

## EXECUTIVE SUMMARY

# Recommendations at a Glance

Following the closure of the erstwhile Bureau for Scientific Publications (BSP) and the termination of the policy of state subsidisation of selected flagship research journals, the Academy of Science of South Africa (ASSAf) signed a contract with the then Department of Arts, Culture, Science and Technology (DACST, now the Department of Science and Technology, DST) in December, 2001. The contract required ASSAf to recommend and support a new strategic framework for South Africa's research journals, on the basis of evidence and comparative information; ASSAf was to work in partnership with a number of organisations.

The main objectives of this strategic framework were to:

- promote/enhance the standing and effectiveness of South Africa's research journals, nationally and internationally;
- improve the productivity/efficacy of publication through different modalities (e.g. electronic publication);
- establish the South African Journal of Science (SAJS) as a "national asset" of high quality; and
- ensure that discoveries and insights gained through research published in South African journals were made known to a wider public than the research community itself.

The strategic goal that is the point of departure for this ensuing six-chapter Report is to help develop and maintain a robust national system of innovation that contributes materially to the sustainable prosperity of all South Africa's people. In other words, a scenario where large numbers of lively, enquiring and enterprising people have scope for productive careers and involvement as leaders in science-based efforts to promote the development of the whole nation's skills and resources.

Research publishing fits into this demanding vision, in the context of rapid change, through its core role as the documented vehicle of science-based progress and effective attainment of sufficient high-level human capacity to address the most challenging problems and to provide inspiration to the brightest minds amongst the youth. In addition, it plays a key role in training by furnishing the most rigorous tests of resolve and originality. It also connects the people carrying the science system of a country with the best of their international counterparts, and helps to establish a country's reputation to attract investment and foreign support.

**Recommendation No 1:** that all stakeholders in the South African research enterprise should each in their own way support local/national research journals that actively seek to be of international quality and are indexed in an internationally recognised, bibliometrically accessible database, through following best-practice in editorial discernment and peer review, including adaptations

- that address inherent problems and capitalise on technological innovations;
- that judiciously enrich content to promote coherence and value-adding functions;
- that provide the local scholarly community with opportunities for participating in the full range of scholarship-enhancing activities associated with the process of publishing original research outputs;
- that vigorously seek financial sustainability from multiple income streams; and
- that accept systemic peer review and periodic audit which has a marked developmental focus.

(The rationale for this broad recommendation is fully laid out in the chapters of this Report. In respect of financial viability of South Africa research journals, the general acceptance, in the special South African context where accredited institutional publication outputs are subsidised, of a per-article institutional charge system (linked in the case of higher education institutions to an agreed fraction of output publication subsidies, and in the case of other research-producing

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institutions to adapted budgeting practice), would produce marked benefits at minimum cost, and naturally lead to a more rapid expansion of the Open Access mode of online publication, on the basis of “institution pays (a little), the whole nation/world benefits (a lot)”. **Key actors in bringing about the necessary policy and organisational frameworks would be research funders and supporters, including the Departments of Education and Science and Technology, the NRF and the MRC, all working with the Academy of Science of South Africa in downstream implementation mode following the release and general discussion of this Report.** Data presented in this Report show that a fixed per-article institutional charge of R 1000, by an accredited journal that should be able annually to publish at least 100 articles, would provide a reliable income stream to that journal of R 100 000, which when added to subscription and other existing and probably expandable income streams, would create a basis for sustainable publication not now in place for most South African research journals. At the same time, the diversion to research journals of 1.43% of the publication subsidy stream would be insignificant against the benefits of the improvement in the quality and visibility of the publication outputs of the institutions concerned, not to mention the secondary benefits of enhanced scholarly functioning in general.)

**Recommendation No 2:** that both high-level (Departments of Education and of Science and Technology, CHE/HEQC, NACI and NRF) and wide-ranging (higher education institutions, science councils) discussions be held to design a robust, well-informed and accountable mechanism for the accreditation of research journals (and probably also of books and other outputs of scholarship), that will meet the different although often convergent requirements of the multiple stakeholders in the national system of innovation.

