

ANNUAL REPORT

**2006 | 2007**

*innovation for a better future*



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**NACi**  
NATIONAL ADVISORY COUNCIL ON INNOVATION

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# Abstracts of Annual Report – 2006 | 2007

## Afrikaans

Die statutêre mandaat van die Nasionale Adviesraad op Innovasie (NACI) is om die Minister van Wetenskap en Tegnologie te adviseer oor sake rakende wetenskap, tegnologie en innovasie. Die Jaarverslag van 2006/2007 gee 'n oorsig van NACI se aktiwiteite en prestasies gedurende die jaar.

Die belangrikste hoogtepunte van die verslagjaar is die volgende:

- NACI het bygedra tot die OECD se oorsig oor die NSI in Suid-Afrika deur die agtergrondverslag te skryf en die OECD-span se besoek aan die land te fasiliteer.
- 'n Konsepbeleid oor geslag's en rasgelykheid in die veld van wetenskap, ingenieurswese en tegnologie is opgestel.
- Die Nasionale Biotegnologie Advieskomitee het tot stand gekom.
- Die advies wat deur NACI gegee is oor die fisiese infrastruktuur vir Wetenskap en Tegnologie in Suid-Afrika vorm die grondslag van die Departement Wetenskap en Tegnologie se langtermyn Wetenskap en Tegnologie-infrastruktuurplan.

Ander hoogtepunte sluit in:

- NACI het die Minister geadviseer oor 'n aantal sake, naamlik:
  - Beste praktyke rakende die NSI (insluitend oorhoofse beheer, monitering en tegnologie-oordrag)
  - Die rol en struktuur van NACI
  - Notas oor Intellektuele-eiendomsreg (IPR) uit navorsing met openbare befondsing
  - 'n Respons op die ASSAf-verslag oor navorsingspublikasies
  - Opmerkings oor belastingaansporings vir navorsing en ontwikkeling.
- 'n Nuwe SET4W-komitee is aangewys.
- NACI het 'n internasionale werkwinkel oor metingstelsels vir innovasie gehou.
- Aansienlike vordering is gemaak met die assessering van voordele van navorsing en ontwikkeling met openbare befondsing.
- 'n Onderzoek na die verband tussen innovasie en mededingendheid is gedoen.
- Studies is onderneem oor menskapitaal en die SA-kennisbasis, plaaslike en streeks-innoveringstelsels, asook die infrastruktuur vir die onderrig van natuurwetenskap in hoërskole.

Die jaar is gekenmerk as een waarin NACI sy verbintenis en samewerking met ander organisasies op nasionale en internasionale vlak volgehou en uitgebou het.

## English

The statutory mandate of the National Advisory Council on Innovation (NACI) is to advise the Minister of Science and Technology on matters pertaining to science, technology and innovation. The Annual Report 2006/2007 offers an overview of NACI's activities and achievements during the year.

The main highlights of the year under review include:

- NACI participated in the OECD country review of the South African national system of innovation (NSI) by producing the background report and facilitating the country visit of the OECD team.
- The policy on gender and race equity in the fields of science, engineering and technology was drafted.
- The National Biotechnology Advisory Committee was launched.
- The advice submitted by NACI on the physical infrastructure for S&T in South Africa forms the basis for the DST's long-term S&T infrastructure plan.

Other highlights include:

- Ministerial advice was submitted on a number of issues, including:
  - Best practices related to the NSI (including governance, monitoring and technology transfer)
  - The role and structure of NACI
  - Notes on intellectual property rights from publicly financed research
  - A response to the ASSAf report on research publishing
  - Comments on R&D tax incentives.
- A new SET4W Committee was appointed.
- NACI convened an international workshop on measuring systems of innovation.
- There was significant progress in assessing the benefits of publicly funded R&D.
- The link between innovation and competitiveness was investigated.
- Studies were undertaken of human capital and the South African knowledge base, local and regional innovation systems, and the infrastructure for teaching physical science in secondary schools.

The year was characterised as one in which NACI continued to extend its association and collaboration with other organisations, both nationally and internationally.

## IsiNdebele

Umlayo womthetho we-National Advisory Council (Umkhandlu weNarha oBonisa ngoKusungula) uMbiko woMnyaka ka-2006/2007 ubonisa ngokurhunyiziweko imisebenzi ye-NACI nekuzuzileko phakathi komnyaka.

Izinto eziqakathekileko zomnyaka obuyekizweko zifaka hlangana

- I-NACI yazibandakanya ekubuyekizweni ngendlela ye-OECD kwehlelo lenarha yoke lokusungula leSewula Afrika (NSI) ngokukhiqiza umbiko wangaphambili begodu nokuhlela ukuvakatiyelwa kwenarha le sichema se-OECD.
- Umgomo wezokulingana kobulili emkhakheni wesayensi, zobunjiniyela nethetknoloji wabunjwa
- Kwabunjwa ikomidi yoKubonisa ye-National Biotechnology.
- Ukuboniswa yi-NACI mayelana nokwakheka kwehlelo le S&T

Ezinye izinto eziqakathekileko zifaka hlangana:

- Ukuboniswa nguNgqongqotjhe mayelana nezinto ezimbalwa kwaziwa.
  - Izenzo eziphuma phambili ezikhambelana ne-NSI (kufake hlangana ukubusa, ukwelusa, nokudlulisa itheknoloji)
  - Indima nokwakheka kwe-NCI
  - Amanothi ngamalungelo wobunikazi enziwe kurhubhululo elisekelwe ngenemali zomphakathi
  - Ipendulo eqondiswe kumbiko we-ASSAf omayelana nokwazisa irhubhululo.
  - Amazizo ngokulinga ukubuyisela ababhadala iR&D tax.
- Kwakhethwa ikomidi etja ye-SET4W
- I-NACI yenza umhlango wokubonisana ngamahlelo wokumeda ukusungula
- Kwaba neragela phambili ekuhloleni ukubuyelwa nge R&D esekelwe ngeemali zomphakathi
- Ubudlelwano phakathi kokusungula nokuphalisana kwezekurhweba bafunisiwa
- Kwenziwa iimfundo mayelana nenani labantu kurhwebo neziko lelwazi leSewula Afrika, amahlelo wokusungula wendawo newesifunda begodu newomakhiwo wokufundisa i-Physical Science eenkolweni zamazinga aphakamileko.

Umyaka wabonwa njengomunye la i-NACI yaragela phambili ukukhululisa ukuhlangana nokusebenzisana kwayo nezinye iihlangano, inarha yoke nomhlaba zombhelele.

## IsiXhosa

Igunya elimisiweyo ngokomthetho leBhunga leSizwe eliCebisayo kwiziNto ezintsha ezingeniswayo(NACI) kukucebisa uMphathiswa wezeNzululwazi noBugcisa kwimiba ephathelene nezenzululwazi, ubugcisa nezinto ezintsha ezingeniswayo. Ingxelo yoNyaka ka 2006/2007 inika uphando jikelele lwemisebenzi nempumelelo enyakeni.

Awona manqwanqwa onyaka aphantsi kophononongo aquka:

- I-NACI ithathe inxaxheba kuphononongo lelizwe le-OECD lwe-NSI yoMzantsi Afrika ngokuvelisa ingxelo yemvelaphi nokuncedisa kundwendwelo lelizwe leqela le-OECD.
- Inkqubo emayelana nokulingana kwesini nangokobuhlanga kwizifundo zenzululwazi, zobunjineli nobugcisa
- Ikomiti yeSizwe eCebisayo kwiBiotechnology yaqalwa.
- Icebiso lenziwa yi-NACI kumaziko abonakalayo e-S&T eMzantsi Afrika uyile isiseko sexesha elide se-DST nesicwangciso samaziko e-S&T.

Amanye amanqwanqwa aquka:

- Icebiso loMphathiswa lenziwa kwimiba emininzi, kuquka:
  - Ukusebenza ngcono ngokuphathelene ne-NSI (kuquka nolawulo, ukuhlola nokuguqula ubugcisa)
  - Indima nombutho we-NACI
  - Amanqaku ngamalungelo ngempahla engenakuphathwa kuphando oluxhaswe phandle ngezimali
  - Ipendulo ngengxelo ye-ASSAf kupapasho lophando
  - Amagqabantshintshi kwinkuthazo yerhafu kwi-R&D.
- Ikomiti entsha ye-SET4W yanyulwa.
- I-NACI yahlanganisa ucweyo lezizwe lokuhlanganisa iinkqubo zezinto ezintsha ezingeniswayo.
- Kwabakho inkqubela phambili ebalulekileyo eyenziwa kuhlolo lwamaqithiqithi kwi-R&D exhaswe phandle ngezimali.
- Uqhagamshelwano phakathi kwezinto ezintsha ezingeniswayo nomoya wokhuphiswano lwaphandwa.
- Uphando lwenziwa kwimithombo yabantu novimba wolwazi loMzantsi Afrika, iinkqubo zezinto ezintsha ezingeniswayo ngaphakathi nengingqi, namaziko okufundisela Izifundo zenzululwazi kwizikolo zemfundo zamabanga aphakamileyo.

Unyaka wawuneempawu apho i-NACI yaqhubekeka inabisela imanyano nentsebenziswano neminye imibutho, esizweni naselizweni.



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## IsiZulu

Umsebenzi ngokomthetho woMkhandlu Kazwelonke Wezokweluleka Kokusha, (phecelezi i-NACI) ukweluleka uNgqongqoshe Wezesayensi Nobuchwepheshe ezindabeni ezithinta isayensi, ezobuchwepheshe kanye nokusha okuvelayo kulo mkhakha. Umbiko Wonyaka ka 2006/2007 unikeza isithombe esibanzi ngomsebenzi we-NACI kanye nalapho iphumelele khona onyakeni.

Izinto ezihambe phambili ezenziwe onyakeni zibala phakathi kwazo ukuthi:

- I-NACI ibambe iqhaza elibonakalayo embikweni we-OECD wokubuyekeza kohlaka olukubhekelela okusha okuvelayo eNingizimu Afrika (phecelezi i-NSI) ngokuthi ikhiphe umbiko wokwendlela nokuyiwona owenza kwaba lula ukuvakasha kwethimba le-OECD kuleli.
- Yaphinde yadweba uhlaka lwenqubomgomo kwezokulingana ngokobulili kanye nobuhlanga endimeni yezesayensi, kwezobunjiniyela kanye nakwezobuchwepheshe.
- Kwabekwa ngokusemthethweni iKomidi Likazwelonke Lezokweluleka Kwezobuchwepheshe Bempilo.
- Izeluleko ezethulwa yi-NACI mayelana nezinto okumele umnyango Wezesayensi Nobuchwepheshe ube nazo eNingizimu Afrika nokuyizinto ezingabalwa njengezinto ezikhombisa amaphupho i-NACI enawo esikhathini esizayo.

