering science research reported in recognised peer-reviewed journals, conferences, research monographs, and patents; these research outputs may be either Mode 1 or Mode 2, in the nomenclature of the Royal Academy, although the process concentrates more on the former; this should not be seen as implying a lack of recognition of the importance of other types of engineering outputs, such as high-level consultancy, it is simply not what this process sets out to evaluate.

- Assessment of the quality of outputs is based on judgements of their originality; innovation; contribution to advancing knowledge and understanding; contribution to the field, impact on the theory and practice of the discipline; or of analytical techniques, products and processes, including planning, design, construction and management where there is significant research involved; it is important to note that it is very largely the reviewers who make these judgement calls.
- The following research outputs are anticipated in engineering: journal articles, full length refereed conference papers, authored books and chapters in books that are research-based, awarded patents, software, design artefacts, materials, devices, and multimedia and video research outputs; outputs may be published either electronically or in paper form. The Specialist Committee anticipates that most of the best research outputs that will be cited by applicants will be in journal papers, and also in peer-reviewed conference proceedings, research books and patents; material that is not peer-reviewed is not accepted as a research output.
- Outputs other than recognised publications, including confidential reports of applied research for industry, can be included and the significance of the research component should where possible be highlighted in the application for evaluation. Routine consulting work for industry that does not embody research is not included.
- In assessing the quality of academic or professional journal papers the peers use their expertise to judge the editorial and refereeing standards of the journal in which the article appears. Generally those that have undergone a rigorous refereeing and editorial process will be regarded as being of high quality; similar criteria will be used to judge conference papers; the impact factors of journals will also be taken into account, although engineering journals generally have lower impact factors than in other fields.
- In assessing the quality of authored books and chapters in books, the novel research component of the author in the cited work or chapter will be evaluated by peers.
- In assessing awarded patents and other forms of research outputs listed above the research contribution of these outputs will be evaluated by peers and assessed by Specialist Committees.

**Engineering 2**

This Specialist Committee considers applications in engineering science – i.e. engineering research oriented at the development of new/improved analysis and/or synthesis techniques, products, manufacturing processes etc. This includes both the invention or generation of ideas embodying new or substantially developed insights and the use of existing knowledge to produce new or substantially improved materials, devices etc.; the latter is often especially relevant in engineering.

**Key research areas**

- Aeronautical engineering
- Electrical and electronic engineering (including computer and information engineering but not computer science)
- Mining engineering
- Mechanical Engineering
- Nuclear engineering
- Production and industrial engineering

In identifying the most appropriate specialist sub-committee for your application, consider the nature of your **research focus** rather than simply your disciplinary field. For example,

- Researchers working in thermodynamics/thermal sciences may come from either/or the mechanical or chemical engineering fields;
- Researchers working on structures may come from either/or the civil or mechanical engineering fields;
- Researchers working on nuclear problems may (also) come from civil, mechanical or control of nuclear systems in electronic engineering.

There are thus several disciplines which could be placed in any of the two panels depending on the specific research focus of the researcher applying. Applicants can select up to three specialist committees/ sub-committees if they are unsure of the most appropriate one for them and also can to indicate if they work in an interdisciplinary way].

**Boundaries and overlaps**

- See comments above.
- In addition:
    - Research on the environmental impact of engineering may overlap with that covered by the Specialist Committees for Earth Sciences or Political Sciences and Philosophy.
    - Research primarily orientated at the societal impact of engineering may better be addressed to the Specialist Committees for Political Science and Philosophy or Anthropology, Development Studies, Geography, Sociology and Social Work.
    - Research orientated at engineering education should be considered by the Specialist Committee for Education.
    - Considerable overlaps with / between the Specialist Committee for Engineering are to be expected; in particular, computer engineering belongs primarily in engineering (Computer engineering addresses both hardware design aspects of computer systems and aspects of the design of software systems); topics such as operating systems, new languages, formal methods, new algorithms etc. will usually belong in the Specialist Committee for Information Technology; software engineering is problematic, and may have to be evaluated on a case-by-case basis with regard to the correct Specialist Committee to handle the application.
    - Some overlaps with both applied mathematics and physics are also to be expected.
    - Research in architecture may overlap with that covered the Specialist Committee for Performing and Creative Arts, and Design.

**Types of research outputs**

- Assessments in the field of engineering can sometimes be problematic due to the nature of the field. Activities in engineering at tertiary institutions - in common with other professional disciplines, such as medical faculties and law - include both practitioners as well as researchers; this assessment process evaluates research outputs, with an emphasis (albeit far from exclusive) on scholarly engineering science research reported in recognised peer-reviewed journals, conferences, research monographs, and

patents; these research outputs may be either Mode 1 or Mode 2, in the nomenclature of the Royal Academy, although the process concentrates more on the former; this should not be seen as implying a lack of recognition of the importance of other types of engineering outputs, such as high-level consultancy, it is simply not what this process sets out to evaluate.

- Assessment of the quality of outputs is based on judgements of their originality; innovation; contribution to advancing knowledge and understanding; contribution to the field, impact on the theory and practice of the discipline; or of analytical techniques, products and processes, including planning, design, construction and management where there is significant research involved; it is important to note that it is very largely the reviewers who make these judgement calls.
- The following research outputs are anticipated in engineering: journal articles, full length refereed conference papers, authored books and chapters in books that are research-based, awarded patents, software, design artefacts, materials, devices, and multimedia and video research outputs; outputs may be published either electronically or in paper form. The Specialist Committee anticipates that most of the best research outputs that will be cited by applicants will be in journal papers, and also in peer-reviewed conference proceedings, research books and patents; material that is not peer-reviewed is not accepted as a research output.
- Outputs other than recognised publications, including confidential reports of applied research for industry, can be included and the significance of the research component should where possible be highlighted in the application for evaluation. Routine consulting work for industry that does not embody research is not included.
- In assessing the quality of academic or professional journal papers the peers use their expertise to judge the editorial and refereeing standards of the journal in which the article appears. Generally those that have undergone a rigorous refereeing and editorial process will be regarded as being of high quality; similar criteria will be used to judge conference papers; the impact factors of journals will also be taken into account, although engineering journals generally have lower impact factors than in other fields.
- In assessing the quality of authored books and chapters in books, the novel research component of the author in the cited work or chapter will be evaluated by peers.
- In assessing awarded patents and other forms of research outputs listed above the research contribution of these outputs will be evaluated by peers and assessed by Specialist Committees.

**Health Sciences:**

There are three sub-committees within the Health Sciences Specialist Committee which together focus on research involving all aspects of human health and disease. This includes a variety of disciplines in the natural, medical and social sciences which include *inter alia*: anatomy, andrology, anaesthesiology, audiology, biochemistry, bioethics, biophotonics, cardiology, cell biology, clinical chemistry, dentistry, dermatology, developmental biology (embryology), endocrinology, epidemiology, environmental health, family medicine, gastroenterology, genetics, geriatrics, haematology, health economics, health policy, health systems, hepatology, histology, immunology, infectious diseases, internal medicine, lasers, microbiology, nephrology, molecular medicine (including molecular cardiology, genetics etc.), neurosciences, neurology, non-communicable diseases, nuclear medicine, nursing, nutrition, obstetrics and gynaecology, occupational health, occupational therapy, oncology, ophthalmology, optometry, orthopaedics, otolaryngology, palliative care, pathology, paediatrics, pharmacy and pharmacology, physiology, physiotherapy, preventive medicine, public health, psychology, psychiatry, pulmonology, radiology, rehabilitation, rheumatology, rural health, sleep medicine, speech and hearing therapy, speech pathology, sports science, surgery, toxicology, trauma, tropical medicine, urology, vascular disease and virology.

The three sub-committees focus either on a) public health; b) clinical sciences; or c) basic health sciences research. In identifying the most appropriate specialist committee for your application, consider the nature of your **research focus** rather than simply your disciplinary field. For example, although occupational health is generally regarded as a 'public health discipline', an applicant's specific research focus may be on the diagnosis and treatment of individual patients with certain occupational diseases, and may be better suited to the clinical than the public health specialist committee. There are several disciplines which could be placed in any of the three panels depending on the specific research focus of the researcher applying. For example, a sports scientist undertaking biochemistry-related research may be best placed in the basic health science committee, whereas one undertaking research on the impact of physical activity on non-communicable diseases may be best placed in the public health committee and yet another researching treatment interventions for sports injuries may elect to apply to the clinical committee. These comments also apply to other disciplines such as pharmaceutical sciences, nursing and allied health professions. [Applicants can select up to three specialist committees/ sub-committees if they are unsure of the most appropriate one for them and also have to indicate if they work in an interdisciplinary way].

**Key research areas**

- **Sub-Committee 1: Public health**
  In general, public health research relates to protecting and improving the health of entire populations or communities rather than individual patients. It includes the interdisciplinary approaches of: epidemiology; biostatistics; occupational health; environmental health; health management and leadership; health economics, health policy and other health systems; and social and behavioural aspects of health. These approaches may be applied across different categories of health problems (e.g. infectious diseases, non-communicable diseases, sports injuries) or services (e.g. reproductive and sexual health services; mental health services; preventive and promotive services; rehabilitative services; palliative care).

