NATIONAL ADVISORY COUNCIL ON INNOVATION
SECOND COUNCIL
ACHIEVEMENTS: OUTPUTS, IMPACTS AND EFFECTS

1. BACKGROUND

The first meeting of NACI took place on 13 April 1999. Although the term of office of members of Council is four years, the Minister extended the terms of office of both the First and Second Council (April 1999-March 2004 and April 2004-February 2009). The Third Council took office on March 4, 2009.

2. STATUS OF THIS DOCUMENT

The Council requested the Secretariat to draft an overview of its outputs, outcomes and impacts during its term of office for discussion at its final meeting. The following summary tries to capture in a concise way the effects of Council initiatives undertaken during the period 1 April 2004 to 28 February 2009 under the following headings: conceptual considerations, management processes, outputs, communication and networks, external evaluations, and overarching conclusions.

The following sources were consulted in compiling this overview: the Minister's budget speeches, NACI and DST annual reports, Report on the second NACI review, minutes of NACI meetings, NACI publications and in-house and other ad hoc communications.

3. CONCEPTUAL CONSIDERATIONS

There is a considerable degree of consensus in the methodological literature and management experience that, while output is relatively easy to measure, the measurement of the impact of interventions in general and of policy advice in particular is at best problematic. The general term *effect(s)* has consequently been used in this draft report in stead of *impact*.

The effects of policy advisory initiatives can take many forms, such as knowledge about and perceived credibility of the source of advice, better understanding by stakeholders of an issue, contributions to the stock of knowledge on an issue, official implementation in the form of, e.g., a solution to a problem, new or amended policy instruments, strategies or policies.

4. MANAGEMENT PROCESSES

This Council instituted the following changes to its management approach and practices:

- Refresh alignment and communication with the Minister
- Optimising the submission process
- In addition to research-based policy advice (RA), this Council introduced a second modality, namely quick response advice (QRA), which in effect consists of

councillors applying their minds collectively to a specific issue to produce a concise advisory note – the turn-around time was shortened to as little as one week in contrast to 10 months in the case of RA

- Termination of what was seen as non-core business (such as regional seminars, the NACI newsletter and the NACI Innovation Award)
- Introduction of biennial prioritisation exercises with external specialist inputs
- Identifying five strategic thrusts in terms of which working committees would organise its work
- Further strengthening quality control on all phases of commissioned research-for-policy
- The transfer of three DST programmes to NACI, viz. those on gender, indicators and biotechnology for each of which national standing committees (Science, Engineering and Technology for Women [SET4W], Indicators Reference Group [IRG] and the National Biotechnology Advisory Group [NBAC]) were appointed and associated broadening of the effective mandate and operations of NACI
- Institute a system of internal annual performance reviews (moderated by an external specialist) for the first three years of a council's term of office, followed by an external review at the end of the term of office

Assessment of observed effects

The above list reflects significant changes to how the Second Council conducted its business and shows the following observable effects:

- Alignment of priorities with the needs of the Minister and his office was improved considerably
- Improvement of business focus and management approaches
- Responsiveness: A wider range of real priority issues was addressed and a significant reduction of the time lag was achieved (First Council: five submissions; mean turn-around time: 10 months; Second Council: 23 submissions; mean turn-around time: two months)
- Significant increase in the width and depth of expertise of Council through the establishment of the three standing committees
- International acknowledgement of the quality of NACI's research-for-policy, e.g.
    - NACI's substantive inputs and facilitation of the National System of Innovation (NSI) review by the OECD elicited positive comments in the final report (2007).
    - The NACI study on infrastructure was included as one of 20 cases studies for an OECD workshop (Bologna, June 2008), *Enhancing the utility and policy relevance of road maps of large research infrastructures*

5.   OUTPUTS: MINISTERIAL ADVICE

The Second Council submitted a total of 23 advisory documents to the Minister. These advices covered a broad spectrum of issues, such as

- Human resources (e.g. mobility of research workers, provision of technical skills, and gender and race factors)
- Comments on draft legislation (including the intellectual property rights framework and R&D tax incentives)