Ezinye izinto ezibambekayo ezenziwe yi-NACI singabala:

- Izinyalo ebezinkwa uNgqongqoshe ezintweni eziningi ezahlukeni Ezifaka phakathi kokunye:
  - Izindlela zokusebenza ezamukelekile kwi-NSI (okubalwa phakathi ukulawula ngendlela, ukuqapha kanye nokudluliselwa kobuchwepheshe)
  - Indima nesakhiwo se-NACI
  - Nokwazisa mayelana namalungelo obunikazi bolwazi olutholakale emva kocwaningo olwenziwe kusetshenziswa izimali zomphakathi
  - Impendulo embikweni weSikhungo Sezesayensi (phecelezi i-ASSAF) mayelana nokushicilelwa kocwaningo
  - Kanye nokuphawula mayelana nemihlomulo etholakalayo kwezentela emalini esuke ixhase ezocwaningo kanye nentuthuko (phecelezi i-R&D tax incentives).
- Kwabe sekusokwa iKomidi elisha le-SET4W.
- I-NACI yabe isibiza umhlango wamazwe omhlaba ukuba kuzobhungwa ngezilinganiso ezingasetshenziswa ekusunguleni okusha kwezobuchwepheshe.

- Kwaba khona nenqubekela phambili ebonakalayo ekubuyekezeni imihlomulo etholakalayo ophenyweni nasentuthukweni okwenziwa kuxhashwe yizimali zomphakathi.
- Kwabuye kwenziwa nophenyo mayelana nobudlelwano kanye nokuxhumana phakathi kokusungula into entsha kanye nokuncintisana.
- Kwabe sekwenziwa nophenyo mayelana nobukhona babasebenzi kanye nesizinda solwazi eNingizimu Afrika, yizinto ezisungulwa lapha ngaphakathi ezweni kanye nasezifundeni esakhelene nazo kanye nokuba khona kwenqalasizinda ekufundisweni kwezesayensi ezikoleni zamabanga aphakeme.

Lo nyaka kube wunyaka lapho khona i-NACI iqhubekile nokwelula ukusondelana kwayo nokubambisana nezinye izinhlangano, kuleli nangaphandle kwaleli.

## SePedi

Taolelo ya semolao ya Lekgotlakeletšo la Diphetoletso la Bosetšhaba (NACI) e swanetše go eletša Tona ya Saentshe le Theknolotši ditabeng tša go amana le saentshe, theknolotši le dipheto. Pego ya ngwaga 2006/2007 e fa kakaretšo ya kgwebo le diphihlelelo tša NACI mo ngwageng.

Dintlha tše dikgolo tša ngwaga wo re o lebeleletšego di akaretša:

- NACI e kgathile tema mo tebeelong leswa ya naga ya OECD ya NSI ya Afrika Borwa ka go tswelotša pego ya tshedimošo ya thekgo le go nolofatsa ketelo ya naga ke sehlopha sa OECD.
- Pholisi ya teketekanyo ya bong le semorafe mo lefapheng la saentshe, bointšeniara le theknolotši e ile ya thalwa.
- Komiti ya Bosetšhaba ya Boeletši go Biotheknolotši e ile ya tlhlongwa.
- Keletšo ye e tlišitšwego ke NACI mabapi le didirišwa tša S&T mo Afrika Borwa e bopa kokwane ya dithulaganyo tša didirišwa tša di S & T tša nako ye telele tša diDST.

Dintlha tse dingwe di akaretša:

- Keletšo ya boTona e ile ya fiwa mo dilong tše mmalwa, go akaretšwa:
  - Ditiro tše kaonekane tša go tswalana le NSI (go akaretšwa tša pušo, bolebeleli le tšhutišo ya Theknolotši)
  - Nepokgolo le popego ya NACI
  - Dikgakollathuto go tumelelo ya bong bja thoto go tšwa go dinyakišišo tše di lefelwago ke setšhaba
  - Karabo go pego ya ASSA fya dinyakišišo go bophatlalatši.
  - Ditshwayatshwayo ka diputseletšo tša lekgetho tša R&D
- Komiti ye ntshwa ya SET4W e ile ya hlontwa
- NACI e rulagantše wekešopho ya boditšhabatšaba ka kelo ya dipeakanyo tša dipheto
- Tšwelopele e bohlokwa e dirilwe mo go kelo ya ditseno go tšwa go R&D ya go lefelwa ke setšhaba.
- Kgokagano magareng ga phetogo le phadišano e ile ya nyakišišwa.
- Dithuto ka ga letlotlo la motho le botsebi bja SA, tshepetšo ya dipheto tša selegae le tša tikologo le go didirišwa tša go ruta disaentshe tša fisika mo dikolong tše di phagamego.

Ngwaga wo o be o tsebega bjalo ka woo NACI e tšwetšego pele go katološa segwera sa yona le tirišano le mekgahlo ye mengwe, ya bosetšhaba le ya boditšhabatšhaba.

## SeSotho

Molao o laolang National Advisory Council on Innovation (NACI) o fana ka keletso ho Letona la Saense le Theknoloji ditabeng tse mabapi le saense, theknoloji le boqapi. Tlaleho ya Selemo le Selemo ya 2006/2007 e fana ka kakaretso ya kgwebo le mesebetsi ya NACI nakong ya selemo.

Dintlha tse kgolo tsa selemo tse hlalobjwang di kenyelletsa:

- Ho nka karolo ha NACI tlhahlobong ya OECD ya naha mabapi le NSI ya Afrika Borwa ka ho fana ka bokamorao ba tlaleho le ho nolofatsa naha ho amohela moifo o etileng wa OECD.
- Leano la tekano ya bong le morabe mafapheng a saense, ho entswe moralo bakeng sa boenjiniere le theknoloji.
- O ile ha thakgolwa National Biotechnology Advisory Committee (Komiti ya boeletsi ditabeng tsa bophelo le theknoloji).
- Keletso e fanwang ke NACI mabapi le mehaho ya sebele ya S&T afrika Bora e bopa motheo wa nako e telele wa di-DST leanong la tlhophiso ya S&T.
- Dintlha tse ding tse kgolo di kenyelletsa:

Keletso ho Letona e ile ya romelwa mabapi le ditaba tse ngata, ho kenyelletswa:

- Mekgwa e metle ya tshebetso e amanang le NSI (ho kenyelletsa taolo, ho beha leihlo le ho fetisetša theknoloji ho ba bang)
- Mosebetsi le tlhophiso ya NACI
- Dintlha mabapi le ditokelo tsa setsha sa botsebi bakeng sa diphuputso tse tshehetswang ka tjelele ya setjhaba
- Karabelo ya ASSAf mabapi le tlaleho ya ho hatisa diphuputso
- Maikutlo mabapi le dikgothaleto tsa lekgetho tsa R&D.
- Komiti e ntjha ya SET4W e ile ya kgethwa.
- NACI e ile ya etsa seboka sa dipuisano sa matjhaba ho hlaloba ditsamaiso tsa boqapi le mehopolo e metjha.
- Ho entswe mehato e metle tekolong ya melemo e tswang ho R&D e tshehetswang ke dijthelele tsa setjhaba.
- Phuputso ya kamano pakeng tsa boqapi le tlhohiso.
- Dipatlisiso tsa letlotlo la batho le pokello ya tsebo ya Afrika Borwa, boqapi bo fumanwang ditsamaisong tsa motse le tsa lebatowa le mehaho tlhophiso ya ho ruta saense ya dintho tsa sebele dikolong tsa sekhondari.

Selemo sena se ile sa ithoma pele jwalo seo NACI e tswelang pele ho atolosa mokgatlo wa yona le ditshebedisano le mekgatlo e meng, bobedi naheng ena le matjhabeng.

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## SeTswana

Molao wa taolo ya Lekgotla la Kgakololo la Basetšhaba kaga Botlhami (NACI) ke ya go gakolola Tona ya Saese le Thekenoloji malebana le dikgang tsa saense, thekenoloji le botlhami. Pego ya Ngwaga le Ngwaga ya 2006/2007 e naya ponokakaretso ya kgwebo le se se fitlheletsweng ke NACI mo ngwageng oo.

Dintlhakgolo tsa ngwaga tsa tlhatlhobo eno di akaretsa gore:

- NACI e ne ya tsaya karolo mo tlhatlhobong ya naga yotlhe ya OECD ya tsamaiso ya bosetšhaba ya botlhami ya Aforika Borwa (NSI) ka go ntsha pego ya lemoro go rulaganyetsa ketelo ya naga ke setlhopho sa OECD.
- Pholisi ya tekatekanyo ya bong le morafe mo dikarolong tsa saense, boenjineri le thekenoloji e ne ya dirwa e le mokwalo wa ntlha.
- Komiti ya National Biotechnology Advisory e tlhomilwe.
- Kgakolo e e neetsweng ke NACI malebana le dikago tsa S&T ke motheo wa leano la dikago le ditiriso tsa S&T tse di tla nnang nako telele tsa DST.

Dintlhakgolo tse dingwe di akaretsa:

- Kgakolo ya ofisi ya tonakgolo e ne ya neelwa malebana le dikgang di le mmalwa, go akaretsa:
  - Ditiro tse di siamaneng malebana le NSI (go akaretsa bobusi, phuduso ya peoleitlho le thekenoloji)
  - Seabe le kagego ya NACI
  - Dintlha kaga ditshwanelo tsa dikago tsa botlhalefi go tswa patlisong e e dueletsweng ke morafe
  - Tsibogelo ya pego ya ASSAf malebana le kgatiso ya patlisiso
  - Dikagelo kaga dikatso tsa lekgetho la R&D
- Komiti e ntšhwa ya SET4W e ne ya tlhlongwa
- NACI e ne ya rulaganyetsa kopanothuto ya bosetšhabatšhaba kaga ditsamaiso tsa tekanyo ya botlhami.
- Go na le tswelole e e bonalang malebana le go lekanyetsa melemo ya R&D e e dueletsweng ke morafe.
- Tshwaragano gareng ga botlhami le kgaisano e ne ya sekasekiwa.
- Dipatlisiso di ne tsa dirwa kaga ditsompelo tsa batho le sesigo sa borakitsa ba Aforika Borwa, ditsamaiso tsa botlhami tsa selegae le tsa kgaolo, le dikago tsa go ruta saense ya dilo tse di dirwang ka diatla mo dikolong tse dikgolwane.

Ngwaga ono o ne wa tlhalosiwa e le o mo go one NACI e neng ya tswelole go atolosa kamano ya yone le tirisano ya yone le mekgatlho e mengwe, ya bosetšhaba le ya ditšhabatšhaba.

## SeSwati

Ligunya lelisemtsetfweni leliniketwe i National Advisory Council lebukene nemicondvo lemisha I (NACI) ngukutsi itaweluleka Indvuna yeliTiko leSayensi neThekinoloji ngetindzaba letitsintsa isayensi, ithekinoloji kanye nemicondvo lemisha. Umbiko wemnyaka 2006/2007 uniketa sibutsetelo semisebenti nemphumelelo lezuzwe yi NACI emnyakeni wonkhe.

Tintfo letibalulekile temnyaka letisabuyeketwa tifaka ekhatsi:

- I NACI ibe nesandla kakhulu ekubuyeketweni kwe OECD yelive ku NSI yele Ningizimu Afrika ngekukhipha umbiko losendlela kanye nekuhlembisa luhambo lwelicembu le OECD eliveni.
- Kwentiwe luhlaka lembhalo wenchubomgomo lophatselene nebulili nelibala emikhakheni yesayensi,
- Kutebunjiniyela kanye nethekinoloji.
- Kusungulwe likomiti i National Biotechnology Advisory Committee.
- Seluleko lesafakwa yi NACI ngesakhiwonchanti lesitsintsa ema S&T eNingizimu Afrika sibe sisekelo seluhlelo lwesakhiwonchanti lwesikhatsi lesidze se DST.