- **Sub-Committee 2: Clinical sciences**
  In general, clinical science relates primarily to the presentation, pathogenesis, diagnosis and treatment of diseases, thus the majority of research in the various clinical disciplines falls into the ambit of this panel. Clinical pharmacology, microbiology and research in the allied medical disciplines and nursing which cover the areas listed above fit into this sub-committee.

- **Sub-Committee 3: Basic health sciences**
  This sub-committee focuses primarily on research in the areas of anatomy (including developmental biology, histology), biochemistry, physical anthropology, forensic science, molecular biology, microbiology, neurosciences, pharmacology, immunology and genetics among other areas as they relate to human physiology and diseases.

**Boundaries and overlaps**

In general, if the research is focused on animal or plant conditions or basic non-human cell function/physiology, the application is likely to be better covered by other panels such as Biochemistry, Molecular and Cell Biology; Basic and Applied Microbiology; Animal and Veterinary Sciences and Plant Sciences.

The key research areas in the three sub-committees for Health Sciences Panel overlap with each other, as well as many of the research areas in the other Specialist Committees. For Health Sciences 3 (Basic), this includes, inter alia, Biochemistry, Molecular and Cell Biology and Basic and Applied Microbiology. The overlap is relevant to research areas such as the study of micro-organisms involved in human diseases, as well as in research on the biochemical, physiological and molecular nature of health and diseases. There is also potential overlap in pharmaceutical sciences with the Plant Sciences, particularly aspects related to medicinal plants. There is also bound to be overlap with Animal and Veterinary sciences. For Health Sciences 1 (Public health), there is overlap with the Social Sciences such as Psychology, aspects of Social Work, Education and perhaps Political Studies and Philosophy as far as they are concerned with health-related aspects. The emphasis on deciding whether research belongs in one of the sub-Specialist Committees for Health Sciences or in another Specialist Committee lies very much on the strength of the human health related component.

**Types of research outputs**

<u>Primary outputs</u>
- Research publications and review articles in peer-reviewed journals
- Peer-reviewed conference proceedings published as papers (excluding abstracts)
- Peer-reviewed electronic papers
- Scientific monographs
- Reviews in recognised scientific journals

<u>Secondary outputs</u>
- Keynote or plenary lectures at conferences; these give an indication of the peer recognition
- Involvement in research assessment (editor of journals, reviewer for international journals, postgraduate external examiner appointments)

<u>Tertiary output</u> (can be considered on an individual basis depending on their status and impact)
- Conference proceedings without a system of refereeing
- Technical reports

## Historical Studies

### Key research areas

History is the study of the past. In its reconstitution, facts and events are subjected to selection and interpretation that will vary according to the time in which history is written and the ideas and values that influence its writing.

In the last three decades, South African historiography has been dominated by the perspective of “social history”. More recently, historians have paid more attention to culture and to patterns of behaviour that have, at best, an indirect relationship with the social consciousness of class relations. Attitudes to authority, nationalism, family structure, and competing kinds of knowledge and beliefs have all received new interpretation as a consequence of this intellectual shift.

Specialised sub-fields that are especially well developed in the South African context include military history (though most modern military studies tend to stress social experience), biography (of both well-known personalities and emblematic ‘ordinary people’), environmental history, especially with reference to the countryside, and local studies, particularly with respect to towns. Comparative history, that is, studies of particular themes across place and time, are relatively undeveloped locally. A fairly new concern is with the official or commercial representation of history, “public history”; here the concern is with how the past is more or less self-consciously remembered or re-constituted by different groups. This sphere has obvious affinities with “heritage studies”, a new field in South Africa, often taught within geography or art history departments.

### Boundaries and overlaps

The discipline of history, as it is pursued in South Africa and elsewhere embraces a number of fields that are currently not always taught within history departments. For example, (Christian) church history is often taught in conjunction with religious studies and theology; similarly, economic history tends to be incorporated into economics. These organisational divisions have also restricted intellectual interaction between art history and the umbrella discipline. Classical history, too, is mainly studied in conjunction with classical language and literary studies. Even so, despite these internal divisions, the comparative assessment of historical research should embrace all these fields.

During the 1980s, history was the most strongly developed discipline within the social sciences at South African universities and several other disciplines, notably sociology and politics were taught with a strong historical emphasis. Much of the scholarship to do with post second world war “high politics” – that is, electoral politics, nationalist struggle, and state policy, has in South Africa been the preoccupation of political scientists, drawing upon the methods, sources and interpretive frameworks intrinsic to their discipline. Historians working on pre-colonial African state formation and relying on the interpretation of oral traditions have depended heavily on anthropological approaches and anthropologists themselves have made and continue to make decisive contributions to South African historiography.

For the work of the Specialist Committee the most frequent disciplinary overlaps with Historical Studies are those that occur with Political Studies, Religious Studies and Performing and Creative Arts, and Design, because of the ambiguous status of research in classics, church history and art history.

### Types of research outputs

Research outputs should include the following:

- Articles in rigorously refereed journals
- Books that constitutes original research based on primary sources, or works of synthesis that propose original arguments
- Chapters in books (with the same caveats)
- Review articles in journals - again when an overview of a body of scholarship provides the basis for a fresh perspective – the (US) African Studies Association overview articles in the African Studies Review would constitute cases in point
- Published and refereed conference proceedings

- Editorships - these represent research if they involve textual commentary or scholarly investigations to establish the meaning and authenticity of published primary sources; editorships of journals or of multi-authored books do not in themselves count as research – though an introduction to a multi-authored collection of essays just might on grounds (if any) of intellectual originality

The following would not normally be considered as research outputs that would count towards the award of a rating:

- General writing directed at non-specialists containing few or no new insights
- Syntheses of research undertaken by others which do not include research or advance critical debate (for example general surveys, book review articles)
- Textbooks, handbooks, guides, etc.
- Contributions to encyclopaedias and other works of reference
- Articles in non-refereed journals
- Unpublished conference papers, even when they are invited contributions (if they make a significant impact on the field they will be published subsequently; that is when they should count)
- Book reviews
- Journalism
- Unpublished research reports including any consultancy work

## Information Technology

### Key research areas

This Specialist Committee considers applications from all areas of information technology and information science, including computer science, informatics (information systems) and information science.

### Boundaries and overlaps

- Considerable overlap with various disciplines is to be expected. In cases of overlap this Specialist Committee considers applications that focus on aspects of information technology or information science, rather than cases where information technology is merely used as a tool in the pursuit of knowledge.
- In many cases information technology researchers consider the use of information technology in a specific environment (such as the use of information technology for education) or the application of somediscipline in the information technology context (such as management of information technology). If, in such cases, the primary contributions are made to information technology, the applications should be considered by this Specialist Committee. If the primary contributions are made to the other discipline, the application has to be considered by the Specialist Committee for that discipline. A useful guideline isto consider whether the journals and proceedings where outputs have been published are in the information technology domain (such as those published by the AAAI, ACM, AIS, IEEE Computer Society,SAICSIT and similar bodies), or in the domain of the other discipline.
- Considerable overlap between information technology, mathematics, applied mathematics, and engineering is to be expected; in many cases it is hard, if not impossible, to provide exact prescriptions; computer engineering, including hardware design and aspects of computer systems, normally fall under engineering; computer vision, speech, pattern recognition (including neural networks and fuzzy logic), etc., fit equally naturally into either engineering or this Specialist Committee; some subject areas such as computability or (algorithmic) aspects of graph theory, in a similar manner, fit equally naturally in information technology or mathematics; in these cases the researcher should probably be guided by his or her working environment; someone working in an engineering department should probably be assessed by the Specialist Committee for Engineering while someone working in a computer science department should apply to this Specialist Committee.

### Types of research outputs

<u>Primary outputs</u> (reviewed publication of original research)
- Publications of original research in peer-reviewed journals
- Books and chapters in scholarly books
- Full length peer-reviewed papers in published conference proceedings

<u>Secondary outputs</u> (reviewed publication of derivative works)
- Keynote or plenary lectures at conferences
- Reviews/Surveys in recognised scientific journals
- Patents

<u>Tertiary Outputs</u>
- Tools (preferably open source)
- Tutorials
- Video (Lectures)
- Technical Reports

### Note
- The emphasis throughout is on the quality of the research contributions rather than exclusively on quantity. Researchers are encouraged to submit their work to journals and proceedings, and contribute at conferences, etc., which have the reputation of maintaining the highest possible standards.
- During their self-assessment, it is important that researchers should give details of the significance of their contributions; placing their work in the context of a subject area or explaining why an inter-disciplinary piece of research is of interest, will assist in assessing output.

- National and international collaboration is encouraged particularly where different co-authors are involved. Research independence and leadership is important in this context.

**Law**

**Key research areas and boundaries**

Law interfaces with all disciplines because legal regulation occurs in every field of endeavour; it is inevitable that law will impact on other disciplines. The Specialist Committee for Law, however, can consider applications for evaluation of research outputs in the following key research areas. Specialised sub-areas are included in brackets. Interfaces and overlaps, where other panels may be more appropriate (or assistancefrom other panels may have to be called for) are italicised.

