

DRAFT

PROGRAMME
HIGHER EDUCATION RESEARCH AND INNOVATION CONFERENCE,
11-12 March 2010, CSIR CONFERENCE CENTRE, PRETORIA

THEME:
STRENGTHENING COLLABORATION BETWEEN HIGHER
EDUCATION, GOVERNMENT AND INDUSTRY FOR RESEARCH
AND INNOVATION

DAY 1, THURSDAY, 11 MARCH 2010

09h00 – 09h45: Refreshments upon Arrival and Registration

- 10h00 – 10h15: Opening, welcome and purpose of the conference
- 10h15 – 10h30: Keynote address
- 10h30 – 10h45: Questions and Answers

10h45 – 11h15: Tea Break

A panel discussion on the sub-theme: **A review of the research and innovation policy landscape focusing on functions and mandates of various role players, achievements, challenges and prospects**

- 11h15 – 11h30: The (re)conceptualisation of Research and Innovation policy for South Africa: A reflection on the system's performance in relation to policy intents, targets, and challenges and how to address them.
- 11h30 – 11h45: A reflection on the Department of Higher Education and Training's initiatives to support research for the Higher Education sector with special reference to successes, challenges and plans to address them.
- 11h45 – 13h00: Panel discussion.

The panel will discuss:

- a the strengths and weaknesses of the National Research and Innovation System in South Africa*
- b options and a set of strategies for advancing and optimizing the performance of the National Research and Innovation System*
- c the contribution of the Higher Education sector's research to the advancement of the National Research and Innovation System*
- d the contribution of the business sector in the National Research and Innovation System, through research and development efforts*

13h00 – 14h00: Lunch

Sub-theme: The roles of government, higher education and private sector in the implementation of the national research and innovation priorities

- 14h00 – 14h35: Is there a defined role for the Higher Education sector in the implementation of the national research and innovation priorities? An overview.
- 14h35 – 15h05: An overview of the science councils' contribution to the national research and innovation needs: towards strengthening partnerships with the Higher Education Sector
- 15h05 – 15h35: The private sector's role in the advancement of national research and innovation priorities

15h35 – 15h55: Tea Break

Sub-theme: The contribution of funding agencies in support of the implementation of research and innovation priorities of South Africa

- 15h05 – 15h20: National Research Foundation's Initiatives to give effect to the implementation of the research and innovation priorities: needs and targets.
- 15h20 – 15h40: The role of the Medical Research Council (MRC) in supporting the national research, innovation and science base needs and development.
- 15h40 – 16h00: Envisaged initiatives to give effect to the implementation of the *10-year Innovation Plan for South Africa, 2008-2018*.
- 16h00 – 16h15: A critical response with a focus on strengths and weaknesses of the research and innovation funding system in South Africa by
- 16h15 – 17h00: Panel discussion.
- 17h00 – 17h15: Summary of proceedings and closure
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DAY 2, FRIDAY, 12 MARCH 2010

07h00 – 07h45: Refreshments upon Arrival and Registration

- 08h00- 08h05: Opening and welcome
- 08h05 – 08h25: Keynote address.

08h30 – 11h30: FIVE PARALLEL DISCUSSION SESSIONS

Session 1: ***Improving research training and research career development***

Context:

The DST has also launched the *South African Research Chairs Initiative* (SARChI) with a view to retaining and attracting world-class research scientists into the country's National System of Innovation (NSI). SARChI is also expected to retain qualified scientists and researchers and reverse the systemic decline in research outputs and knowledge generation at the country's publicly funded higher education institutions, science councils and research institutions.

The South African PhD Project is a new initiative of the National Research Foundation (NRF), supported by the Department of Science and Technology (DST). The programme strives to address the local human capital requirements by increasing the number of qualified postgraduate professionals in South Africa. The PhD project aims to increase the number of PhDs fivefold in 2025, from the current base of about 1200 per year to about 6000 PhDs a year.

The purpose of post-graduate training should be clearly spelt out and well articulated. It is HESA's view that the purpose of doctoral training is not just about producing the next generation of academics. The academic profession and research careers should once again be viewed as being prestigious, properly incentivized. Where national priorities have been identified, the training of a large proportion of graduate students should be in these areas so that we can create a critical mass of researchers in areas of national importance.

Scene setting presentations:

- a Reflections on the challenges facing the production of Masters and PhDs in South Africa and initiatives to address them.
- b A critical evaluation of the implementation of the SARChI and PhD Projects: A case for positioning Higher Education to take advantage of and influence these projects to improve implementation.