Lamanye emazubela afaka ekhatsi:

- Kungeniswa kwekwelulekwa kwetindvuna lokumayelana netindzaba letahlukene, kufaka ekhatsi:
  - Tindlela letincono kutekuphatsa letihambisana ne NSI (kufaka ekhatsi kuphatsa, kugadza nekundlulisa ithekinoloji)
  - Indzima nekwakheka kwe NACI
  - Emanothi ngemalungelo ebuhlakani bemuntfu elucwaningweni loluchaswa ngetimali temphakatsi
  - Umphumela wembiko we ASSAf mayelana nekushicilelwa kwelucwaningo
  - Kuphawula ngetiphiwo tentsela yelucwaningo nekutfufukisa.
- Kukhetfwe likomiti lelisha le SET4W.
- I NACI ibe netifundvo temave emhlaba letimayelana neluhlelo lwekulinganisa imicondvo lemisha.
- Kube nenchubekelembili lebabatekako ekuhloleni inzuzo letfolakala kutelucwaningo nekutfufukiswa lokuchaswe ngetimali temphakatsi.
- Kube khona luphenyo lwebudlelwane emkhatsini walokusha kanye nekuchazelana.
- Kucaliswe tifundvo letiphatselene netimali letingeniswa bantfu kanye nesizindza selwati eNingizimu Afrika, luhlelo lwalokusha lwenzawo nelwetigodzi kanye nasesakhiweninchanti sekufundzisa isayensi etikolweni temazinga lasetulu.

Lomnyaka bekunguloyo lapho i NACI ichubekile nekwandzisa budlelwane nekusebentisana naletinye tinhlangano, ezingeni lavelonkhe nasezingeni lemhlabha.



## TshiVenda

Mushumo wa mulayo wa Khoro Ngeletshedzi ya Lushaka ya zwa Vhubveledzi (NACI) ndi u eletshedza Minisi a wa zwa Santsi na Thekinolodzhi kha zwi elanaho na saintsi, thekinolodzhi na vhubveledzi. Muvhigo wa waha nga waha wa 2006/2007 u etshedza tsedzuluso nyangaredzi ya mushumo na zwe NACI ya swikelela vhukati ha waha.

Zwithu zwa ndeme kha waha uyu zwi katela:

- NACI yo shuma kha tsedzuluso ya shango ya OECD ya NSI ya Afrika Tshipembe nga u bveledza muvhigo wa mudzi wa mafhungo na u tshimbidza madalo a tshigwada tsha OECD.
- Ho itwa mvetamveto ya mbekanyamaitele ya zwa ndinganyiso ya mbeu na mirafho kha masia a saintsi, vhuinzhiniara na thekinolodzhi.
- Komiti ya Ngeletshedzi ya Lushaka ya Bayothekinolodzhi yo rwelwa ari.
- Ngeletshedzo dzo ekedzwa kha zwithu zwo vhalaho, hu tshi katelwa themamveledziso i vhalaho ya S&T kha Afrika Tshipembe dzi vha mutheo wa pulane ya tshifhinga tshilapfu ya themamveledziso ya DST na S&T

Zwinwe zwo bvelelaho ndi:

- Ngeletshedzo ya Minisi a yo etshedzwa kha zwitenwa zw vhalaho, hu tshi katelwa:
  - Maitele a khwi esa a elanaho na NSI (hu tshi katelwa vhubvhusi, u langa na u pfukisela thekhino odzhi)
  - Mushumo na tshivhumbeo tsha NACU
  - Notsi nga ha ppanelo dza ndaka ya ngelekanyo bva kha ho isiso i lambadzaho nga tshitshavha
  - Phindulo ya muvhigo wa ASSAf nga ha u gandisa
  - Mihumbulo nga ha magavhelo a muthelo a R&D.
- Ho tiwa komiti ntswa ya SET4W.
- NACI yo ita wekishopo i katelaho na mashango avha nga ha u ela sisi eme dza vhubveledzi.
- Ho itwa mvelaphan a ya ndeme kha u linga mbuelo u bva kha R&D dzi lambedzwaho nga tshitshavha.
- Ho o isiswa vhu umani vhukati ha vhubveledzi na mu atisano.
- Ho itwa ngudo nga ha zwiko zwa vhatu na zwiko zwa n ivho zwa Afrika Tshipembe, sis eme dza vhubveledzi dzapo na dza dzingu na kha themamveledziso dza u funza physical science kha zwikolo zwa sekondari.

waha wo vhonala sa we NACI ya bvelaphan a na u alusa vhushala na vhumisano hayo na ma we madzangano a kha ino na a mashango avha.

## XiTsonga

Vurhumiwa bya xinawu bya Khansela ya Rixaka yo Tsundzuxa eka timhaka ta Vusunguri (NACI) i ku tsundzuxa Hubyankulu wa Sayense na Thekinoloji hi timhaka ta sayense, thekinoloji na vusunguri. Xiviko xa lenbe-ximali ra 2006/2007 xi kombisa ntirho wa NACI na leswi yi nga swi fikelela eka lembe rero.

Tinhloko-mhaka ta lembe leti ti nga ku xopaxopiweni ti katsa:

- NACI yi pfune swinene eka ku hleriwa ka NSI ya tiko ra Afrika Dzonga hi ku nyika xiviko xa xiyimo yi tlhela yi kondletela rendzo ra OECD ku ta laha tikweni.
- Pholici ya ndzinganano wa rimbewu na tinxaka eka sayense, vunjhiniyara na thekinoloji yi mpfampfarhutiwile.
- Komiti ya Rixaka yo Tsundzuxa eka timhaka ta Bayothekinoloji yi sunguriwile.
- Switsundzuxo leswi nyikiweke hi NACI eka miako na switirhisiwa swa S&T eAfrika Dzonga swi ve masungulo ya pulani ya nkarhi wo leha ya miako na switirhisiwa ya DST.

Tinhloko-mhaka tin'wana ti katsa:

- Vufambisi bya ndzawulo byi nyikiwile switsundzuxo eka timhaka to hlayanyana, ku katsa:
  - Maendlelo lamanene mayelana na NSI (ku katsa na mafumele, ku landzelerisa na ku dyondzisana hi hekinoloji).
  - Ntirho na xivumbeko xa NACI.
  - Swiletelo mayelana na timfanelo ta vun'winyi bya switumbuluxiwa swa miehleketo leyi humaka eka ndzavisiso lowu pfuniwaka hi mali ya mfumo.
  - Nhlamulo leyi kongomisiweke eka xiviko xa ASSAf hi vuhangalasi bya ndzavisiso.
  - Miehleketo eka ku tsemeriwa ka R&D ka mali ya xibalo.
- Komiti leyintswa ya SET4W yi hlawuriwile.
- NACI yi vitane nhlangeletano ya ndzetelo-vutivi ya misava hinkwayo eka ku kala tisisitimi ta vusunguri.
- Ku ve na ku humelela ku kulukumba eku kambeleni ka mbuyelo wa ti-R&D leti pfuniwaka hi mali ya mfumo.
- Ndzavisiso wa vuxaka exikarhi ka vusunguri na vuswikoti byo phikizana na van'wana wu endlilwile.
- Ku endlilwile tidyondzo ehenhlani ka vuvekisi eka vatirhi na xiyimo xa vutivi bya Afrika Dzonga, tisisitimi ta vusunguri laha tikweni na tiko-nkulu ra Afrika, na le ka switirhisiwa swa ku dyondzisa Sayense eswikolweni swa sekondari.

Lembe leri a vile lembe leri NACI yi nga ya emahlweni yi ndlandlamukisa ntirhisano wa yona na minhlango yin'wana ya laha kaya na le matikweni ya le handle.



## Message from Minister Mosibudi Mangena, Minister of Science and Technology

**T**he Government recognised the important role that science, engineering, technology and innovation must play in achieving our national goals. The national system of innovation is one of the country's major engines for economic growth and improved quality of life. The success of the Accelerated Shared Growth Initiative of South Africa (ASGISA) is highly dependent on our performance in this regard. The Government is committed to raising national spending on R&D to 1% of GDP by the year 2008/2009. While the target of 1% is still far short of the OECD average, it will, nonetheless, put South Africa in the same league as countries such as Brazil, New Zealand and Spain, for example.

A well-functioning scientific advisory system is an essential element in any national system of innovation, and certainly also in ours. In this regard, NACI performs a critical role in providing me with advice on a number of important matters pertaining to the national system of innovation. The priority areas in which NACI worked during the reporting year are relevant, and the advice I received from NACI was very useful and timely. A number of important policy issues were raised, which I, together with the Department of Science and Technology (DST) and other government departments and agencies, will pursue further.

The OECD visit and the report on the national innovation system in South Africa have certainly been highlights of the year. The process and recommendations are very enlightening and useful. The Government, particularly the DST, will pay close heed to the recommendations. NACI's role in facilitating the OECD visit and the background report as well as hosting the follow-up seminar is gratefully acknowledged.

I have also taken note of NACI's useful and relevant recommendations regarding its own role and mandate, as well as its ongoing work with respect to a broader national science advice system. The recommendations will be further informed by the NACI review, which is due towards the end of its current term. It is foreseen that these will form the basis for the development of a new order of the national science advisory system.

I would like to take this opportunity to thank NACI, its Chairperson and Councillors as well as the subcommittees and the Secretariat for their hard work and dedication during the reporting year and for a job well done. Your work and advice are highly appreciated and undoubtedly contribute to building a better national innovation system for South Africa.



## Message from Deputy Minister Derek Hanekom

### Deputy Minister of Science and Technology

**T**he Department of Science and Technology is an important custodian of the science and technology base of the national innovation system.

The competitiveness of the nation lies at the heart of our future success and hence scientific and technological prowess and progress will become increasingly important drivers of success.

Our work must be informed by evidence-based advice, and NACI plays a very significant role in this regard. NACI's work during the reporting year has been relevant and useful, and will inform our policy formulations and implementation.

The value and necessity of science advice to Government are appreciated and acknowledged. NACI's initiative to be innovative about itself, its role and mandate, and to propose the issue of a revised national science system, should be considered enthusiastically. This notion is also supported by the recommendations of the OECD report on the national innovation system.

I would like to take this opportunity to thank NACI for its commitment, work and advice, as well as the interesting deliberations during the year.



## Chairperson's Report

**Prof. Calie Pistorius, Chairperson**

**N**ACI's main mission is to provide the Minister of Science and Technology with advice pertaining to the national system of innovation. The current Council set the priority areas on which it would focus in delivering advice at a planning session in August 2004. NACI subsequently initiated a number of studies to support its approach of evidence-based advice. It is important for NACI to ensure that the advice it offers to the Minister of Science and Technology enhances the Minister's decision-making capabilities. The advice must therefore be relevant and proactive, where appropriate. Quality assurance measures were employed extensively in the reporting year, including the utilisation of both national and international experts to review evidence-generating studies.