- Comments on reports, such as the Academy of Science of South Africa (ASSAf) report on research publishing and the OECD evaluation of the NSI
- Infrastructure and enablement of science, technology and innovation (STI), for example the nature of STI advice, amendments to the NACI act, the STI knowledge base, best practices in the NSI, and infrastructure for the STI system
- Salient national and international issues, including the global credit crunch, stem cell research and energy
- The impact of R&D and innovation (e.g. utilisation of research findings, tracking the benefits of publicly funded R&D, and the contribution of innovation to competitiveness).

Assessment of inferred effects

The advice that NACI submitted to the Minister between April 2004 and February 2009 was generally well received, especially if the relatively long time lag typical of translating evidence/advice into various forms of policy is considered. The following are some of the positive effects that can be inferred at different levels of the STI system:

- Account was taken of NACI's comments on draft policies, such as the IPR policy framework, tax incentives for R&D, and research publishing. (A questionnaire is currently being piloted to assess the utilisation of NACI advice by government agencies. The first results will be reflected in the NACI *Annual Report 2008/2009*.)
- Ministerial and departmental spokespersons often used NACI advice as references in the mainstreaming of STI and public engagements; examples include aspects of biotechnology and gender issues.
- Some of the reports on salient issues have contributed to policy and strategy development (e.g. research worker mobility, research infrastructure, and biotechnology), e.g.
    - In his 2007 budget speech in Parliament, the Minister explicitly mentioned NACI's contribution to the development of a long-term infrastructure plan.
- Policy on a few systemic issues has been influenced by NACI's evidence-based advice, e.g. on the establishment of TIA and amendments to the NACI act.
- At least one consultancy firm has reported that it makes extensive use of the recommendations of the report on the utilisation of research findings in the development of regional innovation capacity.

6.   OUTPUTS: PUBLICATIONS – CONFERENCE PAPERS, REPORTS AND DISCUSSION DOCUMENTS

The period April 2004 to February 2009 yielded the following publication outputs:

- A total of 16 commissioned STI policy research reports
- At least 16 papers on NACI information by Councillors, members of the Secretariat and contract researchers at national and international conferences (USA, Canada, the Netherlands, South Korea Japan and Sri Lanka)
- Three NACI publications: *Facing the facts* (2004), *Changing perceptions of women* (2008), and *South African S&T indicators 2008* (2008)
- A number of other presentations by Councillors and members of the Secretariat.

Assessment of effects

The following assessment can be justified on the basis of the information listed above:

- The volume and range of STI policy projects commissioned by NACI makes it arguably the primary capacity developer and information generator in the field of STI policy in South Africa.
- NACI's publication outputs are from time to time cited in the STI policy community, small and competitive as it may be.
- Conference papers by contractors and members of the Secretariat, based on NACI projects, have passed international peer reviews and generally been received favourably in the international community. The amount of information generated by NACI, however, suggests that the public exposure could be much wider.
- NACI, being publicly funded, should consider seriously the remark, in the most recent review that it could do more to disseminate research information it generates.

7. COMMUNICATION AND NETWORKS

During its term of office the Second Council was responsible for the following communication and networking outputs and effects:

- Thirteen conferences/seminars/workshops were hosted during the term of office of this Council; themes included human capital, tracking of public R&D expenditure, the state of the NSI, gender, biotechnology and broad-based innovation; at least 10 prominent international speakers participated; attendance ranged between 20 and 100 per event (approximately 90% non-NACI delegates) and NACI generally received favourable comments on these initiatives from local and international participants.
- Participated in at least eight meetings and workshops of OECD committees abroad
- Received six international delegations (four from peer organisations in African countries, one USA and one OECD)
- Involved more than 60 researchers in commissioned projects
- Used the services of five international and 12 national peer reviewers
- Several members of Council served on national bodies in which their membership of NACI may have figured on occasion. The following selected statistics show Councillors' representation on national bodies: National Academies: 7, Professional Institutes: 8; Boards of Companies: 11; Boards of Science Councils and Universities: 20; and other statutory bodies: 7.
- The names of Councillors appeared regularly in the South African printed media. A pilot analysis showed that there were on average 31 mentions per month in the period 1 April 2008 to 18 March 2009; *Engineering News*, *Business Day* and *Business Report* accounted for most of the coverage. The same analysis showed that NACI itself was mentioned 42 times in the national and nine times in the international print media in the same period. It would be worth undertaking a regular fully-fledged multi-dimensional monitoring of the media coverage that NACI and its activities receive as part of its annual performance assessment.