Group 2: ***Research equipment / infrastructure as an enabler for the thriving of research and innovation in South Africa***

Context

Research equipment/infrastructure is generally expensive. It has been pointed out by some research-active academics that, with dwindling financial resources being one of the biggest challenges that all institutions face, investment in research infrastructure has become one of the first casualties of cost-cutting exercises. The result is that there is a huge backlog in research infrastructure provision at **all** South African higher education institutions. In a majority of cases the situation may be terminal and may require the intervention and assistance of government. It is believed that the state should not *only*

intervene when there are perceptions of failure in governance, but should also intervene when the academic project is at risk due to lack of resources. We would like to argue strongly that it should not and cannot always be left to individual institutions to ensure that researchers have access to research tools so that they can do their work. This would be penalising individual researchers and would be detrimental to the **National Research and Innovation Effort**.

Scene-setting presentations:

- a) A reflection on key issues and trends emerging from the current state of research equipment and national facilities.
 - b) Are there opportunities for collaboration amongst universities on research equipment: practical proposals of fostering a collaborative culture.
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Group 3: *Strengthening partnerships and Internationalization efforts*

Context

There are many good and solid reasons why forging complementary and mutually beneficiary partnerships should be one of the pillars of Higher Education's Research, Innovation and Development Strategy. The South African research community is small by any standards. There are many academics that are not research-active and those that are research active may have diverse non-overlapping interests. South Africa itself suffers from 'academic isolation' due to its geographic location, academic boycott that was in place until 1994 (though we must hasten and point out that there is no study that we know of which has investigated the impact of the academic boycott), poor 'connectivity', poor and limited access to international public knowledgebase maybe due to financial constraints, etc. This means that it is common for academics to suffer from intellectual and academic isolation and this often has a negative impact on their research productivity. Partnerships ensure sharing of resources, exchange of ideas; students learn better when they are in a team and completion rates are much better than for students working in isolation. Multi-, inter-, or cross-disciplinary research is about research partnerships. However, it must be pointed out that this may not come naturally to academics and institutions because of the competitive nature of the research endeavour – competition for prestige, resources, and talent. Higher Education sector must identify obstacles to mutually beneficiary partnerships and collaboration and work towards trying to remove these. The sector cannot afford unnecessary fragmentation and destructive competition being a small research community.

Since 1994, South Africa has entered into a number of bi- and multi-lateral agreements with other countries. Many of these had envisaged a research component (exchange of staff, student mobility, joint research programmes, etc.). Sadly, we have hardly taken advantage of opportunities presented by these agreements. Most of these agreements identified priority research areas that coincided with priorities identified by individual higher education institutions in South Africa. HESA must try and understand why its member institutions failed to take advantage of these opportunities and rectify the situation. The obvious reasons are poor communication and the fragmentation highlighted earlier. HESA should pay attention to this and should lobby the relevant government departments to ensure that this is addressed. Internationalisation would also help us not to be left behind in new and important developments around knowledge production.

Scene setting presentations:

- a A review of existing internationalization platforms (SAJU, IBSA, DAAD, EU etc) to advance National Research and Innovation Effort: Distilling Key Lessons and best practices for the sector.
- b Strengthening diaspora networks to contribute to the National Research and Innovation System in South Africa.

Group 4: Procurement, intellectual property and innovation

Context

One popular perception of innovation, which one finds in the media every day, is the development of brand new and advanced solutions for sophisticated, well-off customers, through the exploitation of the most recent advances in knowledge. However, another way of looking at innovation goes significantly beyond the high-tech picture. In this broader perspective, innovation – the attempt to try out new or improved products and processes or ways to do things – is an aspect of most, if not all, economic activities.^{1,2} It includes not only technologically new products and processes but also improvements in areas such as logistics, distribution and marketing. Even in so-called low-tech industries, there may be a lot of present innovation, and the economic effects may be very large.³

Innovation, in the above context, is the mainstay of international competitiveness and economic growth and the only way to get out of the low development trap.^{4, 5}

Procurement has been identified internationally as an important instrument for the promotion of innovation across all government structures. For example, in the UK procurement has become an integral part of the DTI⁶ innovation strategy and structures and processes at all government levels are being adjusted in a complex implementation process. In some sectors (health, construction, etc) this process is well under way. Similarly Australian agencies are encouraged to consider how they could objectively deal with innovation and how they might manage submissions that propose innovative treatment of any of the mandatory elements, such as evaluating extra features as separate criteria or conducting a two-stage process, requesting an expression of interest that allows the supplier to focus on providing the best solution.