The reporting year 2006/2007 is the third in the four-year term of the current Council. NACI advised the Minister on a number of issues, based on studies commissioned to serve as an evidence base for advice to the Minister. These include the Race and Gender Equity Policy, a profile of best practices in the national system of innovation (NSI), the physical infrastructure required to attain the vision of the NSI, and the mandate, position and role of NACI. Advisory notes on intellectual property rights from publicly funded R&D and on R&D tax incentives, as well as a response to ASSAf's report on scholarly research publishing, were also provided to the Minister.


## HIGHLIGHTS OF THE YEAR

### *OECD review of the NSI*

NACI played a central role in facilitating the visit by an OECD team to evaluate South Africa's national system of innovation. NACI accepted the DST invitation to draft a background document on the South African NSI as part of a peer review of our STI system. The report provided a comprehensive overview of the economy of the country, the policies and structures of the NSI, financial and human capital inputs to the NSI, the performance of the NSI, an assessment of the strengths and weaknesses of the system, and uniquely South African issues. The drafting of the background report was completed in July 2006 and followed by the visit of the OECD team in September 2006. The report proved to be very useful and, together with interviews with major stakeholders during the country visit, formed the basis of the eventual review of South Africa's innovation policy.

The review was complete by the end of the reporting year. The recommendations, if implemented with circumspection, will have a lasting and positive effect on the NSI. NACI is currently engaged in a process of analysing the findings and recommendations of the report, particularly noting the strengths and weaknesses, as well as the opportunities for the NSI and the threats to it, as perceived by the OECD experts. A task team composed of NACI members and





other key roleplayers will evaluate the recommendations and develop advice on optimal ways in which the report and its recommendations should inform action agendas for the future with respect to the particular roles of NACI, the DST, Government, business, science councils, higher education institutions and others.

### *Investigative studies*

NACI completed a number of studies during the year, which led, or will lead, to advice to the Minister. The advice submitted by NACI on the physical infrastructure for S&T in South Africa forms the basis for the DST's long-term S&T infrastructure plan. Infrastructure in the context of the NSI refers to the combination, in a particular context, of all the facilities required to provide the basis for education or research in a nation. It includes knowledge, people, facilities, equipment, buildings and laboratories, with emphasis on accessibility and state-of-the-art condition in relation to a set of national strategies, aligned to achieve certain visionary outcomes. Being globally competitive involves making the NSI attractive for foreign direct investment in R&D and for international researchers and post-doctoral students to work in South Africa, resulting in the creation of globally competitive knowledge, products and services from R&D and the establishment of competitive enterprises. Good progress was made in investigating the infrastructure required for teaching physical science in secondary schools, and advice in this regard will be delivered in the next year.

Other evidence-generating studies that were completed in 2006 included the development of a profile of best practice for the NSI, as well as the development of a draft race and gender equity policy in the fields of science, engineering and technology.

The study on international best practice for the national system of innovation identified international best practice related to the management of such systems and developed relevant recommendations for South Africa on governance, the monitoring of science and technology systems and public-private linkages for technology transfer in science and technology.

### *Science, Engineering and Technology for Women (SET4W)*

During the 2006/2007 financial year, NACI's SET4W Committee produced a comprehensive and systematic race and gender equity policy framework within which institutions in the South African NSI can implement effective measures for ensuring that South African women participate fully in, and benefit from, innovative SET research, the production of SET products and the provision of SET services. The framework is further intended to ensure that South Africa produces a future SET human resource base that contributes significantly to the growth of national R&D and innovation for competitiveness and social development.

In 2006, the Minister approved a new dispensation whereby SET4W would become a ten-person NACI standing committee. A new committee was duly appointed in February 2007, and its inaugural meeting took place on 19 March 2007.

### *Launch of the National Biotechnology Advisory Committee*

The formation of a committee to advise the Minister of Science and Technology on an appropriate course for biotechnology in South Africa was one of the recommendations of the National Biotechnology Strategy, approved in 2001. In driving the implementation of the strategy, the Department of Science and Technology created a Biotechnology Unit. Since then, a range of instruments have been established, including three Biotechnology Research and Innovation Centres (BRICs) and the National Bioinformatics Network; interdepartmental co-operation has been promoted; and bilateral agreements have been entered into. The National Biotechnology Advisory Committee (NBAC), launched in November 2006, is expected to be a key player in advising the Minister on the strategic development of the biotechnology sector. The primary functions of NBAC will be to provide strategic advice and interpretation in the general development of the South African biotechnology sector, as well as monitoring and advising on issues pertaining to bioethics.



# Chairperson's Report

**Prof. Calie Pistorius, Chairperson**

## *Measuring innovation systems*

Another highlight in NACI's programme was an international workshop on 'Measuring Systems of Innovation: Inputs, Flows and Outputs'. Partners from abroad that contributed to the event included Professors John Forje (Cameroon), Johan Hauknes (NIFUSTEP, Norway), Sunil Mani (Centre for Development Studies, Trivandrum, India), Ammon Salter (Tanaka Business School, UK), and Ulrich Schmoch (Fraunhofer Institute for Systems and Innovation Research, Germany). The outcomes of the workshop, together with nine sub-studies, will form the basis for the synthesis report on the Cabinet-requested study of the benefits of public R&D expenditure.

## Work in Progress

### *Tracking the benefits of publicly funded R&D*

Governments around the world experience constant pressure for investment in R&D, and must balance this against the needs of society as a whole. They therefore require evidence of the benefits of investing in R&D. Apart from providing justification for R&D investment, such evidence also serves an evaluative role for policy-makers.

In August 2005, the Minister of Science and Technology presented the results of the 2003/2004 National Survey of Research and Experimental Development to Cabinet. Cabinet, noting the progress that had been made towards the target of investing 1% of GDP in R&D by 2008/2009, requested further information on the benefits of publicly funded R&D.

During the reporting year, evidence was collected from nine sub-studies, an international workshop on 'Measuring Systems of Innovation: Inputs, Flows and Outputs' was held in April 2006 and a workshop on the theme of 'Tracking Public R&D Expenditure' in September 2006.

A preliminary finding of the synthesis is that many aspects of South African business sector R&D are similar to those of western European countries, while the public sector has more in common with the countries of southern and eastern

Europe. The largest single difference lies in the domain of human resource provision.

## *Competitiveness*

Due to the complex nature of interactions in the NSI, firm quantitative proof of the strength of linkages, such as the relationship between innovation and competitiveness, remains elusive. The NACI investigation of the 'Dynamics Leading to Competitiveness in South Africa' is an attempt to research and understand the dynamics, particularly the causality or interrelationship between innovation and competitiveness, with a view to developing a management framework and understanding the role of intellectual property rights in innovation and competitiveness. This study will be finalised in the next financial year.

## *Human capital*

The human capital base remains one of the most critical challenges to the NSI. This holds true when supply is related to the demand generated by accelerated economic growth as well as in comparison with other countries at similar levels of development. The gap between supply and demand seems to be widening. The skills shortage in the country is a critical issue, particularly in science, engineering and technology. As a response to the challenge of quantifying the human resources required for a productive NSI, NACI developed a model for human resource planning during the reporting year.

The NACI study on 'Human Capital and the South African Knowledge Base' provides detailed information regarding the current state of knowledge production and South Africa's national capacity to produce knowledge in the core disciplines of science, mathematics and engineering. In addition to providing a useful resource for decision-makers within the country, systematically documenting the national knowledge base also facilitates better and more strategic access to the international research community and more effectively provides South Africans with opportunities to participate in global networks of knowledge production. The study was completed in the reporting year and advice is planned during 2007.



## Regional and local innovation systems

The study presents the spatial geography of innovation in South Africa at the regional and local levels. It shows the differential concentration of R&D investments, scientific publications and technological achievements across the country. The study emphasises how limited our understanding of innovative activities at the sub-national level is – mainly due to unavailable or difficult-to-access data – and proposes how the hurdles can be overcome in the interest of regularly assessing the relative performance of the NSI at a micro level.

## New Initiatives

In planning its programme for 2007/2008, NACI took into account the work in progress, the needs of the Minister and the fact that the current Council's term ends in February 2008. New evidence-generating studies envisaged by NACI as a result of its planning exercise of November 2006 and February 2007 and inputs from the Minister include:

- South African system of providing science advice to Government
- Regular reporting on the state of the NSI
- Review of the state of science and technology policy interactions in Africa and their implications.
- Advice will also be developed on the implementation of the OECD recommendations.

## International Liaison is Crucial for Relevance

NACI is conscious of the value gained from both national and international science policy networks and will continuously strive to build and maintain these networks. The reporting year was no exception, as testified by NACI's extensive international interaction. Councillors and members of the Secretariat participated in a number of international events, including the Atlas of Ideas: Mapping the New Geography of

Science Conference, which reported back on an 18-month study of science and innovation in China, India and South Korea.

NACI contributed to the OECD Committee for Science and Technology Policy (CSTP) workshop on publicly funded R&D evaluation by presenting a paper on the increasing pressure from the sponsors of research, especially in the public arena, to be informed in a comprehensible, fair, reliable and valid way about the return on R&D investment.

The value of CSTP sessions in mirroring international trends in the STI policy field can never be over-estimated, considering the agenda of the 88<sup>th</sup> Session of the CSTP, which NACI attended in 2006. The agenda included the sharing of R&D information, a report-back on recent OECD workshops and conferences, a progress report on the development of nanotechnology policy and progress reports on peer-evaluations of countries, including South Africa.

NACI participated in the OECD Working Party on Technology and Innovation Policy (TIP) Conference on Globalisation and Open Innovation, followed by a TIP Working Group meeting where open innovation and internationalisation, peer reviews of countries, patent statistics, and case studies of innovation policies were reflected on.

These interactions are especially useful for NACI, since they not only expose us to very high quality evidence-based policy processes, but also afford us an opportunity to actually experience how the organs of the OECD and other countries operate.

## NACI's position and role

NACI identified a self-evaluation of the Council within the context of a body mandated to provide advice to the Minister of Science and Technology as one of its priorities at its planning session in August 2004. There can be little doubt of the importance of a science advice function in a modern national innovation system. NACI has been in existence for almost ten years. This is an appropriate time to consider what changes to NACI and its mandate are required within a broader science

# Chairperson's Report

## Prof. Calie Pistorius, Chairperson

advice system, so that NACI is in a position to serve the nation even better in the future. NACI's central role in the OECD country review of the South African innovation system highlighted the prominence of NACI as an advisory body.

NACI provided advice to the Minister pertaining to its own role and position. As a result of this study, NACI plans to undertake a broader study of a national science advice system and its roleplayers.

### *External review of NACI*

As part of its regular evaluation processes in compliance with the NACI Act, NACI will undergo an external evaluation in the final year of its term. The evaluation is necessary and is welcomed by NACI. It should not only provide an opportunity to strengthen NACI, but also serve as an input towards building an enhanced and more comprehensive structure for providing science advice to Government as an essential component of the national system of innovation.

### *Appreciation*

I wish to thank Minister Mosibudi Mangena for his interest in the work of NACI as well as constructive discussions of the advice that NACI has offered. I would also like to take this opportunity to congratulate him on the high acclaim that he has received in the media. We support the assessment and the recognition for actively and consistently seeking new opportunities to develop South Africa's scientific, technological and innovative capacity. It has indeed been a privilege for NACI to be of service to the Minister.