(The current accreditation system of the Department of Education is not designed to meet the needs of other participants in the national system of innovation. Thus the accreditation step in respect of every single research publication, over which the DoE has complete control, feeds decisively into the policy frameworks of other organisations such as the CHE/HEQC (in terms of its functions of quality assurance of research and postgraduate training at higher education institutions), the NRF (for general grant-making and bursaries at the same institutions), the Department of Science and Technology, NACI and the scientometric compilers of annual S&T indicators (as one of the key determinants of output units), and the higher education institutions and science councils (in terms of internal planning and resourcing policies and reward systems), not to mention the journals themselves. The accreditation function has to be credible, transparent, well-administered and generally promotive of higher standards and greater general utility and significance, nationally and internationally. A developmental approach to the accreditation of research journals requires implementation through a combination of widely accepted best-practice guidelines and quality promotion, with periodic peer review and assessment against criteria that can meet the needs of ALL the users of the system as listed above. If the Academy is to be involved in the national research publishing system in related, significant ways (see recommendation below for a quality assurance system for South African research journals, and for a general development programme for publishers, editors and reviewers, both coordinated and overseen by the Academy), this needs to be taken into account by the important stakeholders in the system when designing a robust, accountable and effective accreditation system for national research journals that satisfies their individual but mostly converging requirements to the greatest degree possible.)

**Recommendation No 3:** that the proposed best-practice guidelines presented in Chapters 1 and 6 of this Report be widely discussed under the aegis of the Academy of Science of South Africa, formulated into a concise readable document, and then publicly adopted by editors and publishers throughout South Africa, especially those relating to effective peer review and wise and appropriate editorial discernment.

(Particularly important aspects are the training/guidance of editors and reviewers in their critical respective functions in the publication process, and the enhancement of recognition of

this kind of work in general academic reward mechanisms. The Academy of Science of South Africa could work with a number of different institutions to ensure that a spread of courses, workshops and online offerings is available on a regular basis, that a national editors' network is formed, and that it mediates in conveying the collective or individual concerns of publishers and editors to the relevant authorities.)

**Recommendation No 4:** that the quality assurance system now being put into place by the Council of Higher Education/Higher Education Quality Committee (CHE/HEQC) be used by that agency and by its partner higher education institutions to promote best-practice in publishing of original research work, and to emphasise and enhance the training function served by the whole exercise of publishing original papers in the peer-reviewed literature.

(The CHE/HEQC has achieved much in its best-practice guidelines for teaching and learning in higher education institutions, and is currently approaching postgraduate education and associated training in the same manner. Amongst the publication-related aspects of the latter, much good would come if all stakeholders emphasised the desirable and necessary relationship of conference presentations and dissertations to peer-reviewed publications emanating from the same work or study. A second benefit would come from systematically removing the perception that the (valuable) translation of research results into public benefits necessarily means that proper publication of the work concerned is not needed or should enjoy much lower priority.)

**Recommendation No 5:** that ASSAf be mandated jointly by the Departments of Education and Science and Technology to carry out external peer review and associated quality audit of all South African research journals in 5-year cycles, probably best done in relation to groups of titles sharing a particular broad disciplinary focus, in order to make recommendations for improved functioning of each journal in the national and international system.

(A light-touch but robust review and audit system, analogous to the periodic quality assurance reviews of the functioning of higher education institutions now routinely conducted by the Council on Higher Education/Higher Education Quality Committee, would help greatly to address problem areas and encourage enhanced functioning of research journals published in South Africa. Such functioning would include: quality of editorial and review process; fitness of purpose; positioning in the global cycle of new and old journals listed and indexed in databases; financial sustainability; and scope and size issues. Following on the momentum generated by the activities carried out as part of its research journals project and the production of this Report, the Academy of Science of South Africa would be the most suitable agency to oversee and be accountable for this work, obtaining system support for the best-practice guidelines, and appointing review panels and managing their work; some of the reviews could be done in respect of groups of journals with broadly similar focus.)