¹ Kline, S.J. and Rosenberg, N. (1986). "An Overview of Innovation", in R. Landau and Rosenberg, N (eds) *The Positive Sum Strategy: Harnessing Technology for Economic Growth*. Washington D.C.: National Academy Press, pp. 275-304.

² Bell, M. and Pavitt, K. (1993.) Technological Accumulation and Industrial Growth: Contrasts between Developed and Developing Countries. *Industrial Corporate Change*, **2**:157-210.

³ von Tunzelmann, N. and Acha, V. (2004). "Innovation in "Low-Tech" Industries" In Fagerberg, J., Mowery, D. and Nelson, R (eds). *The Oxford Handbook of Innovation*. Oxford: Oxford University Press, 407-432.

⁴ Abramovitz, M. (1994a). "The Origins of the Post-war Catch-Up and Convergence Boom", in Jan Fagerberg, Bart Verspagen and Nick von Tunzelman (eds.), *The Dynamics of Technology, Trade and Growth*. Edward Elgar, Aldershot.

Abramovitz, M. (1994b). "Catch-up and Convergence in the Postwar Growth Boom and After", in Baumol, W. J., Nelson, R. R. and Wolf, E. N. (eds.) *Convergence of Productivity – Cross-national Studies and Historical Evidence*. Oxford University Press, Oxford, 86-125.

⁵ Shin, J-S. (1996). *The Economics of the Latecomers: Catching-up, Technology Transfer and Institutions in Germany, Japan and South Korea*. Routledge, London.

⁶ DTI (2003). *Competing in the Global Economy – The Innovation Challenge*. Department of Trade and Industry, London

During 2003, the Irish Science and Technology Policy Agency Forfás carried out a scoping study on Public Procurement for Increased Innovation. The Spanish foundation COTEC produced a report on "Public Procurement and Technology". In the Netherlands, an internal group of experts from the government is defining the potential of state procurement for innovation policy, and in Germany the "Impulse Group Innovation Factor State" is working on the possibilities of promoting innovation dynamics from the market place by adjusting procurement practice in general, as well as through strategic procurement measures in selected technology areas. In the European Union procurement for innovation was incorporated as an element of the European Commission's Research Investment Action Plan⁷ and a strong case has been made in the EU report chaired by Finland's ex Prime Minister Mr Esko Aho.⁸

In South Africa procurement is ignoring innovation even though the importance of innovation is recognized and is promoted by a number of government Departments. For example, the dti through its THRIP co-funds research and innovation with the private sector at Higher Education Institutions (HEIs). Similarly the Department of Science and Technology (DST) operates according to the concept of the National System of Innovation (NSI) which aims to bring together all relevant innovation stakeholders.

The recent OECD⁹ investigation of South Africa has identified the deficiency and under "Strategic goals and guiding principles for government action" recommends that the government should "on the demand side, increase domestic demand for innovations" (p 10).

However in South Africa procurement not only is not supportive of innovation but to a certain extent it is detrimental to the concept.

The "*Preferential Procurement Policy Framework Act No 5, 2000*" (PPR) presents an obstacle in the efforts of universities and research councils (the institutions that are expected to be sources of innovations) to offer their services to Government and other organs of the State. More specifically paragraph 13(5)(a) of the Act states "Preference points may not be awarded to public companies and tertiary institutions". As a consequence universities tendering for government tenders are at a disadvantage to other competing institutions (of up to 25% disadvantage) and as result innovative solutions are disadvantaged.

This regulation has been enacted without taking into account its detrimental effects on the NSI, on the universities and research councils that are disadvantaged in participating in public sector tenders, and on Government Departments and other organs of the State that cannot benefit from the expertise of the higher education sector.

Currently the "*Draft Preferential Procurement Regulations 2009*"¹⁰:

⁷ Commission of the European Communities (2003). "*Research Investment Action Plan.*" Brussels

⁸ Aho Report (2006). "*Creating an Innovative Europe, European Commission.*" Office for Official Publications of the European Communities, Luxemburg

The Aho Group report, while endorsing the "horizontal" measures designed to create more innovation-friendly markets also proposed as a central plank of its recommendations that large scale strategic actions were needed to provide an environment in which supply side measures to raise investment in research and innovation can be combined with this process of creating a demand and a market. The Group identified several examples: e-Health, Pharmaceuticals, Energy, Environment, Transport and Logistics, Security, and Digital Content.