I also wish to thank Deputy Minister Derek Hanekom for his interest and discussions on NACI and its work. A special

word of appreciation goes to Dr Phil Mjwara, who took office as Director-General of the DST and CEO of NACI in April 2006.

I would like to thank all the Councillors for their commitment to NACI. The value of an advisory council such as NACI is first and foremost a function of the individual and collective prominence, reputation, expertise and commitment of the Councillors. I would like to extend a warm word of appreciation to all the subcommittees and their convenors, as well as the Executive Committee members, for assuming the additional responsibilities. At the same time, I wish to express my appreciation to their employers for allowing Councillors to spend time on NACI business.

I would like to express my gratitude to members of advisory committees co-opted by NACI and to all the participants in NACI's workshops and seminars. Your continuous support is appreciated.

Finally, my most sincere thanks and appreciation go to NACI's Secretariat. Dr Bok Marais, who served NACI as the Head of the Secretariat from its establishment until the end of the reporting year, deserves a special word of appreciation and thanks for the managerial, administrative and research leadership and support that he has provided. Your personal commitment and that of the other staff members is much appreciated.



## Message from the CEO

### Dr Phil Mjwara, Chief Executive Officer

**T**he 2006/2007 financial year, my first as Director-General of the DST and CEO of NACI, has been a challenging, yet rewarding experience.

There is general agreement among science, technology and innovation policy specialists worldwide that governments should have adequate and relevant advisory bodies in place to advise them on various aspects of the science system. South Africa is no exception. In the past year, NACI has given effect to its role as advisory body to the Minister of S&T through the following submissions:

- Concise advisory note: Intellectual Property Rights from Publicly Financed Research Framework
- Concise advisory note: Response to ASSAf report on Research Publishing in South Africa
- Concise advisory note: R&D Tax Incentives
- Submission and report: Background Report to the OECD Country Review of the South African NSI
- Advice and report: Development of a Profile of Best Practices in the NSI
- Advice and report: The Infrastructure Required to Attain the Vision of the NSI
- Advice and report: Creating the Future: Gender, Race and SET Sector Policies for Capacity Building and Innovation

- Advice and report: Revisiting NACI's Mandate – The Role and Structure of NACI
- NACI Annual Report 2005/06.

A functional link with the DST is crucial for NACI to provide relevant and proactive advice. During the year under review, the indicators programme was transferred from NACI to the DST, given that NACI is an advisory body rather than an implementing agency. It was agreed that the DST would assume responsibility for the management aspects of the R&D and Innovation surveys, while the NACI Indicators Reference Group would monitor and analyse indicator data with a view to developing ministerial advice.

Although good progress has been achieved during the past few years in strengthening R&D performance in South Africa, greater focus on the long-term objectives is required in order to ensure that the results of scientific research are commercialised. This view is shared by the OECD team responsible for the country review, which was successfully completed in the reporting year. In this regard, I would like to acknowledge the role of NACI in the successful completion of the review process. This review is expected to have a significant influence on shaping the NSI for years to come.

## Message from the CEO

**Dr Phil Mjwara, Chief Executive Officer**

### *Appreciation*

I wish to extend my sincere gratitude to the Chairperson of NACI, Professor Calie Pistorius, and all the Councillors for the time they have invested in NACI's work. Thank you for your commitment to help build a better South Africa through science, technology and innovation.

Secondly, I wish to thank our service providers for their professional inputs, which ensure that NACI can be confident of the information base upon which it develops its advice.

Last but not least, the professional and diligent support rendered by the members of the Secretariat is highly appreciated. A special word of thanks goes to Dr Bok Marais for the firm foundation that he has laid for the Secretariat to build on.



# National Advisory Council on Innovation

**T**he National Advisory Council on Innovation (NACI) is a statutory council that advises the Minister of Science and Technology on a wide range of matters pertaining to the national system of innovation (NSI). NACI is regulated by the National Advisory Council on Innovation Act (Act No. 55 of 1997).

Since its appointment early in 2004, the Councillors of the current NACI Council have strived to give effect to NACI's mission of rendering evidence-based advice to the Minister of Science and Technology. Councillors are appointed for a four-year term, and the term of office of the current Councillors will expire at the end of February 2008.

The members of NACI, including the chairperson, all serve in part-time capacities. Two members, namely, the Director-General of the Department of Science and Technology (DST) (who is also the CEO of NACI in terms of the Act) and a representative from the Department of Trade and Industry (DTI), are *ex officio* government officials.

The membership of NACI is broadly representative of all sectors to ensure a spread of expertise and experience regarding national and provincial interests, scientific and technological disciplines, innovation, the needs and opportunities in different socio-economic fields, and research and development in all sectors.



# National Advisory Council on Innovation

## NACI Councillors



**Prof. Calie Pistorius**  
(Chairperson)  
Vice-Chancellor and  
Principal University of  
Pretoria



**Dr Phil Mjwara (CEO)**  
Director-General  
Department of Science and  
Technology



**Ms Luci Abrahams**  
Director: Learning,  
Information  
Networking, and  
Knowledge (LINK) Centre  
University of the  
Witwatersrand



**Dr Ntuthuko Bhengu**  
Executive Director  
Afrika Biopharma  
Investments



**Prof. Cheryl de la Rey**  
Deputy Vice-Chancellor  
University of Cape Town



**Mr Alan Hirsch**  
Deputy Director-General  
and Deputy Head of the  
Policy Unit in the Presidency  
The Presidency



**Mr Fairoz Jaffer**  
Chief Executive Officer  
Abnoba Information  
Dynamics



**Dr Steve Lennon**  
Managing Director:  
Resources and Strategy  
Eskom



**Mr John Marriott**  
Advisor  
Sasol Synfuels International



**Prof. Tshilidzi Marwala**  
Associate Professor:  
School of Electrical and  
Information Engineering  
University of the  
Witwatersrand



**Dr Khotso Mokhele**  
Advisor:  
Former President and CEO  
National Research  
Foundation



**Dr Nhlanhla Msomi**  
Executive Director  
Africa Vukani



**Dr Francis Petersen**  
Head: Strategy and Planning  
Anglo American Platinum  
Corporation Ltd



**Dr Johannes Potgieter**  
Chief Director:  
Innovation and Technology  
Department of Trade and  
Industry



**Mr Geoff Rothschild**  
Director: Government and  
International Affairs  
JSE Limited



**Mr Thero Setiloane**  
General Manager:  
Marketing  
*AngloGold Ashanti Ltd*



**Dr Sibusiso Sibisi**  
President and CEO  
*CSIR*



**Dr Mala Singh**  
Acting CEO  
*Council for Higher Education*



**Dr John Stewart**  
Consultant: Technology,  
Environment, Safety and  
Sustainable Development  
*JMS Consulting*



**Dr Nthoana Tau-Mzamane**  
Former President and CEO  
*Agricultural Research Council*



**Prof. Jennifer Thomson**  
Professor: Molecular and Cell Biology  
*University of Cape Town*



**Dr Nombasa Tsengwa**  
General Manager: Safety, Health and Environment  
*Exxaro Resources*

NACI meets four times per year for plenary sessions. A five-member executive committee (Exco) deals with urgent matters between meetings and ensures that the work mandated by the Council is executed. In this regard, the Exco works closely with the NACI Secretariat.

In generating its advice to the Minister, NACI draws on the combined knowledge and experience of its Councillors. NACI applies an evidence-based approach to developing advice regarding innovation policies and strategies. Evidence is gathered mostly by means of policy workshops, conferences and research studies. Each evidence-generating study (including scope, design framework and quality assurance) is guided by a NACI subcommittee or advisory committee.

## NACI Advisory Committees

In addition to the main Council, NACI also has three specialised standing committees that assist it in generating advice, namely, Science, Engineering and Technology for Women (SET4W), the Indicators Reference Group (IRG) and the National Biotechnology Advisory Committee (NBAC). Each advisory committee is chaired by a NACI Councillor, although the members of the advisory committees are not necessarily all NACI members.

### **Science, Engineering and Technology for Women (SET4W)**

SET4W strives to develop advice aimed at achieving greater equality between women and men by bringing a gender equality perspective into everyday policy-making, and by complementing the more traditional approaches to promoting gender equality, such as legislation and positive action.

### **Gender and race equity policy**

During the 2006/2007 financial year, the SET4W Committee proposed a comprehensive and systematic race and gender equity policy framework within which institutions in the South African national system of innovation can implement effective measures for ensuring that South African women participate fully in innovative SET research, the production of SET products and the provision of SET services, as well as benefiting from such endeavours. The framework is further intended to ensure that South Africa produces a future SET human resource base that contributes significantly to the growth of national R&D and innovation for competitiveness and for social development. The table summarises the work carried out by the SET4W Committee during the period 2004–2006, including studies and reports, as well as subsequent advice to the Minister during the period.

### **Completed SET4W studies, reports and advice (2004–2006)**

Title of report	Date of advice to Minister
Facing the Facts: Women's Participation in Science, Engineering and Technology	November 2004
An Assessment of the Participation of Women in Industrial Science, Engineering and Technology in South Africa	Gender policy, submitted November 2006
Looking at SET through Women's Eyes	Gender policy, submitted November 2006
A Monitoring and Evaluation Framework to Benchmark the Performance of Women in the NSI	Gender policy, submitted November 2006
Creating the Future: Gender, Race and SET Sector Policies for Capacity Building and Innovation	November 2006

In 2006, the Minister approved a new dispensation whereby SET4W would henceforth operate as a standing committee of NACI, with a membership of ten people. A new committee was appointed in February 2007, and its inaugural meeting took place on 19 March 2007.



### *Members of the SET4W Committee (2007–2010)*



Name	Position	Organisation
Prof. Cheryl de la Rey (Chairperson)	Deputy Vice-Chancellor	University of Cape Town
Ms Luci Abrahams	Director: Learning Information Networking Knowledge Centre	University of the Witwatersrand
Prof. Judith Bishop	Professor: Computer Science	University of Pretoria
Dr Steve Lennon	Director: Resource and Strategy	Eskom
Dr Romilla Maharaj	Executive Director: Institutional Capacity Development	National Research Foundation
Dr Linda Cikizwa Nontsha Makuleni	CEO	South African Weather Service
Ms Khungeka Njobe	Group Executive: R&D Outcomes and Human Capital Development	CSIR
Dr Yolisa Pakela-Jezile	Manager: Sustainable Rural Livelihoods	Agricultural Research Council
Ms Jacqueline Williams	National Coordinator	Women in Oil and Energy South Africa (WOESA)



## National Advisory Council on Innovation

Projects envisaged for the 2007/2008 financial year include updating the publication *Facing the Facts: Women's Participation in Science, Engineering and Technology*, producing an overview of the key results from studies undertaken by the previous committee for public use, and a study followed by a national symposium on the theme of 'Changing Perceptions of Women in Science, Engineering and Technology'.

### Indicators Reference Group (IRG)

The strategic objective of the Indicators Reference Group (IRG) is to monitor and then advise the Minister on the process of developing a comprehensive science, technology and innovation indicator system to form part of the national statistics system and inform long-range strategic planning.