Assessment of probable effects

The above and related information support the following assessment of probable effects:

- NACI has become established as a role player in selected international forums, esp. OECD committees, and to some extent in the international network of advisory bodies, including Africa as well as in national policy related bodies - an essential requirement in view of the accelerating globalisation of STI and the reach of international policy and mechanisms.
- The widening and deepening of the NACI network has enhanced its visibility and credibility notably, as was also implied by the 2008 review.
- As a function of this development and the prominence of individual Councillors NACI as 'institution' is from time to time mentioned in notable communications, such as the announcement of Dr Adi Paterson's appointment as CEO of ANSTO and the Chair's participation in the forthcoming IISA conference.

8.   EXTERNAL EVALUATION

Finally, two selective quotations from the external review of NACI (2008) are offered on NACI and its effects that perhaps summarise NACI's performance during the period April 2004 to February 2009:

It is also clear from the list and the advice documentation that very good work has been done and translated into policy advice. However, it was very important to assess whether (…) the interviewees (role players in the NSI) *felt that NACI advice had made the necessary input into policy formulation and the related debate. It would be fair to say that the interviewees could mention, with few exceptions within the DST, only a few initiatives, and the generalisation can be made that the work of NACI is largely hidden from these players* (p. 3).

In other words, NACI is not only intended to give advice to the Minister of Science and Technology (…), but is also designed to develop knowledge-based analysis that can enrich the public debate on the role of innovation in the economic and social development of the country (…) The public role of NACI therefore becomes important , both as regards the publication of reports and background materials, and in terms of NACI's role as a facilitator of public dialogue, for instance, through workshops, conferences and meetings with stakeholder (p .6)

9.   OVERARCHING CONCLUSIONS

The following cross-cutting conclusions are suggested by the preceding overview:

- The complexity of the implementation dynamics of STI policy initiatives is so extensive and variable that recording – not to speak of proving - one-to-one impacts would be rare exceptions. Monitoring *effects*, although still fraught with methodological challenges, offers a more productive approach to the assessment of the achievements of a body such as NACI.
- During the period April 2004 to February 2009 the Second Council has been involved in an impressive array of initiatives and has clearly had a range of effects on the NSI. The evidence presented in this report probably represents the observable tip of the metaphorical iceberg and it is reasonable to assume that there are more effects that have not been recorded.
- Past reviews of NACI's performance suggested that NACI should consider ways of, at least, monitoring – if not actively promoting - the implementation of its advice and

related initiatives. The challenges involved in compiling this review have again reinforced the need for such a systematic and continuous function in the Secretariat.

APPENDIX

COMMISSIONED REPORTS AND ADVISORY SUBMISSIONS (APRIL 2004 – MARCH 2009)