- Private law, including law of persons (children, legal persons and associations), family law (marriage, divorce, marital property), succession (estates, trusts), property (deeds registration, intellectual property, sectional titles and time-share property, mining and minerals, water law, constitutional property law, expropriation, land reform), contract (cession, mortgage and pledge), delict (damages), enrichment, estoppel, private international law, civil procedure and evidence;

- Public law, including administrative law, constitutional law, human rights law (including race and gender studies), social security law, public international law, international human rights law, military law;

- Commercial law, including mercantile law, company law, corporate law, law of partnership, joint ventures, share blocks, indigenous forms of business enterprise such as stokvels and mashonisas, banking law, negotiable instruments, insolvency, insurance, tax law, competition law, shipping and maritime law, international trade law, trademarks and patents, unlawful competition and copyright, financial services and planning law, financial instruments, securities law, labour law, commercial agency;

- Criminal law, including international criminal law, criminal procedure and evidence, police law, penology;

- Legal training, street law, access to justice, arbitration, appropriate dispute resolution;

- Medical law;

- Planning law, building law;

- Environmental law;

- Information technology and computer law:

- Jurisprudence, comparative law, legal theory, legal methodology, interpretation of statutes and hermeneutics, legal philosophy, legal history, legal sociology and anthropology;

- Legal pluralism, indigenous law.

- Medical law, planning law, building law, environmental law, information technology and computer law;

**Types of research outputs**

In general, the Specialist Committee for Law can consider research outputs in the following forms:

- In general research outputs are recognised when they embody and exhibit the product or result of substantive research and add substantive new knowledge or insights to the public domain.

- Scholarly outputs that satisfy these requirements may appear in a variety of forms, including journal articles, notes, books, contributions in books, monographs, loose-leaf works, research reports, peer-reviewed full length published conference proceedings, electronic publications and computer software; outputs in any of these forms are recognised, provided they are in the public domain (readily available for evaluation purposes), have been peer-reviewed as part of the publication process, and in so far as they embody and exhibit the product or result of substantive research and add substantive new knowledge and insights to the public domain.

- Books written for the professions and student textbooks, collections of legislation, cases or other pre-existing materials, edited versions of pre-existing books or other materials, translations, case notes, book reviews and similar outputs will only be recognised as scholarly outputs for purposes of evaluation if and in so far as they embody and exhibit the product or result of research and add substantive new knowledge and insights to the public domain.

- Editing of a book or a scholarly journal will only be recognised if and in so far as it makes an identifiable scholarly contribution that satisfies the requirements above.

- Assessment of new editions of existing outputs will be based on the extent to which the previous edition was revised, and in so far as the revision satisfies the requirements above; applicants must clearly state and identify the revised portion of the output.

- Completed confidential research (e.g. sensitive reports produced for government - see Note 10.)

## Literary Studies, Languages and Linguistics

### Key research areas

This Specialist Committee's ambit includes the following:

- All language literatures and/or national/continental literatures currently taught and/or researched in South African tertiary institutions as well as continental literatures or transnational literatures in world languages; questions of comparisons and translation in and between these literatures;
- Across these various domains, all authors/performers, periods and genres of the language literature concerned;
- Questions of narrative and representation across all media - language (spoken, sign and written); performing arts; mass media (printed, broadcast and electronic); music;
- Publishing studies and histories of the book;
- Questions of literary theory;
- Questions of discourse and rhetorical analysis across all forms of language and utterance;
- Creative writing which is informed by substantial research;
- Bibliographic, translation and editorial work;
- All areas of theoretical linguistics e.g. syntax, semantics, philosophy of language, etc.;
- All areas of interdisciplinary and cross-disciplinary investigation, such as sociolinguistics, psycholinguistics, historical linguistics etc.;
- All areas of applied linguistics e.g. language teaching and learning, translation and interpreting, language planning etc.;
- Language-specific studies pertaining to linguistic documentation and description etc.

### Boundaries and overlaps

The key research areas in Literary Studies overlap with a number of other Specialist Committees notably those responsible for areas such as anthropology, critical theory, gender studies, history, information and communication studies, journalism, music, philosophy, particularly aesthetics and ethics, politics, psychology, social studies, sociology, and translation and editing studies.

Because of the central position of languages as a human characteristic and activity, areas of overlap may occur over a wide spectrum, such as acoustic engineering, communication science, and media studies, computer science, the performing and creative arts, cultural studies, hermeneutics and religious studies, education, anthropology, sociology, history, psychology, philosophy, law, etc.; where expertise in more than one area is important in judging the quality of research, language-related research might need to be considered by Committees concerned with these specialist areas.

### Types of research outputs

In general, credit is given to those outputs that contribute to the advancement of knowledge and show originality, methodological strength, scholarly rigour, and relevance for other researchers, policymakers and practitioners; all work that is eligible must be publicly accessible, so that reviewers may access it; supervision and guidance of postgraduate research students from master's level upwards, while recognised as a quality-assuring research activity, is not regarded as research output, per se.

Eligible materials include written outputs that report on the result of research (qualitative or quantitative) or scholarly works dealing with research–methodological issues. These include:

- Papers in peer-reviewed international and national research journals
- Peer-reviewed monographs and books
- Peer-reviewed chapters (in books) that include research-related topics
- Research published as full-length papers in peer-reviewed published conference proceedings
- The compilation of new databases and corpora which form the foundation of new research
- New software or tools used to explore such databases
- Dictionaries and grammars of formerly neglected languages, which are more than purely descriptive, or which offer a new or innovative approach
- Reference works and critical bibliographies

- Computer programmes arising from research but only if they are peer-reviewed and in the public domain
- Creative writing which show evidence of substantial research
- Translations of literary or scholarly works
- Research work that sustains intellectual infrastructure like critical editions

**Outputs of lesser significance**

- General research-based publications in collaboration with industry, government or non-governmental organisations (NGOs) and foundations, unless they are peer reviewed
- Chapters or papers in non-reviewed outputs, including in-house journals or non-reviewed edited scholarly books
- Updated editions of books, unless there is evidence of substantial new research-based inputs

**Outputs which are normally <u>not</u> eligible**

- Textbooks, curriculum materials and description of new teaching and learning approaches. Curriculum materials (including course materials and textbooks) which are published, and based on or developed through research properly fall within the ambit of the Specialist Committee for Education.
- Reviews of books, which have no research-related aspects
- Editing of books and journals, unless the author has made a research-related input, which must be clearly evident

## Mathematical Sciences

### Key research areas

This Specialist Committee considers applications from all areas of mathematics and applied mathematics, including theoretical physics, statistics and operations research. This Committee also considers research in graph theory, discrete mathematics, numerical mathematics, financial mathematics, industrial mathematics, mathematical biology, etc.

### Boundaries and overlaps

- Considerable overlap with various disciplines is to be expected. In cases of overlap this Specialist Committee as a general but flexible rule, considers applications of a more theoretical, mathematical and modelling nature.
- Applied mathematics may overlap with theoretical physics or engineering as for example with fluid mechanics; as a general guideline, research with a strong emphasis on mathematical models, or the analysis of the governing differential equations would normally fall within this Specialist Committee.
- Some overlap with biology and economics is also to be expected. Research concentrating on the mathematical modelling aspects clearly belongs to this Specialist Committee.
- Potential overlap with geostatistics in the Assessment Panel for Earth Sciences.

### Types of research outputs

Primary outputs
- Publications of original research in peer-reviewed journals
- Peer-reviewed conference proceedings (excluding abstracts)
- Scientific monographs
- Computational research tools, including software
- Peer-reviewed electronic publications
- Patents

Secondary outputs
- Chapters in books
- Keynote or plenary lectures at conferences
- Reviews in recognised scientific journals

Tertiary outputs
- Other full length conference proceedings (excluding abstracts)

Other
- Technical reports (these can be classified as primary, secondary, or tertiary, depending on their scope and accessibility)

### Note

- The emphasis throughout is on the quality of the research contributions rather than exclusively on quantity. Researchers are encouraged to submit their work to journals and proceedings, and contribute at conferences, etc., which have the reputation of maintaining the highest possible standards.
- During their self-assessment, it is important that researchers should give details of the significance of their contributions; placing their work in the context of a subject area, or explaining why an inter-disciplinary piece of research is of interest, will assist in assessing output.
- National and international collaboration is encouraged particularly where different co-authors are involved. Research independence and leadership is important in this context.

**Performing and Creative Arts, and Design**

**Key research areas**

Research in the performing and creative arts straddles a number of disciplines, forms of artistic endeavour and approaches to such fields and forms.

Methodologically speaking the field comprises two complimentary research and research related activities, namely:

- formal academic research in the traditional sense (i.e. the study of the work - performance, artefact, etc. - and its context from a specific theoretical perspective); this includes the history, theory and analysis of art, music, dance, theatre and performance in all their forms;
- research in a more arts-specific sense, where the process of creation constitutes a research process per se and the outcomes are items such as artefacts and performances. (See below under Research Outputs).

This Specialist Committee covers research in the fine and applied arts, drama, music, theatre and performance; these are traditionally clearly distinctive fields of study and practice within the academic structures in South Africa; while much cross-pollination is occurring today, the fundamental structures are mostly in place; approaches, theories and outputs will therefore differ from field to field; however, in the lists below the term “arts” is used inclusively, to indicate most or all of the different forms.

Specific fields included are drama, theatre, dance and performance studies, including aspects such as drama and theatre in education, community theatre, theatre for development, street theatre, industrial theatre, etc., aspects of film and media studies, aspects of cultural studies, notably the role of the arts in the broader cultural system, fine and applied arts, including photography and new media, music and music studies of any idiom, period and provenance, arts management studies, technological studies in the arts, and theory and methodology of arts research.