⁹ OECD (2007). "*Review of the South Africa's Innovation Policy.*" Organization for Economic Cooperation and Development, Paris

¹⁰ National Treasury (2009) "Preferential Procurement Policy Framework Act 2000: Draft Preferential Procurement Regulations 2009" General Notice no 32489 3 14 August 2009

“12 (4) When an organ of state is in need of a service provided by only tertiary institutions, such services must be procured from the tertiary institution(s) identified by means of a competitive bidding process. Tertiary institutions will be required to submit their B-BBEE status in terms of the specialised scorecard contained in the B-BBEE Codes of Good practice

12(5) Should an organ of state require a service that can be provided by one or more tertiary institutions or public entities as well as enterprises from the private sector, the appointment of a contractor must be done by means of the normal competitive bidding process. Public entities will be required to submit their B-BBEE status in terms of the specialised scorecard contained in the B-BBEE Codes of Good Practice”.

The Intellectual Property Rights from Publicly Financed Research and Development Act, of 2009, seeks to provide for more effective utilisation of intellectual property emanating from publicly financed research and development; to establish the National Intellectual Property Management Office and the Intellectual Property Fund; to provide for the establishment of offices of technology transfer at institutions; and to provide for matters connected therewith. The subsequent regulation published, to give effect to this Act, were not well received by the Higher Education sector. For example, one common criticism leveled against these regulations is that a law whose main aim is compulsory control of research through intellectual property law is counter-productive and that the unintended consequence of such a law would be an inevitable slowing down of research as productive knowledge gets trapped in a gridlock, unable to be used by other scientists and businesses. Second, the regulations must ensure enough leeway for scientists to contribute to the knowledge commons by promoting open access to knowledge, open innovation policies, open collaborations, and the open source philosophy.

Scene setting presentations:

- a Intellectual Property Rights from Publicly Financed Research and Development Act, of 2008: obstacles, opportunities and implications for Higher Education Sector Research and innovation in South Africa.
 - b Legislative and regulatory obstacles and their implications on Higher Education Research and Innovation in South Africa.
 - c Developments in high-tech industry research in South Africa: Intellectual Property challenges and prospects.
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Group 5: Research and Innovation funding

Context:

This theme proceeds from the premise that research and innovation in South Africa is under-funded. It is important that the country realises that funding is central to a vibrant, innovative and creative research community. Funding from government is highly fragmented (most government departments have their own research funding streams) and there is need to 'consolidate' some of these for greater impact. With shrinking budgets, universities are forced to prioritise expenditure and research is one of the areas that suffer as it receives less than it deserves. Since institutions enjoy autonomy in how they spend their income, researchers at different institutions enjoy different levels of funding and this leads to different research environments which in turn has an impact on productivity. The Higher Education sector should recommend and advocate that funding of research from public resources should be re-visited and some of the funding streams 'pooled' for greater impact. Research funding from public resources should address, amongst other things the following imperatives:

- access to research infrastructure for all researchers irrespective of institutional affiliation;
- incentivise researchers for involvement in research (along the lines of the DoE funding which incentivises quantity of publications; M- and D-graduates);
- funding for the next generation of researchers: national bursary/scholarship scheme to encourage students to pursue M- and D-degrees through generous funding;
- quality of research (currently this is done via the NRF-rating);
- funding to promote areas of national importance: either existing areas of strength or new areas that need to be established or built;
- an endowment that can be used as matching funding for grants that come from private sector and Foundations where that is needed; and
- capacity building and redress.

Scene-setting presentations:

- a A critical review of the research and innovation funding framework in South Africa: Is there scope for improving synergies of funding streams for maximum impact?
- b Improving research and development expenditure in the Higher Education Sector: Trends from R&D and innovation surveys.

11h30 – 11h45: Tea Break

11h45 – 12h45: Reports from 5 Group Moderators (*15 minutes per Group*)

12h45 – 13h25 The contribution of Higher Education sector's research and innovation to National Planning Commission's work, including policy-making, monitoring and evaluation: Towards fostering a culture of dialogue between HE sector and National Planning Commission.

13h25 – 13h30 Summary of the proceedings, proposed way-forward and closing remarks.

Lunch & Departure