Project	Title of report	Advice
Utilisation of research findings (six projects; RA)	*Utilisation of research findings: Extent, dynamics and strategies*	Minister, June 2004
Mobility of R&D workers (RA)	*A Study on Mobility of Research and Development Workers.*	Minister, June 2004
Technical skills shortages (five projects; RA)	*The Potential Impact of Skills Shortages on the Innovative Capacity of Major Capital Engineering Projects*	Submission revised, March 05
Funding black researchers (RA)	*A Profile of Postgraduate Higher Education and the Academic Research Community in South Africa*	Submission revised, March 05
Facing the facts: Women in S&T (RA)	*Facing the Facts: Women's Participation in Science, Engineering and Technology*	Minister, November 2004
Women in industrial S&T (RA)	*An Assessment of the Participation of Women in Industrial Science, Engineering and Technology in South Africa*	Minister: Gender policy; 13 November 2006
SET through eyes of women(Four sub-projects; RA)	*Looking at SET through Women's Eyes*	
Monitoring framework (RA)	*A Monitoring and Evaluation Framework to Benchmark the Performance of Women in the NSI*	
Draft gender and race equity policy (RA)	*Creating the Future: Gender, Race and SET Sector Policies for Capacity Building and Innovation*	
OECD evaluation of the NSI - Phase one (RA)	*The South African National System of Innovation: Structures, Policies and Performance (Background Report to the OECD Country Review of South African NSI)*	Minister and OECD submitted on 25 July 06; OECD x Min interaction: 8 Sept 06
Profile of best practices (RA)	*Development of a Profile of Best Practice for the NSI*	Minister: 30 November 2006
Physical infrastructure for NSI (RA)	*A Study on the Required Physical Infrastructure to attain the vision of the NSI*	Minister: 30 November 2006
Revisiting NACI's mandate, position and role (RA)	*NACI position, role and function in the NSI*	Minister: 30 November 2006
Advisory note on IPR from publicly funded R&D (QR)	Government: *Intellectual Property Rights from Publicly Financed Research Findings* (Bill)	Minister: 25 July 2006
Advisory note on ASSAF report on research publishing (QR)	ASSAf Report: *A Strategic Approach to Research Publishing in South Africa*	Minister: 25 July 2006
Advisory note on tax incentives (QR)	*Tax Incentives*	Minister: 25 July 2006
Appropriate Human Resource for the Productive NSI (RA)	Advice letter submitted to the DG of DST on the lessons gained	Study completed in 2007

Project	Title of report	Advice
Physical Infrastructure for NSI – Secondary School component (RA)	*Required Infrastructure to Attain the Vision of the NSI: Secondary School Education Component – "Hands on and Minds on".*	Minister: 2 October 2007
Regional and Local Innovation Systems in the Overall National System of Innovation (RA)	*Regional and Local Innovation Systems*	Minister: 2 October 2007
Human Capital and the South African Knowledge base (RA)	*Human Capital and the South African Knowledge base*	Minister: 2 October 2007
Quick advice regarding the performance of grade 12 learners in mathematics and science (QA)	The national problem with grade 12 mathematics and science performance	Minister: 2 October 2007
Quick advice regarding problems with the employment of foreign nationals (QA)	Advice regarding problems with the employment of foreign nationals in the higher education sector in South Africa	Minister: 2 October 2007
OECD review of SA Innovation Policy (RA)	*Findings of the OECD Peer Group Review of the South African National System of Innovation*	Minister: 21 July 2008
Quick advice regarding electricity emergency (QA)	Effect of the Electricity Emergency on the National System of Innovation and Mitigation Actions	Minister: 21 July 2008
Quick advice on global financial crisis (QA)	Current Financial Crisis and the South African National System of Innovation	Minister: 30 October 2008
NBAC advice on funding for biotechnology (three projects; RA)	*Funding and Focus on Biotechnology within the Technology Innovation Agency*	Minister: 15 January 2009
NBAC position statement on stem cells (QA)	Position Statement on Human Stem Cell Regulations in South Africa	Minister: 15 January 2009
SET4W Changing perceptions of women in SET (RA)	*An Assessment of the Participation of Women in the Science, Engineering and Technology Industry and Changing Perceptions of Women in Science, Engineering and Technology*	Minister: 15 January 2009
SET4W Good Practice Guidelines (RA)	*The Enhancement of the Participation of Women in the Science, Engineering and Technology Sector: Principles and Good Practice Guidelines*	Minister: 11 March 2009
Benefits of public R&D expenditure (10 projects; RA)	*Tracking the Benefits of Public R&D Expenditure: Input, Output and Impact Indicators*	Minister: 11 March 2009