**Boundaries and overlaps**

There may be strong overlaps with communication studies, historical studies, journalism, film and media studies, cultural studies, language and literature (in all languages), as well as with some cultural aspects of educational studies, development studies, psychology, sociology, anthropology, business and management studies; in cases of interdisciplinary work, there will be close consultation between Specialist Committees.

**Types of research outputs**

The Specialist Committee recognises the importance of both formal academic research and creative outputs for the research cultures in many departments, as well as for individual researchers; it thus aims to give equal value to theoretical/empirical research (i.e. historical, theoretical, analytic, sociological, economic, etc. studies from an arts perspective) and creative work (i.e. in cases where the output is the result of a demonstrable process of investigation through the processes of making art.); the latter category of outputs is treated as fully equivalent to other types of research output, but in all cases credit is only given to those outputs which demonstrate quality and have a potential for impact and longevity.

Outputs thus include:

<u>Formal academic research:</u>

- Articles in peer reviewed journals and conference proceedings, peer reviewed books and chapters in books, on any aspect of the performing and creative arts
- Editorships and curatorships (where editorial work or curation is taken to imply substantive research, explicitly bringing new knowledge or insights to the public domain)

<u>Practice, as research outcomes and recognised research outputs, could include any of the following as long as the work in each case is taken to imply substantive research, explicitly bringing new knowledge or insights to the public domain:</u>

- Non-conventional academic activities related to creative work and performance: Catalogues, programmes, and other supporting documentation describing the results of arts research in combination with the works themselves;
- In the Creative Arts and Design: art/artefacts, exhibited or otherwise presented within the public domain; design of exhibitions or events; public commissions; media presentations including performance, installations and catwalk presentations; mass production; patents and registered designs; new processes and materials; new devices including software; reports; other non-contextual research output;
- In Dance: Performance in, and choreography and design for dance and movement performances;
- In Drama and theatre: scripts or other texts for performances and the direction of and design (lighting, sound, sets, costumes, properties, etc.) for live presentations as well as for films, videos and other types of media presentation; this also applies to any other non-textual public output (e.g. puppetry, animated films, etc.), provided they can be shown to have entered the public domain;
- In Music: live performance by musicians, broadcasts, recordings, films, videos, and computer media as well as conventional published musical materials; where appropriate, as in the case of live performances, evidence may be sought that the output entered the public domain and was in fact accessible to the public.

## Physics

### Key research areas

The Physics and Astronomy Classification Scheme (PACS) of the American Institute of Physics (AIP) is generally accepted as the international standard for the classification of subjects in physics. The main categories are:

- Category 00: General
- Category 10: The physics of elementary particles and fields
- Category 20: Nuclear physics
- Category 30: Atomic and molecular physics
- Category 40: Electromagnetism, optics, acoustics, heat transfer, classical mechanics, and fluid dynamics
- Category 60: Condensed matter: structure, mechanical and thermal properties
- Category 70: Condensed matter: electronic structure, electrical, magnetic, and optical properties
- Category 80: Interdisciplinary physics and related areas of science and technology
- Category 90: Geophysics, astronomy, and astrophysics

### Boundaries and overlaps

The PACS classification scheme reflects the status of physics as *the* fundamental physical science which overlaps with mathematical, information, biological and chemical sciences, and increasingly so with areas which deal with complex systems as diverse as financial markets, traffic flow and brain function; consultation with other Specialist Committees on an *ad hoc* basis may therefore be required to determine the one most relevant to deal with evaluations in such cases, taking the PACS scheme as a point of departure.

### Types of research outputs

Primary outputs

- Publications of original research in peer-reviewed journals
- Peer-reviewed conference proceedings (excluding abstracts)
- Scientific monographs
- Computational research tools
- Patents

Secondary outputs

- Chapters in books (peer-reviewed)
- Keynote or plenary talks at conferences
- Reviews in recognised scientific journals

Tertiary outputs

- Other full-length conference proceedings

Other

- Technical reports, with status depending on the scope and impact

The quality of research as an indicator is emphasised rather than quantity alone; this implies that the choice of journals for publication plays an important role; the status of a journal may, for example, be judged according to its impact factor as published from time to time by *Science Citation Index (SCI)*, although the relative size of the research community in a given field or sub-field also has to be considered.

**Plant Sciences**

**Key research areas**

Studies in plant sciences range across several of the levels of a hierarchy of organisation, from molecular biology to global climate change, and also frequently contribute to interdisciplinary studies. For an application to be included in submissions to the Specialist Committee for Plant Sciences it should cover research into understanding plants, their relationships and functioning. Phycological and sometimes mycological studies also fall within the mandate of this Specialist Committee for Plant Sciences. The field is extremely broad and so the following list is illustrative and certainly not exclusive.

- Applied Plant Sciences – horticulture and agronomic disciplines and forestry;
- Ecology - this is a very broad discipline and includes, *inter alia* systems ecology, community ecology, vegetation science, biodiversity studies, plant-herbivore interactions, plant population biology, pollination biology, ecological economics, conservation biology and restoration ecology;
- Systematics - includes taxonomy, plant evolution and biodiversity using both classical and molecular techniques;
- Ethnobotany - includes indigenous plant use, sustainable utilisation, ethnopharmacology, regeneration biology of ethnobotanically important species, etc.;
- Physiology - includes studies ranging from cellular/biochemical (e.g. plant growth regulators, signalling, process control) to whole organism-environment interactions (e.g. ecophysiology and response to global climate change);
- Plant biochemistry and molecular biology – includes studies on the mechanisms underlying physiological responses and developmental processes, and genetic modification.

**Boundaries and overlaps**

As the study of plants covers such a wide range of hierarchical levels there is considerable potential for overlap with other Specialist Committees. The following is a list of potential overlaps:

Animal and Veterinary Sciences - there is considerable potential for overlap in particular in some ecological studies. The application should be directed to the Specialist Committee covering the major thrust of the work.

Biochemistry, Molecular and Cell Biology - if the research, although biochemical or molecular in nature, is aimed specifically at understanding the performance and functioning of plants, then it falls within the Specialist Committee for Plant Sciences; the biochemistry and molecular biology of processes specific to plants, and of plant stress, would fall into this category.

Chemistry - there is potential for overlap in the studies on ethnobotany and ethno-pharmacology; once a study gets to the stage of identifying and elucidating the structure of a compound of interest, it overlaps with natural products chemistry, and may be better suited to the Specialist Committee for Chemistry.

Earth Sciences – there could be overlap with environmental management, and physical geography (environmental effects on plants and plant response to climate change.

Health Sciences - potential overlap with ethnopharmacology; once the study gets to the stage of full scale drug tests it is probably more suitable for the Specialist Committee for Health Sciences.

Basic and Applied Microbiology - the potential for overlap here lies particularly with the study of micorrhizal associations and of nitrogen fixation (although there are probably others); if the study is aimed specifically at the effect of these processes on plants, plant performance and ecosystem processes, then it falls under the Specialist Committee for Plant Sciences.

In practice some applications will have to be assessed on an individual basis in terms of which Specialist Committee is most appropriate; however, as a guiding principle, work assessed by the Specialist Committee for Plant Sciences would be studies aimed at increasing understanding of plants as such, rather than studies in which the interest in plants is peripheral.

**Types of research outputs**

An important criterion in assessing outputs is whether they are peer-reviewed; although publication in 'high impact' journals is noted, sometimes publication in a specialist journal with a lower impact factor may be more suitable; the following classification gives an indication of the weight different outputs carry:

Primary outputs
- Publications of original research in peer-reviewed journals
- Review articles (subjected to peer-review) in scientific journals
- Chapters in books that have been subjected to peer-review
- *Refereed conference proceedings (excluding abstracts)
- Scientific monographs

Secondary outputs
- Keynote or plenary lectures at conferences
- Patents
- Public biological databases

Tertiary outputs
- Other full-length conference proceedings (excluding abstracts).

Other
- Technical reports (these may be classified as primary, secondary or tertiary, depending on their nature and accessibility)

*It should be noted that in the field of Horticulture the International Society for Horticultural Sciences (ISHS) and the Proceedings of the International Society of Citriculture (published by the International Society of Citriculture) conferences are peer-reviewed.

## Political Sciences and Philosophy

### Key research areas

- There are two main sub-fields of the political sciences; the first is political science, including South African politics, political behaviour and comparative political behaviour, comparative politics, conflict studies, gender politics, African politics, political economy, public policy, political research methodology, political risk analysis, state and economy studies and political theory. The second is international relations, including foreign policy studies, strategic studies, peace studies and international political economy;

- The field of philosophy includes epistemology, metaphysics (including philosophical cosmology), ethics (including meta-ethics, normative ethical theory and all branches of applied ethics), aesthetics (including philosophy of art, music and literature), social and political philosophy, philosophical anthropology (including the philosophy of culture), logic (including formal, theoretical, philosophical and applied logic), philosophy of mind, philosophy of action, theory of practical reasoning, history of philosophy (including critical and scholarly work on particular philosophers, groups of philosophers and movements in philosophy), systematic investigations within any broadly recognised approach to philosophy (including African philosophy, Eastern philosophies, analytical philosophy, phenomenology and hermeneutics), philosophy of science, philosophy of social science, philosophy of law, philosophy of religion, philosophy of education, and philosophy of particular disciplines (including mathematics, physics, biology, economics, history, linguistics and psychology).