Given that NACI is an advisory body rather than an implementing agency, the indicators programme was transferred from NACI to the DST during 2006, on the understanding that the DST would take over the management function of the national R&D and Innovation surveys. NACI would remain responsible for further analysis of indicators, and for developing related advice regarding the NSI.

The IRG identified a set of priorities in February 2007, the main thrusts of which were to develop a framework for a science, technology and innovation indicator system for South Africa, analyse R&D and innovation survey data more intensively, investigate the development of a South African innovation index, and assess possible indicators for measuring the effectiveness of the R&D tax incentive programme.

### Members of the Indicators Reference Group

Name	Position	Organisation
Dr John Stewart (Chairperson)	Consultant: Technology, Environment, Safety and Sustainable Development	JMS Consulting
Prof. Tshilidzi Marwala	Associate Professor: School of Electrical and Information Engineering	University of the Witwatersrand
Dr Johannes Potgieter	Chief Director: Innovation and Technology	Department of Trade and Industry
Dr Owen Njamela	General Manager: S&T Investment and Indicators	Department of Science and Technology
Prof. Akiiki Kahimbaara	National Statistics System Division	Statistics South Africa
Dr John Mugabe	Science and Technology Advisor	NEPAD
Dr Ulrich Schmoch	Director: Taskforce on Innovation Indicators	Fraunhofer Institute (Germany)

### *National Biotechnology Advisory Committee (NBAC)*

The aim of the National Biotechnology Advisory Committee (NBAC), launched in November 2006, is to develop advice on the implementation and further development of the National Biotechnology Strategy. The projects identified by this newly established committee include investigating the current funding environment of biotechnology in South Africa, providing advice on marketing, promotion and public understanding of the biotechnology sector, and assessing the biotechnology sector in South Africa as regards research inputs and outputs, and the production and employment status of graduates.

### *Members of the National Biotechnology Advisory Committee*



Name	Position	Organisation
Prof. Jennifer Thomson (Chairperson)	Professor: Department of Molecular and Cell Biology	University of Cape Town
Dr Ntuthuko Bhengu	Executive Director	Afrika BioPharma Investments
Prof. Henk Huismans	Professor and Head: Department of Genetics	University of Pretoria
Dr Gatsha Mazithulela	Executive Director	CSIR Biosciences
Dr Sagadevan Mundree	General Manager: Innovation and Biosecurity Investment	Department of Primary Industries and Fisheries (Queensland Government, Australia)
Prof. Michael Pepper	Director	NetCare Institute of Cellular and Molecular Medicine
Dr Heather Sherwin	Fund Manager	BioVentures
Prof. Mbudzeni Sibara	Interim Vice-Chancellor,	Tshwane University of Technology
Prof. Jocelyn Webster	Executive Director	AfricaBio
Prof. Solly Benatar	Professor of Medicine	University of Cape Town

## Strategic Thrusts and Advice

- Infrastructure for innovation promotion
- Human capital and the knowledge base
- Science, technology and innovation (STI) for competitiveness
- Social dimensions of innovation
- Position and role of NACI in the NSI.


A number of studies were commissioned to serve as an evidence base for advice to the Minister.

The table summarises the sets of advice that NACI has submitted to the Minister (including advice on gender matters). Submissions of advice that predate the reporting year (1 April 2006–31 March 2007) are also listed to place the activities of the reporting year into perspective. NACI's advice is typically based on comprehensive, evidence-based studies, which often span several financial years.

Soon after its appointment in 2004, the current NACI Council identified a number of strategic thrusts to serve as the basis for its advice to the Minister during its four-year term. Five subcommittees were established, each consisting of several Councillors, with responsibility for developing advice on each of these strategic thrusts, namely:

### Completed NACI studies, reports and advice (2002–2006)

Title of advice	Date of advice to the Minister
Potential effect of 9/11 on the NSI	April 2002
Free, Libre and Open Source Software and Standards in South Africa	May 2002
South African Science and Technology: Key Facts and Figures	June 2003
Audit of the Performance of the South African National Advisory Council on Innovation	August 2003
A National Advanced Manufacturing Technology Strategy for South Africa.	September 2003
A Study on the Mobility of Research and Development Workers	June 2004
Facing the Facts: Women's Participation in Science, Engineering and Technology	November 2004
The South African National System of Innovation: Structures, Policies and Performance (Background Report to the OECD Country Review of the South African NSI)	July 2006
Advisory note on Intellectual Property Rights from Publicly Financed Research Findings	July 2006
Response to ASSAf report on a Strategic Approach to Research Publishing in South Africa	July 2006
Advisory note on R&D Tax Incentives	July 2006
An Assessment of the Participation of Women in Industrial Science, Engineering and Technology in South Africa	November 2006
Looking at SET through Women's Eyes	November 2006



Title of advice	Date of advice to the Minister
A Monitoring and Evaluation Framework to Benchmark the Performance of Women in the NSI	November 2006
Creating the Future: Gender, Race and SET Sector Policies for Capacity Building and Innovation	November 2006
Development of a Profile of Best Practices in the NSI	November 2006
A Study on the Required Physical Infrastructure to Attain the Vision of the NSI	November 2006
NACI Position, Role and Function in the NSI	November 2006

### **Subcommittee I:**

#### ***Infrastructure for Innovation Promotion***

Productive Science, Technology and Innovation (STI) systems in developed economies are characterised by configurations of policies conducive to innovation across sectors, access to optimal physical infrastructure and high, if not growing, levels of expenditure on STI. While developing economies may have appropriate policies in place to promote STI, expenditure is generally low and physical infrastructure is inadequate and ageing, which raises concern with respect to sustaining minimum levels of STI. Against this background, NACI has identified the necessary dimensions of and conditions for an environment that would promote innovation as an important thrust and has advised the Minister in this regard.

The following evidence-generating studies were completed in 2006/2007:

- Development of a Profile of Best Practices in the NSI. Advice presented to the Minister on 30 November 2006.
- Required Physical Infrastructure to Attain the Vision of the NSI. Advice presented to the Minister on 30 November 2006. This study now forms the basis for a long-term infrastructure plan for S&T.
- Required Infrastructure to Attain the Vision of the NSI: Secondary School Education Component. Advice to be presented to the Minister in October 2007.

- Role of Regional and Local Innovation Systems in the Overall National System of Innovation. Advice to be presented to the Minister in October 2007.

*Subcommittee members: Dr S Lennon (Convenor), Mr A Hirsch, Dr F Petersen, Dr S Sibisi*

### **Subcommittee II:**

#### ***Human Capital and the Knowledge Base***

Two of the key elements of any innovation system are human resources and knowledge. Neither can be strategically altered over the short term, but both are sensitive to the dynamics of globalisation. South Africa is especially vulnerable with regard to the provision and retention of its human capital and the challenges to protecting its knowledge base. NACI therefore identified the importance of an optimal human capital and knowledge base as a strategic thrust.

The following evidence-generating studies were completed in 2006/2007:

- Human Capital and the South African Knowledge Base. Advice to be presented to the Minister in October 2007.
- Appropriate Human Resources for a Productive NSI. Study completed in 2007.

*Subcommittee members: Prof. C de la Rey (Convenor), Prof. T Marwala, Dr K Mokhele, Dr N Msomi, Prof. J Thomson*

## Strategic Thrusts and Advice

### **Subcommittee III:**

#### ***Science, Technology and Innovation for Competitiveness***

There is general agreement that enhanced innovation and international competitiveness are critical to South Africa's economic growth and the improved quality of life of its citizens. This notion is, in fact, stated very explicitly in the NACI Act, and it is thus appropriate for NACI to consider it as a strategic thrust in its deliberations. Economic growth and higher employment levels are fundamentally important national imperatives, and it is therefore important for NACI to develop a deep understanding of the dynamics of innovation and competitiveness that are at play in large, medium, small and emerging industrial enterprises in South Africa, with a view to identifying how these might be enhanced to the benefit of the nation.

The following evidence-generating studies were conducted in 2006/2007:

- Tracking Public R&D Expenditure study in response to a Cabinet request that output measures be introduced to complement the current national R&D survey (work in progress).
- OECD Peer Review of the NSI. Background report submitted to the OECD in July 2006. OECD review of South Africa's Innovation Policy (final report) was issued by the OECD in August 2007.
- Investigation of the Dynamics of Innovation and Competitiveness in South African Large, Medium and Small Businesses (work in progress).

*Subcommittee members: Dr J Stewart (Convenor), Mr J Marriott, Dr F Petersen, Dr J Potgieter, Mr T Setiloane, Dr N Tsengwa*

### **Subcommittee IV:**

#### ***Social Dimensions of Innovation***

The scientific, engineering and technological aspects of innovation are important, especially from the perspective of the DST and NACI, but a national system of innovation is equally dependent on the quality, effectiveness and efficiency of its social systems. The measurements of international competitiveness, in fact, account for such dimensions in one way or another. NACI therefore deems it essential to consider some aspects of the social dimensions of innovation in its work.

Social aspects are embedded in NACI's work and have received extensive coverage as a cross-cutting theme in most studies. A particular example of the attention of NACI to issues of social development is the development of the draft race and gender equity policy by the SET4W Committee.

*Subcommittee members: Dr M Singh (Convenor), Ms L Abrahams, Prof. C de la Rey, Mr F Jaffer*

### **Subcommittee V:**

#### ***Position and Role of NACI in the NSI***

In the ten years since the inception and inauguration of NACI in 1997, much has been learned both through NACI's own experience as well as from international best practice on providing science advice to Government. The aim of this thrust is to reflect on NACI's role and mission in rendering advice to the Minister of Science and Technology, and to consider operational matters pertaining to NACI's structure, management, operations and effectiveness. The key priority of this subcommittee is to ensure that NACI delivers in the best possible way on its mandate to advise the Minister of Science and Technology on issues related to the NSI.

The following advice was submitted to the Minister:

- NACI's Position, Role and Functioning in the NSI. Advice presented to the Minister in October 2006.

*Subcommittee members: Prof. C Pistorius (Convenor) together with several other NACI members who contributed.*



# The Way Forward

The projects that NACI initiated during its planning session in 2004 were drawing to a close towards the end of 2006. A number of advices had been submitted to the Minister. Other projects were being concluded and advices based on these projects were being prepared. Late in 2006 and early in 2007, NACI undertook another strategic planning session to develop new strategic thrusts for advice. The advice priorities indicated by the Minister were accommodated in the new work plan, as well as other issues that NACI considered important.

In setting its new priorities early in 2007, NACI was mindful of the fact that the four-year term of the current Council expires early in 2008. The agenda was thus set with a view to providing continuity between the terms of office of the old Council and the new, to be appointed in 2008, while also allowing space for the new Council to set its own agenda after appointment.

The new evidence-generating studies that NACI will initiate as a result of its planning exercise of November 2006 and February 2007 are described in the following sections.

## *South African system of providing science advice to Government*

During the course of the study on NACI's role in the NSI, it became evident that a more comprehensive review of the broader system and process for providing science advice to Government is required. There can be little doubt that an effective system of providing science advice to Government is a necessary element of any modern national system of innovation. In this regard, the terms 'government' and 'science' should be considered in the broadest sense. It is clear that a constellation of advisory bodies is required to cover the entire science-government domain.

The desired outcomes of the investigation are both better quality decision-making and decision support and enhanced trust in the use of expertise in S&T policy-making. It is expected that the outcome of the study will contribute valuable insight to the external review of NACI, planned for 2007/2008 and beyond.