**Recommendation No 6:** that the Department of Science and Technology takes responsibility for ensuring that Open Access initiatives are promoted to enhance the visibility of all South African research articles and to make them accessible to the entire international research community. Specifically:

- online, open access (“Gold route”) versions of South African research journals should be funded in significant part through a per-article charge system (linked in the case of higher education institutions to an agreed fraction of output publication subsidies, and in the case of other research-producing institutions to adapted budgeting practice), but publishers should still sell subscriptions to print copies and should maximise other sources of income to lower the article-charge burden;

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- a federation of institutional Open Access repositories, adhering to common standards, should be established (“Green route”), with resources made available to help institutions in the preliminary stage, this virtual repository to be augmented by a central repository for those institutions which are unable to run a sustainable repository;
- national harvesting of South African Open Access repositories should be undertaken as a matter of urgency, preferably by the NRF; and the importance of affordable bandwidth for research communications for this purpose be drawn to the attention of DST officials negotiating for better rates.

(This proposal holds significant logistic implications for the development and maintenance of adequate broadband connectivity and related infrastructure, but the imminent high-speed/broadband national system or “superhighway”, envisaged for use by research-active institutions and others, will make things possible that have only been dreamt of up to the present time. The virtual repository would capitalise on institutional efforts, provided agreed standards were adopted, and provide a publication route for researchers in institutions without such a repository. The emphasis should be on “leapfrogging” the present turmoil and confusion in the system. The clear need for caution in assessing the presently somewhat vaguely defined business models for open access systems should not prevent the country from moving forward resolutely with a well-resourced programme for expanding its electronic access to the global and national scientific literature.)

**Recommendation No 7:** that a consortium of agencies be asked by the Department of Science and Technology to form a virtual “national research publications information and research centre”, probably best overseen by the Academy of Science of South Africa, which will continuously gather and analyse information on South African journals as well as on publications in foreign journals emanating from authors working in this country, following up on the studies presented in this Report and in the (rather few) previous relevant publications. This entity could also be used to support the training function envisaged in Recommendation 2.

(The proposed managed consortium would supply a number of government departments with reliable information for policy implementation purposes – the Department of Education and/or ASSAf, for accreditation of local journals; the National Research Foundation, for assisting value-based grant-making; the Council on Higher Education/Higher Education Quality Committee, for enhanced quality assurance at research-active institutions; agencies carrying out large-scale evaluations of R&D such as the HSRC, reliable bases for validating output data; and higher education institutions and other research producers, for accelerated researcher development and overall research planning.)

**Recommendation No 8:** that a wide-ranging project be initiated by the national Department of Education and the provincial education authorities that will sharply increase the exposure of teachers, teachers-in-training and learners to local science journals and magazines that present the country’s foremost scientific work in accessible form, and are effectively linked to the media.

(One of the most cogent reasons for publishing research journals locally is the opportunity beneficially to reach the next generation in ways that are not possible with expensive international periodicals; this needs to be planned in partnership mode, however, and will not happen without strong top-down sponsorship and appropriate resourcing.)

**Recommendation No 9:** that the Department of Science and Technology should assume responsibility for seeing to it that the South African science/innovation community,

including itself and other government agencies, becomes involved in international action to promote the rapid but evolutionary development of a non-commercial, expanded, diversified and more inclusive international listing and indexing system for research journals, including those published in developing countries, within the evolving electronic knowledge-disseminating and -archiving system.

(There are clear needs for a new, consultative and collaborative approach to meeting the requirements of developing as well as developed countries; of countries using languages other than English as vehicles for doing and reporting research; of disciplines with systems of scholarly practice differing from the “natural sciences standard”; in a system that provides full transparency and low-cost access to data in terms of the databases to be used and maintained. It could be argued that this need is on a par with other more well-publicised and public requirements to level the playing fields in a structurally unequal world (ICSU Report on “Scientific Data and Information”, 2004). The lead organisations in this effort should be the Departments of Science and Technology and of Education and the NRF, working closely with the Academy in terms of its international partners and other relevant agencies.)

**Recommendation No 10:** that the findings and recommendations contained in this Report be presented to key stakeholders in a series of consultative workshops, and that the outcomes and the impact of the publication of the Report be evaluated in three years time.

(This Report could have made radical proposals and recommendations supported by evidence presented in the various chapters. This approach has not been taken, however, because of the large number of inter-dependent stakeholders, the extreme fluidity of the sector in global terms, and the conviction of the authors that only a consultative process is likely to achieve the recommended results. We believe the present Report provides a necessary but obviously not sufficient basis for important reforms and considerable advancement of South Africa’s research potential and actual performance – joint downstream efforts will be needed, at both the widely distributed knowledge production and more focussed governance levels.)

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