### Boundaries and overlaps

Political sciences overlap with certain aspects of development studies, social policy and administration, political economy, political sociology and political psychology, and policy analysis; there are potential overlaps between philosophy and all other disciplines since the philosophy of a discipline and the most highly theoretical aspect of that discipline frequently deal with closely related issues; there are also significant areas of overlap between, e.g. philosophical cosmology and physics, aesthetics and the theory of art and literature, social and political philosophy and social, political and economic theory, philosophy of mind and psychology, philosophical anthropology and theoretical anthropology, formal logic and mathematics, philosophy of law and jurisprudence, philosophy of education and educational theory and history of philosophy and intellectual history.

### Types of research outputs

The primary research outputs are articles in established peer-reviewed journals, research based books (not textbooks) issued by reputable publishers, contributions to books edited by appropriate experts, and the peer-reviewed proceedings of significant conferences.

## Psychology

### Key research areas

This Specialist Committee deals with research focused on human (and in some instances animal) behaviour, experiences and mental processes (cognition, emotion, motivation, etc.) on individual, interpersonal, group, community, and broad societal levels.
All forms and varieties of research in all sub-disciplines of psychology are included, for example:

- Basic fields (such as physiological, social, personality, developmental, and cognitive psychology, etc.);
- Professional fields (such as clinical, counselling, educational, and organisational psychology with all related sub-areas, for example psychopathology, psychotherapy, psychometrics, organisational change and development, etc.);
- Other applied fields (such as health psychology, neuropsychology, sport psychology, community psychology, environmental psychology, forensic psychology, pastoral psychology, etc.);
- Newer fields and approaches such as critical and post-colonial psychology, evolutionary psychology, positive psychology, etc.;
- It will include research on, and from, various paradigmatic and theoretical perspectives, and the whole variety of quantitative and qualitative methodological approaches used in psychology.

### Boundaries and overlaps

Psychology potentially overlaps and interfaces (in disciplinary and inter-disciplinary research) with a very wide range of other disciplines ranging from the biological and health sciences to anthropology, sociology, social work, communication studies, political sciences and philosophy, education (e.g. gender, race, culture and identity studies), management sciences, law, as well as mathematical (statistical) sciences, and religious studies.

Psychology may also, in respect of certain methodologies, interface with disciplines such as language and literature using qualitative methods such as discourse, narrative, rhetorical and hermeneutical analyses; methods such as participant observation, ethnography and field studies, may also be used by other disciplines such as cultural anthropology, just as quantitative methods of data-gathering are used by many other disciplines in the natural sciences.

In all of the above potential overlaps, the Specialist Committee for Psychology may need to cooperate with other Specialist Committees; the key criteria for consideration by the Specialist Committee for Psychology would seem to turn on the training of the applicant, the literature drawn upon, and/or the form of research methods which justify this work.

### Types of research outputs

An important criterion in assessing outputs is whether they are peer-reviewed and peer-recognised.

<u>Primary outputs</u>

- Publications in peer-reviewed scientific journals
- Publications in peer-reviewed conference proceedings (not abstracts)
- Books and chapters in books (based on own original research) that have been subjected to peer-review
- Keynote or plenary lectures at high standing conferences

<u>Other</u>

- Other full-length conference publications
- Artefacts such as psychological tests, forms of therapy, and computer programmes, CD-ROMS – as long as there is sufficient evidence of peer, rather than layperson, recognition and acclaim and that such artefacts are clearly based on research
- Involvement in research assessment (e.g. editor of journal)
- Leadership in research programmes

## Religious Studies and Theology

### Key research areas

The Specialist Committee will consider applications in the academic study of religion and religions, with respect to all religious traditions, including African Traditional Religion, Buddhism, Islam, Judaism, Hinduism, and Christianity; comparative religion; the scientific study of religion; the philosophy / sociology / psychology of religion; religion education; religion and science; religion in literature, feminist theology/religious studies or gender and religion and other emerging disciplines in which religion is the dominant interest. Also included are Biblical studies (First or Old) Testament/Hebrew Bible and (Second) New Testament), with related disciplines such as Greek, Hebrew, Aramaic; methodological approaches to ancient texts (derived from social sciences, historical research, textual criticism, grammatical research, etc.); theology in all its forms, for instance systematic theology / dogmatics / philosophical theology, the history of Christianity, church law, practical / pastoral theology, theology and development, contextual theologies, theological ethics; hermeneutics (in its biblical and theological forms); missiology, ecumenical theology.

### Boundaries and overlaps

There may be overlaps due to interdisciplinary work on a methodological level, for instance with various aspects of philosophy and sociology, other social sciences, historical studies (Ancient Near Eastern studies, Greek-Roman background); approaches to therapy, communication theories or development theories. If the main focus is theological or religious in nature, application should be made with the Specialist Committee for Religious Studies and Theology.

Hermeneutical interests, including text theory, theory of understanding and applying texts, which a focus on religious texts or have clear theological/religious interests, should be referred to the Specialist Committee for Religious Studies and Theology.

Church history, as one of the four traditional theological sub-disciplines, should fall under the Specialist Committee for Religious Studies and Theology.

### Types of research outputs

<u>Primary outputs</u>

- Refereed scholarly articles in eminent academic journals (with rigorous editorial and refereeing policies) that are appropriate to the particular subject matter - which might include South African based journals with international standing);
- Scholarly monographs contributing new knowledge or expanding the frontiers of knowledge and understanding in the relevant fields of studies – the status of the publisher (typically with rigorous peer review policies) would often serve as indication of the quality of the book;
- Chapters in co-authored scholarly books or essays in scholarly edited volumes (under the same conditions as monographs);

<u>Secondary outputs</u>

- Editing a book is also acknowledged according to the measure in which the applicant is creatively involved and offering academic leadership in the conceptualisation and planning process. If the applicant is just administratively involved, less recognition will be given.

<u>Other</u>

In addition to published outputs, other evidence of the standing of a researcher is considered to be important, but not on the same level as his/her publications. This includes invited keynote / plenary addresses at major international conferences (inside or outside South Africa), membership of editorial boards, leadership in international societies, guest lectureships, membership on academic boards, prestige acknowledgements and awards by various research-related institutions. These will only be important to the measure in which the referee is able to establish the qualitative value of such recognition. For instance, foundations with a very rigorous peer-reviewing system like the Alexander von Humboldt (to mention only one obvious example) will carry considerable weight, while an unpublished conference contribution could not carry weight since the quality cannot be assessed. However, if the applicant is invited to a prominent international university to read

that paper, it again carries some weight since it serves as acknowledgement of the status of the applicant.). Another indication of academic standing beside citation is the recognition of the specific contribution made by a scholar through a Festschrift, honorary doctorates, review symposiums on a person's monograph (at conferences or in academic journals), postgraduate theses focusing on the scholar's contribution, invitations to serve as external examiner or to write recommendations of various kinds. Each of these would need to be judged in terms of the particular context.

## Veterinary and Animal Production Sciences

### Key research areas

This Specialist Committee deals with applications that encompass the health of all wild and domestic species and the production of species farmed for human consumption or other products. Research covering the epidemiology, prevention, diagnosis and treatment of diseases is included. Also covered is animal nutrition where the study is focussed on the animal rather than on the nutrient itself.

### Boundaries and overlaps

The boundaries of these Specialist Committees will sometimes overlap with each other and those of other Specialist Committees, in particular Plant Sciences, Health Sciences; Chemistry; Mathematical Sciences and Biochemistry, Molecular and Cell Biology.

The following is a list of potential overlaps with other Specialist Committees:

- Plant Sciences - there is considerable potential for overlap, particularly in aspects of ecology; the application should be directed to the Specialist Committee covering the main thrust of the work;

- Health Sciences – where an animal model is used to study diseases that are both of animal and human significance (i.e. zoonotic) or where an animal model is used or proposed as a model of a human disease.

- Biochemistry, Molecular and Cell Biology - if the research is biochemical or molecular in nature, but is aimed specifically at understanding the biology of animals, then it falls in the Specialist Committee for Zoological Sciences); the biochemistry and molecular processes specific to animals would fall into this category, as would the genetics of animals;

- Chemistry - there is potential for overlap in the study of ecotoxicology and chemical ecology; if the work addresses identifying the structure of compounds, it is better suited to the Specialist Committee for Chemistry;

- Mathematical Sciences - studies that make use of advanced statistical techniques, including the derivation of new approaches, would be considered by these if the main aim of the work is to advance the understanding of animal biology.

### Types of research outputs

The most significant outputs will be refereed papers in scientific journals that have rigorous editorial and refereeing policies. However, it is recognised that museum journals, although not always ISI-accredited, are often the most appropriate outlet for classical systematic studies. Other research outputs, such as registered patents and refereed conference proceedings will be treated on their merits.

Publications such as a review in a high-profile journal, or a book or chapter in a book aimed at the research community, indicate a researcher’s standing in the field are also important.

Other forms of output, such as technical reports, are judged on their scientific merit, and the submission should always include information on the research content of such outputs.

In addition to published outputs, other evidence of the standing of a researcher is considered to be important; this includes invited talks at conferences, membership of editorial boards, etc.