## *Regular reporting on the state of the NSI*

Various countries and international organisations (such as the OECD, UNESCO and NSF) regularly produce overviews of the state of their innovation systems, the best known probably being the NSF's Science and Engineering Indicators. Several institutions abroad, including the OECD, the World Bank and the World Economic Forum, regularly publish comparative data on the national innovation systems of other countries, including that of South Africa. In South Africa, a number of national S&T-related studies are regularly conducted, including the National Innovation Survey and the National Survey of Research and Experimental Development. The surveys and data typically focus on aspects of the NSI. South Africa's evolving experience with the spectrum of indicators related to R&D and innovation, and its participation in the OECD country review of the NSI, gave rise to a proposal for a periodic integrated report describing the entire national system of innovation, rather than focusing separately on aspects of the system.

The Minister and the NACI Council concurred that the success of the OECD background report on the South African NSI in presenting an overview of the state of science, technology and innovation in the country justified compiling such overviews as an ongoing project.

A biennial publication is envisaged, comprising the representations of a comprehensive set of indicators complemented by overviews of the broader national and policy context, analyses of strengths and weaknesses and anticipated developments. The project is a comprehensive and ambitious one, which will certainly make a significant

## The Way Forward



contribution towards measuring the performance and impact of the NSI. Such a gauge of the state of the NSI will also be a useful instrument in developing new policies and adjusting existing policies across government.

### *Projects following from the OECD report*

The OECD report on South Africa's national system of innovation, which was delivered towards the end of the first semester of 2007, contains a number of recommendations and other matters within NACI's domain on which NACI will render advice to the Minister.

In its planning process, NACI proposes that the final OECD report be studied with a view to developing advice on the way forward in implementing the recommendations.

### *Review of the state of science and technology policy interactions in Africa and their implications for South Africa*

The African Ministerial Conference on Science and Technology, in November 2003, stressed the urgency of building the continent's capacities to harness, apply and develop science and technology in order to eradicate poverty, fight disease, stem environmental degradation and improve economic competitiveness.

The Conference adopted the Consolidated Science and Technology Plan of Action, which articulates Africa's common objectives and commitment to collective action to develop and use S&T for the socio-economic transformation of the continent and its integration into the world economy. The Plan is built on the three interrelated conceptual pillars of capacity building, knowledge production and technological innovation and emphasises the development of an African system of research and technological innovation by establishing networks of centres of excellence dedicated to building capacity in R&D. It consolidates the S&T programmes of the African Union and the New Partnership for Africa's Development (NEPAD) and proposes 12 flagship programme areas and specific policy issues.

The Conference established the African Ministerial Council on Science and Technology (AMCOST) and its Steering Committee for Science and Technology as the overall governance structures for setting continental priorities and policies pertaining to the development and application of S&T for Africa's socio-economic transformation.

Given this background, NACI intends to study South Africa's S&T relations in Africa, particularly the policy implications of the Plan of Action for the South African national system of innovation.

The review of the state of science and technology policy interactions in Africa will inform and support decision-making by the Minister of Science and Technology with respect to bilateral and multilateral S&T agreements of co-operation with African countries. The review is expected to be an ongoing project over a number years, producing regular reports and advice to the Minister.

## International Liaison

NACI's international relations activities comprise four dimensions, namely: international peer-evaluation of final reports, briefing of foreign delegations and fact-finding missions, participation in international conferences, and NACI fact-finding missions to counterparts abroad. This section reports on the latter two aspects.

### *European–South African Science and Technology Advancement Programme (ESASTAP) Innovative South Africa Conference, 26–27 June 2006, Brussels, Belgium*

The purpose of this visit was to chair a session of the ESASTAP Conference. The conference was attended by about 50 delegates, mainly from South Africa and EU countries. The keynote speaker was Prof. Jorma Routti from Finland, who provided interesting perspectives on innovation in Finland. The NACI representative networked with the South African ambassador to the European Union (EU), officials from the OECD and EU and South African roleplayers in the field of innovation.

### *Seminar on Future-Oriented Technology, 28–29 September 2006, Seville, Spain*

The European Commission, through its Joint Research Centre (the Institute for Prospective Technological Studies in Seville, Spain), organises a biennial international seminar on strategic foresight, forecasting and technology assessment (FTA). The 2006 seminar focused on the Impact of FTA Approaches on Policy and Decision-making. The seminar targeted academics and practitioners in FTA, and public and private sector decision-makers from Europe, America, Asia, Africa and Australia. There were four parallel sessions on methods and their contribution to outcomes, evaluation and impact, and the use of FTA in business and higher education. The experience gained would assist any similar future-oriented studies proposed for South Africa.

### *Blue Sky II 2006 Forum hosted by Statistics Canada, the OECD, the US National Science Foundation (NSF) and Industry Canada, 25–27 September 2006, Ottawa, Canada*

The theme of the conference was 'What Indicators for Science, Technology and Innovation Policies in the 21st Century?'. The keynote speaker was Dr John H Marburger



(Chief Science Advisor to US President Bush). Other prominent speakers included Dr Fred Gault (Chair of NESTI), Dr Enrico Giovannini (Chief Statistician, OECD), and Prof. Luc Soete (Director: UNU-INTECH and MERIT, University of Maastricht). The conference was attended by 250 public policy researchers, economists, social scientists and statisticians from 29 countries.

Key take-home messages from the conference were that more accurate measurement of the process of innovation is required; that more indicators are needed for the impact of innovation on society and on the environment; and that the indicator community should spend more effort on the effective communication of results. The education and training of both the users and the producers of statistics should be an ongoing priority.

### *OECD Committee for Science and Technology Policy (CSTP) Workshop on Publicly Funded R&D Evaluation, 25 October 2006, Seoul, South Korea*

NACI presented a paper at the OECD Committee for Science and Technology Policy (CSTP) workshop on the increasing pressure from sponsors of research, especially in the public arena, to be informed in a comprehensible, fair, reliable and valid way about the return on R&D investment. Both *ex ante* evaluation (for example, of proposed new programmes) and *ex post* evaluation (for example, of the success of a new programme after the first funding cycle), were covered. One of the key underlying themes was the extent to which the new

## International Liaison

approaches to evaluation respond to political pressures for more measurable accountability by the science management community.

### *88th Session of the OECD Committee for Science and Technology Policy (CSTP), 26–27 October 2006, Seoul, South Korea*

The OECD Committee for Science and Technology Policy (CSTP) functions within the mandate of the OECD's Directorate of Science, Technology and Innovation. The main items on the agenda for the 88<sup>th</sup> Session of the CSTP were the sharing of R&D information, a report-back on recent OECD workshops and conferences, a progress report on the development of nanotechnology policy, and progress reports on peer-evaluations of four countries, including South Africa. NACI would do well to monitor the agenda of CSTP, since it is a sensitive mirror of international trends in the STI policy field. It should also be acknowledged that NACI's priorities have in the past sometimes been quite well aligned with those of the OECD.

### *Non-Aligned Movement (NAM) International Conference on S&T Policy Research and Statistical Indicators, 8–10 November 2006, Colombo, Sri Lanka*

NACI presented a paper on the South African STI Policy as an Indicator Driven One: Approach, Nature, Size and Performance. The core argument of the paper was that indicators can add considerable value to policy monitoring, evaluation and steering, provided that the approach is linked to an underlying conceptual and methodological framework. The paper contributed positively to the image of South Africa in general, and the DST and NACI in particular, in providing a positive overview of the NSI and the role of Government in transforming the system, based partly on the OECD background report. The paper advanced theoretical and substantive arguments in favour of using indicators in evaluating and planning science, technology and innovation, including the developing country context.

Seven African countries (including South Africa) were represented at the conference. Other countries represented at the conference included the host country (Sri Lanka), India, Cuba, and several East Asian countries, including Malaysia. It is

anticipated that the papers presented at the conference will be published by the NAM Secretariat and made available to NAM member countries.

### *OECD Working Party on Technology and Innovation Policy (TIP) Conference on Globalisation and Open Innovation, 1 December 2006, The Hague, The Netherlands*

The motivation for the theme of Globalisation and Open Innovation is to be found in the realisation that the dynamics of globalisation influence traditional policies and practices in fields such as technology development and intellectual property rights. Collaboration, as opposed to intra-organisational secrecy, is sought across institutional and national boundaries. The conference dealt with conceptual issues, case studies and policy implications. The conference was attended by approximately 110 delegates and addressed by prominent authors (for example, Henry Chesbrough from the University of California, Berkeley, and Eric von Hippel from the MIT Sloan School of Management). Several case studies were presented, including that of Nokia.

### *28th Meeting of the OECD Working Party on Technology and Innovation Policy (TIP), 2–3 December 2006, The Hague, The Netherlands*

The OECD Working Party on Technology and Innovation Policy (TIP) is one of five working groups of the Committee for Science and Technology Policy and meets twice a year. The December 2006 meeting was attended by approximately 60 delegates and advisors, and the agenda included the themes of open innovation and internationalisation, peer reviews of countries, patent statistics and case studies of innovation policies.

### *The Atlas of Ideas: Mapping the New Geography of Science Conference, 17–18 January 2007, Institute of Engineering and Technology, Savoy Place, London, UK*

NACI members attended the Atlas of Ideas Conference, which reported back on an 18-month study of science and innovation in China, India and South Korea, with a focus on new opportunities for collaboration with the UK and Europe. The primary recommendations of the Demos study on the UK could possibly be modified and adopted for South Africa.





***The functions of NACI include advice on the following:***

- *Coordination and stimulation of the national system of innovation, including the development, acquisition, transfer and implementation of technology in all sectors*
- *Development and maintenance of human resources for innovation through support for education, training and research and development (R&D) in the higher education sector and at science Councils and public and private science and technology (S&T) institutions*
- *Coordination of national S&T initiatives, policy and strategies with other national policies and developments*
- *International liaison and cooperation in science, technology and innovation*
- *Structuring and governance of the S&T system*
- *Identification of research priorities*
- *Funding of the S&T system*
- *Establishment and management of science Councils, national research facilities and other S&T institutions*
- *Promotion of education in mathematics, the natural sciences and technology. (This function is addressed in consultation with the ministers of Education and Labour)*
- *Public understanding of S&T and the dissemination of scientific knowledge*
- *Establishment and maintenance of information systems to monitor and evaluate the S&T system and support the revision of S&T policy as national circumstances change*
- *New legislation, as may be required by developments in S&T*
- *Any other matters that the Minister may refer to NACI, including indigenous technologies.*

***[NACI Act, Section 4]***



## Financial Report – 2006 | 2007



The National Advisory Council on Innovation was allocated R8 228 million to perform its functions during the 2006/2007 financial year. This allocation was later adjusted to R10 193 million, 99.3% of which was utilised. As in previous financial years, the NACI budget is administered by the Department of Science and Technology, and expenditure is accounted for in the various financial systems of the Department.