## Zoological Sciences

### Key research areas

South Africa has a rich fauna occurring in a wide variety of habitats and biomes. This Specialist Committee covers all levels of zoological research including evolution, molecular ecology (including population genetics, genetic aspects of invasions, landscape genetics, phylogeography etc.), systematics and phylogeny, functional morphology, physiology, ethology, ecology (both marine and terrestrial); biodiversity and conservation research (including invasion biology)

Applied aspects such as agricultural entomology and nematology, fisheries biology, aquaculture, integrated pest management and biological control are also included.

### Key research areas

This Specialist Committee deals with applications that encompass the health of all wild and domestic species and the production of species farmed for human consumption or other products. Research covering the epidemiology, prevention, diagnosis and treatment of diseases is included. Also covered is animal nutrition where the study is focussed on the animal rather than on the nutrient itself.

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- Biochemistry, Molecular and Cell Biology - if the research is biochemical or molecular in nature, but is aimed specifically at understanding the biology of animals, then it falls in the Specialist Committee for Zoological Sciences); the biochemistry and molecular processes specific to animals would fall into this category, as would the genetics of animals;

- Chemistry - there is potential for overlap in the study of ecotoxicology and chemical ecology; if the work addresses identifying the structure of compounds, it is better suited to the Specialist Committee for Chemistry;

- Mathematical Sciences - studies that make use of advanced statistical techniques, including the derivation of new approaches, would be considered by these if the main aim of the work is to advance the understanding of animal biology.

### Types of research outputs

The most significant outputs will be refereed papers in scientific journals that have rigorous editorial and refereeing policies. However, it is recognised that museum journals, although not always ISI-accredited, are often the most appropriate outlet for classical systematic studies. Other research outputs, such as registered patents and refereed conference proceedings will be treated on their merits.

Publications such as a review in a high-profile journal, or a book or chapter in a book aimed at the research community, indicate a researcher's standing in the field are also important.

Other forms of output, such as technical reports, are judged on their scientific merit, and the submission should always include information on the research content of such outputs.

In addition to published outputs, other evidence of the standing of a researcher is considered to be important; this includes invited talks at conferences, membership of editorial boards, etc.

# STATEMENT ON ETHICAL RESEARCH AND SCHOLARLY PUBLISHING PRACTICES

*JOINTLY ISSUED BY ASSAf, CHE, DHET, NRF AND USAf*

Since the global adoption of the Singapore Statement on Research Integrity in 2010 (www.singaporestatement.org), which we jointly subscribe to, adherence to its principles has not improved. In support of ensuring quality research of high integrity in South Africa and globally, we find it impelling to reiterate to the South African research community the fundamental principles of scholarly research and publishing (which we endorse) and appeal to this community to act demonstrably in advancing research integrity. The following principles should inform ethical research and scholarly publishing practices:

1. **Responsibility:** It is the responsibility of individual researchers, postgraduate students, academic societies, journal publishers and boards, universities, all university staff (including research support services) and all organisations supporting research and knowledge generation, to be aware of and adhere to regulations related to research, to actively maintain academic and research integrity and to report or act upon any unethical practices they may discover. At an institutional level, requisite policies and procedures for monitoring, investigating, censuring and reporting unethical practices, must be developed. The anonymity of those reporting such practices must be protected.
2. **Ethics and integrity:** Researchers are responsible for their own research, and for research performed under their supervision, and must take due care to ensure the publication only of authentic, accurate and reproducible findings, including findings that do not support their working hypotheses.
3. **Methodology and data:** Researchers must use appropriate research methods, assess all outcomes critically, maintain a full record of the research including all supporting data, and objectively interpret and report findings.
4. **Authorship:** All authors who made an intellectual contribution to the research publication, and only those authors, must be included as contributing authors. The sequence of authors should follow discipline-specific practices. All authors must read and approve the final draft prior to submission.
5. **Acknowledgement of contributions:** As well as acknowledging all authors, researchers must acknowledge all those who made a material contribution to the research or publication but who do not meet authorship criteria. This includes indigenous originators of the knowledge, funders, sponsors, manuscript editors and language reviewers. In addition, all knowledge (published or unpublished) used in the research must be appropriately referenced/cited and acknowledged.
6. **Peer review:** Peer-reviewers must be sufficiently qualified for the role, and the process of review must be fair, objective, and rigorous, while respecting anonymity and confidentiality where this is applicable. All research publishers and funders of research must avail their peer-review policies to authors.
7. **Social awareness:** Researchers and institutions must be sensitive to the potential impact of their research on society, marginal groups or individuals, and must consider these when weighing the benefits of the research against any harmful effects, with a view to minimising or avoiding the latter where possible.
8. **Conflicts of interest:** All possible conflicts of interest, whether financial or personal, must be declared and preferably avoided in research and in other scholarly activities such as peer review, research proposals and public comment.
9. **Editorial:** In cases where editors or members of editorial boards submit manuscripts to their own journals, editorial handling of the papers concerned must be independent of the author in process terms, up to and including the decision to publish or not, as the case may be.
10. **Research publishing environment:** Research institutions (including agencies supporting and funding research) must ensure an environment which encourages ethical research practices through education, stewardship, and clear and fair policies and practices that promote research ethics, integrity and compliance. This includes the way in which research funding or research incentives are allocated and spent. Care has to be taken to ensure that the research funding system does not incentivise perverse research and publication practices that compromise research integrity.
11. **Predatory journals and unethical editorial practices:** Researchers are responsible for avoiding falling victim to predatory publishing or unethical editorial practices. The onus is on an individual or group of researchers, and institutional processes of scrutiny, to ensure that the avenues selected for publishing their research are authentic and credible.
12. **Quality over quantity:** Researchers are reminded that publishing the outputs of their research in good quality, high-impact journals, is always preferable from a longer term career perspective, to the publication of incremental outputs in low quality journals. 'Salami slicing' of outputs to increase publication numbers should be avoided.

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REPUBLIC OF SOUTH AFRICA

science & technology
Department: Science and Technology
REPUBLIC OF SOUTH AFRICA

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## Guidelines for members of Assessment Panels to distinguish between "Y" and "C" reports and deciding on a C3 rating category.

The following benchmarking methodology first introduced by Dr von Gruenewaldt at the 2015 EECworkshop was expanded to include criteria on how reports should be **assessed**:

1. The established researcher (C) rating criteria (sustained recent record; quality, conceptualisation; research methods, ongoing engagement) should be used as the **referencepoint/benchmark** against which researchers are assessed irrespective of age.
2. If the reviewers indicate that the applicant complies fully with all these criteria but that their research also has global impact, the B or A categories should be considered.
3. If the reviewer/s express **doubt** about compliance with these criteria, two aspects need to be considered:
    a. The criterion or combination of criteria which is in doubt; and
    b. The severity of the doubts expressed by the reviewer.

The following guideline should be used:

| Criterion | Descriptors | C- | RU |
|---|---|---|---|
| Quality | • Ability to conceptualise problems (independence, novelty etc.)<br>• Utilisation of appropriate research methods (the use of outdated methodologies is seen to be a serious flaw)<br>• Assessment of research findings (literature consulted, substantiation of conclusions etc.) | Reviewer recognises comparatively minor shortcomings but believes outputs have value and contribute incrementally to new knowledge creation | Reviewer identifies serious shortcomings in several outputs. |
| Sustainability | • Discipline specific and/or related to complexity of problem (e.g. seminal book in history or few outputs of exceptional quality in mathematics)<br>• Research of acceptable standard and contributing incrementally to new knowledge | If output is less than expected of academic locally within discipline | If output is way less than what can reasonably be expected locally for the discipline |
| Coherence and core area | • Discipline specific - core area can be very narrowly defined in some disciplines and less so in others.<br>Coherence needs to be recognised by reviewer | Reviewer identifies a degree of coherence among (some of the) outputs but finds vagueness in future direction | Reviewer comments on unfocussed/opportunistic research with no indication of future direction. |

4. Using the above criteria of assessing the nature/level of doubt expressed by the reviewer, thedecision on whether it is a "Y" or "C" report is then dictated by the applicant's eligibility in termsof chronologic age and date of PhD. If eligible for the emerging category, the report is rated asY, if not it is rated as either C- or RU.

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## Selection of Peer Reviewers - Guidelines for Specialist Committees (SC) and Applicants

### 1. Introduction

The selection of appropriate peers* constitutes the very essence of the peer-review system that supports the evaluation and rating of individuals. Members of the SCs and applicants applying for evaluation and rating are thus expected to show **great circumspection** in nominating reviewers.

*"A peer is a researcher or person with a research background who has the requisite knowledge and experience and the ability to exercise objective fair judgment of the applicant and to provide an appropriate assessment of the applicant's research and research standing".

**Hallmarks of a peer:**

- Should be sufficiently familiar with the field of study (field of specialisation(s)) of the applicant. The **specialisations** of the applicant appear in the invitation letter, and it is therefore imperative for the SC's and Conveners to do due diligence when nominating a reviewer. The surest way to get a decline message from a reviewer is not to have alignment between the reviewer and the applicant's research specialisations; and
- Should have a "standing" (as determined by some objective criterion (h-index, number of publications, other suitable determinant)) equivalent of or above those of the applicant.

**Applicants** are requested to supply names of **six active researchers** who are best able to assess the scope and impact of their recent research and other relevant scholastic outputs, activities and contributions. Applicants are also requested to indicate their relationship with the reviewer and to give reasons for each nomination in order to provide the SCs with additional information for the nomination of further reviewers. Applicants are also given the opportunity to indicate which reviewers should not be approached by the NRF (excluded reviewers).

The member of the SC to whom the applicant is assigned, are requested to nominate an **additional** six peer reviewers (so-called **independent reviewers)** for the applicant.

Persons who serve on the **SC's** should have a sound knowledge of the broader context of their fields and be able to readily identify suitable reviewers nationally and internationally. There is no substitute for the wisdom of members of the SCs who are responsible for the selection of reviewers and whose **task** it is to select a **balanced reviewer profile** comprising of:

- Reviewers who are peers as described above;
- Reviewers **nominated** by both the applicant AND reviewers nominated by the members of the SC's. This balance is important because using only peer reviewers nominated by the applicant might lead to an unfair advantage of the applicant (positive bias, prompted by the applicant etc.) whilst using none of the peer reviewers nominated by the applicant might also lead to an unfair disadvantage of the applicant (gatekeeping). Both these are grounds for procedural unfairness in an appeal. No review process can be completed without having at least two applicant nominated AND two so called independent reviewer reports in the profile. Only in cases where all six of the nominated reviewers had been invited and they declined the invitation, could the rule of two nominated reviewers be disregarded. This must be minuted.
- Reviewers based locally AND reviewers from outside the country (international) for ALL (even those nominated for the emerging category) rating categories. The mix should be determined by the discipline and expected outcome of the rating (e.g. for an A nomination there should

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only be international reviewers while for a potential C candidate working on a problem of local relevance, the mix will look differently); and

- No more than two reviewers from the same institution.

## 2. Nomination of reviewers

### *2.1 General guidelines*

i. SC members should consult closely with one another, especially with the **Convener**, regarding the selection of reviewers.

ii. Where SC members have difficulties or uncertainties regarding reviewers for particular applicants or fields, they should consult **colleagues** (locally or abroad) and / or members of other SCs who would be able to make suggestions about suitable reviewers.

iii. Electronic publication and citation systems such as Clarivate Analytics (previously known as ISI WoS), Scopus and Google Scholar should be used to guide and motivate the selection of reviewers.

### *2.2 Specific guidelines*

i. Reviewers who are **collaborators** or **closely associated**1 with the researcher being assessed should ordinarily be avoided. Reviewers from the **same department** as the **applicant** should normally **not** be nominated as reviewers but reviewers from the same institution as the applicant are not prohibited. For a fair review process, a **balance** of so-called nominated and independent reviewers is imperative. In cases where the applicant nominated **close collaborators** as reviewers, SCs should identify the reviewers nominated which collaborated the least closely with the applicant and invite their reviews. The motivation required from the SC about the peer status of the reviewer should be specific on this to guide the Convener when ratifying the nomination. If these reports from collaborators are obviously biased the usability screening tool should be used to lessen their impact on the outcome.

ii. The SC should affirm that reviewers nominated by applicants are **appropriate peers** and that they are experts in the field of specialisation of the applicant (either by reputation, citation, publications, etc.). Once it has been established that the persons nominated by the applicant are peers, three of those available should be **prioritised** by the SC to indicate whom the PO in RE should approach first. Note that the report format includes the **motivation** from the members of the **SC** on why this reviewer has been nominated a peer as described above.

iii. Six additional reviewers should be identified by the SC who are not on the applicant's list again prioritising three ensuring that they are peers and active in the field of research of the applicant.

iv. The **standing** of reviewers should be taken into account; to take two obvious examples,

- Nobel Prize winners should not be approached for an applicant most likely to be placed in the Y category.
- International leaders should be approached for applicants currently in the A category (or for applicants where Specialist Committee members feel there is a strong possibility that they may be placed in the A category).

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An exception to this guideline may be made in the case of applicants nominated for the emerging (Y) rating category. Supervisors of these applicants are often in a very good position to assess potential and should therefore not be excluded per definition.

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v. In some cases an applicant's work may cover **several fields**. Reviewers should be chosen to ensure that the scope and impact of all the work is adequately covered (the publication record and narrative fields in the application often contain valuable information to guide this). The final rating outcome is determined by the field in which the applicant is the strongest. It is, however, important that the key criterion of coherence is not overlooked in the process. It may be necessary to consult with other SCs or to approach more than six reviewers in such cases especially if the fields are very divergent

vi. Care must be taken not to approach the same reviewer too often. Where a particular person is suitable for several applicants he/she could be approached for some of them but could also be asked to suggest names of suitable reviewers for the other applicants. A reviewer should preferably not be approached to do more than three reports in one year.

vii. Generally speaking the same reviewer should not be approached more than twice consecutively to review a particular applicant.

**viii.** When approaching reviewers in **industry** it is important that the chosen reviewers are **peers** who are ***active*** in research.

ix. Members of Specialist Committees should not be asked to act as reviewers for applicants linked to their panels. Members of the EEC and Appeals Committee should **not** be reviewers (as they might have to assess applications referred to them). Assessors should normally not be reviewers. The Conflict-of-Interest rules applies to guide decision making in this regard.

---

Last updated April 2020

## Reviewer Response Template for Rating Applications 2021/22

### Particulars of Reviewer

| | | | | | |
|---|---|---|---|---|---|
| **Surname** | | **Title** | | **Initials** | |
| **Institution** | | | | | |
| **Department** | | | | | |
| **Position** | | | | | |
| **Email address(es)** | | | | | |
| **Area(s) of specialisation** | | | | | |

**Before you commence** with the review it is important that you take **cognisance** of the following:

## CONFIDENTIALITY AGREEMENT AND CONFLICT OF INTEREST

This will certify that in the review of all applications for evaluation and rating submitted to the NRF:

i. I will treat all information contained in all applications for evaluation and rating and/or reviewer reports in the strictest of confidence and will not reveal that information to any third party without the prior written consent of the NRF. **Please note that the review is anonymous and no correspondence with the applicant should be entered into**.

ii. I will not do or allow anything to be done which might compromise the interest of the NRF or any of the proposers in respect of any intellectual property rights flowing from the confidential information.

iii. I will not use the information contained in those applications for evaluation and rating for any reason other than for the purpose of providing a peer reviewed report or assessment for the NRF.

iv. I will not participate in a review process where a conflict of interest exists. Should there be doubt about an apparent conflict of interest, I will advise the NRF, who will then indicate whether participation in the review process is permissible or not.

| | | Please✓ |
|---|---|---|
| 1. | I have read the confidentiality and conflict of interest agreements and agree to abide by it. | |
| 2. | This is an assessment of the applicant's research output and **NOT** a request to review a **funding proposal** or an application for a **job promotion** (testimonial). | |
| 3. | The **usability** of your report will be assessed by the members of the Assessment Panel. A useful report will address all of the **issues raised in the preamble** to each section and will weigh more in the outcome decision**.** | |
| 4. | Reviewers should be **familiar** with the **research field(s)** of the applicant as it is a **peer review** system ("A peer is a researcher or a person with a research background who has the requisite knowledge and experience and the ability to exercise objective fair judgment of the applicant and to provide an appropriate assessment of the applicant's research and research standing. The emphasis should be on the person's experience and ability to provide an appropriate assessment"). | |

| | | |
|---|---|---|
| 5 | Although the review should cover the **full portfolio** of the applicant for the **past eight years** (2012-2018) copies of the applicant's self-selected **five best outputs** are attached to the application to assist you in assessing the quality of the outputs. | |
| 6. | The report should focus on the **quality** and **impact** of the **research outputs** and not on the character of the applicant (see item 2). | |
| 7. | Only **standing** derived from the quality and impact of the **research outputs** should be commented on. | |
| 8. | The report should focus on the **contribution of the individual** to multi-authored research outputs and not on the team/research group. This information is obtained from a compulsory data field for each research output to which the applicant had contributed. | |

## 1. Background knowledge of the applicant's research/research field(s) / Peer status

A. Please indicate whether you:

- Have knowledge of the field(s)/research of the applicant to enable an assessment of the **FULL** research portfolio (during the last eight years).

| Yes | No |
|---|---|
| | |

- Have read the five best research outputs***** embedded in the application (either before or after being requested to perform this review) to assist with the assessment of the **quality** of the research profile of the applicant.

| Yes | No |
|---|---|
| | |

*****Copies available as part of the reviewer documentation

**Any additional information:**

Please provide information to explain your above responses:

B. Please indicate whether you have:

- Collaborated/co-published with the applicant in the past (if yes, provide more information in the comments block below).

| Yes | No |
|---|---|
| | |

- Cited any of the applicant's work.

| Yes | No |
|---|---|
| | |

OR

- Any other relevant form of association or collaboration with the applicant (e.g. doctoral supervisor)

| Yes | n/a |
|---|---|
| | |

**Any additional information:**

Add any additional comments with regard to the three points above that you may wish to include here:

1. **Appraisal of the quality and impact of research outputs in the last eight years**

- Please focus your appraisal on:
  - Your **judgement** of the **quality of** the full portfolio of **research outputs** listed in the application over the **past eight years (2014 – 2021).**
  - Your opinion on the standing and **appropriateness** of the **publication outlets** used by the applicant. The NRF has statements on **ethical publication practices** (available at https://www.nrf.ac.za/rating). Your comments on the presence (or absence) of any unethical publication practices will be valued.
  - The significance of the research in the broader context of the **discipline/field**. Discuss the **impact** you feel that the applicant's work has had on its specific research field and whether it has impacted on other fields and / or the solution of broader **societal / industry** problems.