NACI's expenditure during 2006/2007, classified in terms of remuneration of employees, research projects and other operational expenses incurred in developing advice, was as follows:

Item	Actual payment (R'000)	Percentage %
Remuneration of employees	3 356.0	33
Evidence-based research studies	4 393.4	43
Advice development	2 380.6	24
<b>Total</b>	<b>10 130.0</b>	<b>100</b>

The category of evidence-based research studies reflects payments to consultants for performing research, editing reports and reviewing projects. The category of advice development reflects expenditure on the facilitation of advice development or capacity building towards advice development, including the sub-items of advertising and

marketing, communication, catering, courier services, computer hardware, stationery, printing, domestic and international travel, subsistence, training and staff development. Approximately 7% of total expenditure was for Council honoraria (for preparation and meeting attendance).

### Budget Versus Expenditure for the year ended 31 March 2007

Economic Classification	2006/2007							2005/2006	
	Main Ap-propriation	Shifting of Funds	Virement	Final Ap-propriation	Actual Payment	Variance	Payment as % of final appropriation	Final Ap-propriation	Actual Payment
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Current payment	8 164	1 992		10 156	10 094	62	99.39	7 979	7 459
Transfers and subsidies	14	(11)		3	3	-	100.00	14	2
Expenditure for capital assets	50	(16)		34	33	1	97.06	235	235
<b>Total</b>	<b>8 228</b>	<b>1 965</b>	<b>-</b>	<b>10 193</b>	<b>10 130</b>	<b>63</b>	<b>99.38</b>	<b>8 228</b>	<b>7 701</b>

Economic Classification	2006/2007							2005/2006	
	Main Ap-propriation	Shifting of Funds	Virement	Final Ap-propriation	Actual Payment	Variance	Payment as % of final appropriation	Final Ap-propriation	Actual Payment
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>Current payment</b>									
Compensation to employees	3 730	(330)	-	3 400	3 356	44	98.71%	2 325	2 325
Goods and services	4 434	2 322	-	6 756	6 738	18	99.73%	5 654	5 134
Financial transactions in assets and liabilities	-		-	-		-	-	-	-
<b>Transfers and subsidies</b>									
Provinces and municipalities	14	(11)	-	3	3	-	100.00%	14	7
Gifts and donations	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>									
Machinery and equipment	50	(16)	-	34	33	1	97.06%	235	235
<b>Total</b>	<b>8 228</b>	<b>1 965</b>	<b>-</b>	<b>10 193</b>	<b>10 130</b>	<b>63</b>	<b>99.38</b>	<b>8 228</b>	<b>7 701</b>

## Secretariat

The staff complement of the NACI Secretariat during the reporting year was as follows:

- Six permanent employees: Dr Hermi Boraine, Dr Sagren Moodley, Mr Simon Mpele, Ms Charlotte Mzolo, Mr Edward Rakate and Ms Ria Vogel.
- Four employees on contract: Ms Cynthia Kgethe, Ms Emily Mangale, Dr Bok Marais (Head of the Secretariat) and Ms Mavis Masia.
- Two interns: Ms Lizzy Manganyi and Mr Mmutle Thunye.

Dr Bok Marais served NACI as Head of the Secretariat from its inception until the expiry of his contract at the end of March 2007. He was succeeded by Mr Vuyani Lingela.

NACI places considerable emphasis on the professionalism of its staff and encourages staff members to participate in a wide spectrum of relevant conferences, seminars and training courses. Staff members used the opportunities by reading scholarly papers at both national and international conferences, attending short courses and developing and implementing an internship mentoring programme.

The Secretariat administered and managed all formal NACI meetings, which included drafting of most of the documentation.

Four of the eight contributors to the background report to the OECD country review of South Africa's national system of innovation were from the Secretariat, which, in partnership with the DST, also organised and facilitated the country visit of the OECD team. The following quotation from the publication 'OECD Reviews of Innovation Policy – South Africa' testifies to the appreciation of the OECD Secretary-General: "This review owes a lot to South African government officials, in particular Dhesigen Naidoo, Bok Marais, David Walwyn, Simon Mpele and Robyn Glaser, who helped in providing background information, arranging the interviews in South Africa, and advising the OECD team throughout the review process."

# A Selection of NACI's Major Activities

## During the 2006/2007 year

Events, meetings, conferences and workshops organised by NACI are listed in the table. External events attended by members of NACI, such as participation in conferences and institutional visits, are not included here.

24–25 April 2006	NACI International Workshop on Measuring Systems of Innovation: Inputs, Flows and Outputs, Sheraton Hotel, Pretoria
8 May 2006	50th NACI Exco meeting
2 June 2006	NACI lunch seminar on The Role of Co-operative Digitised R&D Information Resources in a Development Context, by Prof. Harry Wels (Free University of Amsterdam)
6–9 June 2006	High-level meeting to discuss the South African NSI background report to be submitted to the OECD panel in Paris
21 June 2006	OECD task team meeting to discuss the OECD background report on the South African NSI
23 June 2006	NACI Subcommittee III meeting: STI for Competitiveness
26 June 2006	NACI Subcommittee II meeting: Human Capital and the Knowledge Base
27 June 2006	51st NACI Exco meeting
28 June 2006	Meeting with an official delegation from Mali
31 July 2006	NACI Subcommittee I meeting: Infrastructure for Innovation Promotion
1 August 2006	Induction of NACI interns
26 August–8 September 2006	Visit of OECD delegates to South Africa
31 August 2006	NACI Subcommittee I meeting: Infrastructure for Innovation Promotion
1 September 2006	27th NACI Council meeting
5–6 September 2006	NACI workshop on Tracking Public R&D Expenditure study (Lanzerac, Stellenbosch)
11 September 2006	NACI lunch seminar on Community-based Innovation and how it can Assist in the Alleviation of Poverty, by Prof. Anil Gupta (Indian Institute of Management, Ahmedabad, India)
12 September 2006	NACI Subcommittee III meeting: STI for Competitiveness
14 September 2006	53rd NACI Exco meeting
5 October 2006	54th NACI Exco meeting
5 October 2006	NACI lunch seminar on Science, Technology and Innovation Advice to Policy Makers: Challenges, Problems and Possible Solutions, by Prof. Peter Weingart (Institute of Science and Technology Studies, University of Bielefeld, Germany)

## A Selection of NACI's Major Activities

### During the 2006/2007 year

10 October 2006	Presentation of the 2005/2006 NACI Annual Report to the Minister
24 October 2006	Presentation of the 2005/2006 NACI Annual Report to the Parliamentary Portfolio Committee on Science and Technology
25 October 2007	NACI Human Resource Model Operationalisation Workshop
1 November 2007	Meeting with an official delegation from Uganda
9 November 2006	28th NACI Council meeting
30 November 2006	Launch of the NACI National Biotechnology Advisory Committee (NBAC) by the Minister
11 January 2007	NACI Secretariat strategic planning meeting
25 January 2007	55th NACI Exco meeting
5 February 2007	NACI Indicators Reference Group (IRG) meeting
15 February 2007	29th NACI Council meeting
16 February 2007	2nd NBAC meeting
1 March 2007	NACI Subcommittee II meeting: Human Capital and the Knowledge Base
8 March 2007	56th NACI Exco meeting
19 March 2007	Inaugural meeting of the newly constituted Science, Engineering and Technology for Women (SET4W) Committee
23 March 2007	NACI lunch seminar on Science, Technology and Innovation (STI) Policy; Reflections on the Past and Prospects for the Future, by Dr Bok Marais (Head: NACI Secretariat)



# Acronyms

AMCOST	African Ministerial Council on Science and Technology
ASGISA	Accelerated and Shared Growth Initiative of South Africa
ASSAf	Academy of Science of South Africa
BRIC	Biotechnology Research and Innovation Centre
CEO	Chief executive officer
CSIR	Council for Scientific and Industrial Research
CSTP	OECD Committee for Scientific and Technological Policy
Demos	The think tank for 'everyday democracy'
DG	Director-General
DTI	Department of Trade and Industry
ESASTAP	European–South African Science and Technology Advancement Programme
EU	European Union
Exco	Executive committee
FTA	Forecasting and Technology Assessment
GDP	Gross domestic product
IRG	Indicators Reference Group
MERIT	Maastricht Economic Research Centre on Innovation and Technology
MIT	Massachusetts Institute of Technology
NACI	National Advisory Council on Innovation
NAM	Non-aligned Movement
NBAC	National Biotechnology Advisory Committee
NEPAD	New Partnership for Africa's Development
NESTI	National Experts on Science and Technology Indicators
NSF	National Science Foundation

## Acronyms

NSI	National System of Innovation
OECD	Organisation for Economic Cooperation and Development
R&D	Research and development
S&T	Science and technology
SET4W	Science, Engineering and Technology for Women
STI	Science, Technology and Innovation
TIP	OECD Working Party on Technology and Innovation Policy
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNU-INTECH	United Nations University Institute for New Technologies
US	United States of America
WOESA	Women in Oil and Energy South Africa



## **Mandate**

*The National Advisory Council on Innovation Act, Act 55 of 1997 mandates NACI to advise the Minister of Science and Technology, and through him the Cabinet, on the role and contribution of innovation (including science and technology) in promoting and achieving national objectives. These national objectives include the improvement of the quality of life of South Africans, the promotion of sustainable economic growth and international competitiveness. The advice should be directed at, among others:*

- *Co-ordination and stimulation of the National System of Innovation (NSI)*
- *Promotion of co-operation within the NSI*
- *Structuring, governance and co-ordination of the S&T system*
- *Revision of the innovation policy*
- *Strategies for the promotion of all aspects of technological innovation*
- *Identification of R&D priorities*
- *Funding of the S&T system*

## **Mission**

NACI will strive to become a relevant, prominent, credible and responsive advisory body to the Minister on national matters concerning innovation, including science and technology, thereby contributing to the achievement of the national objectives of South Africa. NACI will give effect to its mission by utilising accountable scientific approaches and the best available resources. NACI's ideal is to be seen as the premier source of advice.

## **Vision**

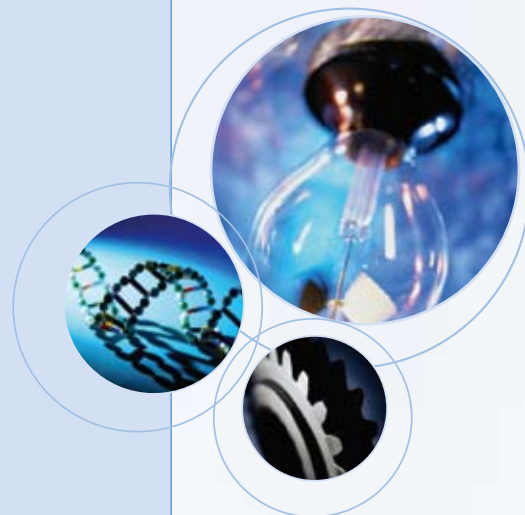
*NACI has committed itself to the following vision:*

NACI, as the key source of science and technology advice to government, will successfully promote S&T as the primary driver behind South Africa's economic and social development.

## **Values**

*The following values underlie all activities of NACI:*

- Innovation directedness and relevance to South Africa
- South Africa first
- Consultation with and involvement of all members in the activities of NACI
- Proactive rather than reactive actions to give effect to its statutory mandate
- Fast delivery of advice and related services
- Meeting of deadlines and increasing outputs significantly
- Relevance, high quality and integrity of information produced
- Integrity and credibility of NACI









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*innovation for a better future*