- If the research outputs are those of a **group**, kindly assess the applicant's **contribution** to the group as outlined in the "own contribution" data field for each research output.

| Please add comments here: |
|---|

3. **Estimation of applicant's current standing as a researcher as benchmarked against global peers***

Please indicate how you would rate/benchmark the applicant **relative to his/her peers** in the field and justify/substantiate your reasons with **reference** to the quality of the **research outputs** (section 2 above). If possible, comment on both national (usually South African, though some applicants may have conducted their recent research in another country) and international standing. As the applicant's current standing is being evaluated, please base your judgement primarily on the research outputs of the last eight years (2014 – 2021). The members of the Assessment Panel would appreciate your comments on the **size** of the applicant's **research field** (as indicated, for example, by the number of researchers working in it), and on the current **importance** of the **field** of the applicant's research within the discipline / solution of societal and/or industry problems.

| Please add comments here: |
|---|

4. **Reviewer's recommendations for future development of research**

You may wish to formulate your own feedback relating to the applicant's future planning of his/her research that you feel potentially helpful.

| Please add comments here: |
|---|

## Assessment of Reviewers' Reports

Members of Assessment Panels must play an interpretative role when they assess reviewers' reports. For example, if a reviewer states that the applicant is publishing in top journals, yet the journals are in the bottom tier of journals in the field, then the validity of the reviewer's report must be called into question. Similarly they should recognise the weakness of reviewers' reports which overly praise the importance of the applicant's work and where the work concerned is clearly not of the calibre suggested in the report.

Reports by reviewers are **assessed** and **scored** as follows:

**1** **Excellent report**: Reviewer gives a thorough analysis and critique of recent research outputs and substantiates comments/judgements on the quality and impact of the research outputs of the last eight years as well as the international/national standing of the applicant.

**1/2** **Good report**: Reviewer gives a good analysis of recent research outputs and comments on the quality and impact of the research outputs of the last eight years as well as the international/national standing of the applicant.

**2** **Satisfactory report**: Reviewer gives an analysis of the quality and impact of recent research outputs and comments on the international/national standing of the applicant.

**2/3** **Partially usable report:*** Some aspects of the report are usable while other aspects are unsatisfactory. (e.g. no analysis of the outputs or standing is provided). These reports state, for example:
"It appears that the applicant's work is…" /"I have heard from one of my colleagues…" / "It seems that his/her recent research outputs are…"
*Note: A 2/3 ("partially usable") report has a relatively low weighting and cannot be used to determine an outcome in borderline cases. It can only be used as one of the usable reports if it confirms the opinion expressed by the majority of the other reports that are of acceptable quality (scored 1; 1/2 or 2)

**3** **Unsatisfactory report:**** Typical reasons**:**

i. Reviewer has not read any of the research outputs of the last eight years.
ii. Report by reviewer:
   a. Is a testimonial / "over the top"
   b. Is superficial
   c. Contains sweeping and/or unsubstantiated statements not supported by the application
   d. Over-generalises and/or provides no assessment, or
   e. Fails to focus on the last eight years.
iii. Reviewer is inappropriate when**:**
   a. a reviewer is not a peer
   b. a reviewer is no longer active in the research field
   c. a reviewer's report is biased or hostile

**Note: Unsatisfactory reports are **not** to be taken into account when deciding on a rating. For **audit purposes** a **reason** should be provided why the report was discarded.
Last updated April 2013

## How to use the above guidelines

| Quality of report | Contribution | Quality | Standing | |
|---|---|---|---|---|
| | | | Impact | National & International |
| Excellent [1] | Good analysis & critique | Good analysis | Good analysis | Good analysis |
| Good [1/2] | Good analysis | Good analysis | Good analysis | Good analysis |
| Satisfactory [2] | Some analysis | Some analysis | Some analysis | Some analysis |
| Partially usable [2/3] | No information or broad macro-level comments | Broad macro-level comments | Broad macro-level comments | Broad macro-level comments |
| Unsatisfactory [3] | **i. Reviewer has not read any of the research outputs of the last eight years.**<br>**ii. Report by reviewer:**<br>a. Is a testimonial / "over the top"<br>b. Is superficial<br>c. Contains sweeping and/or unsubstantiated statements not supported by the application<br>d. Over-generalises and/or provides no assessment, or<br>e. Fails to focus on the last eight years.<br>**iii. Reviewer is inappropriate when:**<br>a. a reviewer is not a peer<br>b. a reviewer is no longer active in the research field<br>c. a reviewer's report is biased or hostile | | | |

***Notes:***
Good analysis - comprehensive and substantiated detailed statements / judgments
Critique - evaluation in a detailed and analytical way that provides a balanced overview of positive and negative elements
Some analysis – some aspects are analysed to some extent, i.e. not a comprehensive analysis of all aspects and statements are not substantiated or not substantiated comprehensively in all cases
Broad macro-level comments - broad statements that are relevant without detailed substantiation / judgments

## Feedback Policy Guidelines for Rating Applications (with template attached)

All applicants who have requested feedback should receive feedback. The length and nature of the feedback may, however, differ as the needs of the applicant and information available from the reports are not the same and needs to be taken into account by the members of the Specialist Committee who provide the feedback. The **feedback** process should ensure that applicants receive adequate information on how their rating outcome was decided. The following **types** of feedback should be provided:

1. A **reviewer profile**[1]***** comprising of the following:
    i. Number of reviewers approached.
    ii. Number of reports received.
    iii. Number of reports used.
    iv. Number of reports from reviewers based in South Africa.
    v. Number of reports from reviewers based outside of South Africa.
    vi. Number of reports from reviewers nominated by the applicant.
    vii. Number of reports from reviewers selected by Specialist Committee.

****Although the aim is to procure six reviewer reports, four reports of acceptable quality expressing a consistent opinion is the NRF benchmark.***

2. A narrative **justification** referring to the comments of the reviewers to **explain** the **reasons** for the rating outcome decision, as well as provide **developmental guidance** on how to improve the applicant's future research or interesting comments on their current research, crafted by the assigned feedback writer. The **convener** of the Specialist Committee is accountable for **quality control** of the **content** of the feedback. This feedback should:
    i. Be aligned to and consistent with the rating awarded.
    ii. Relate to the rating category descriptions and definitions but should not just cite ("copy and paste") phrases from them. It is important that this qualitative feedback section support and enhance the reviewer profile information.
    iii. Comprise of clear sentences that focus on explaining the reasons why a specific rating was awarded.
    iv. Use the developmental recommendations section to strengthen the narrative justification section.

3. It is **important** to keep the following in mind:
    i. The most important feedback from the evaluation process is the **rating itself**. It represents the overall opinion of reviewers regarding the standing of the applicant as a researcher, based on the **quality** and **impact** of **research outputs** over the last eight years.
    ii. **Developmental** feedback is selected because of its potential value to researchers in their future work, but the comments provided might be something applicants wish to **disregard** completely.

While the NRF may engage in discussion about aspects of the evaluation and rating process it will not enter into any discussion (apart from official appeals) on the contents of feedback supplied as it emanates from the collective views of a number of reviewers.

[1] See "Selection of reviewers – Guidelines to Specialist Committees" for an outline of how reviewers are selected and "Assessment of reviewer's reports" for an outline of how the usability of reports is determined.

**Feedback Template and Guidelines for Feedback writers**

**Assessment panel for*****
**Meeting date:**

**Name of applicant:** **Final rating:**

**Reviewer profile [*automatically generated from the NRF Phoenix system]***

Narrative **justification:** to **explain** the reasons for the rating outcome decision ("Why this rating?" (especially important if the rating went up or down). The comments must:

i. Be aligned to and consistent with the rating awarded. If the feedback is not in line with this, it destroys the whole process and robs it of its legitimacy.
ii. Relate to the rating category descriptions and definitions but should not just cite ("copy and paste") phrases from them. This qualitative feedback section should support and enhance the reviewer profile information.
iii. Comprise of clear sentences that focus on explaining the reasons why a specific rating was awarded.

**Developmental feedback:** Should provide guidance ("What can I do to improve my rating") on how to improve the applicant's future research or interesting comments on their current research. The developmental recommendations should be aligned to and strengthen the narrative justification section.

**Guidelines to Feedback writers:**

**For whom should feedback be written?**

1. **No** feedback is provided to applicants who are placed in the **A** rating category**,** all other rating categories receive feedback except those that have indicated in their application form that they **do not want** any. Feedback writers should therefore wait to hear the final outcome from the Executive Evaluation Committee (EEC) for those candidates nominated for the A/P category and unfinalised cases before writing the feedback.
2. **Special** care should be taken when selecting feedback for researchers who were **unsuccessful** in obtaining a rating (**RU**) and those whose rating sub-category went **down**.

**What should be addressed in the feedback?**

1. The **purpose** of the feedback is both **justification** (“why this rating”, especially if it goes up or down) and **developmental** (“what can I do to improve my rating in future”) in nature and both these issues should be addressed in the feedback.
2. **VERY IMPORTANT**: Ensure that the feedback is **in line with the final rating** allocated to the applicant (refer to the Definitions of rating categories in Appendix 1). Feedback writers should, for example, be circumspect when using “loaded” words such as “international” and “leader” that occur in the definitions and descriptions of the rating categories.

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