

## **Address by the Minister Naledi Pandor MP, at the Siemens Pan African Profile Awards 2011, Doha, Qatar**

Programme Director;

CEO of Siemens Southern Africa,

Members of the Board of Directors;

Award Winners;

Distinguished Guests

Ladies and Gentlemen

What's the most important property of matter? The answer is ... gravity. What's the second most important property of matter? The answer is ... yes ... it's friction. And what is the study of friction called? It's called 'tribology'.

I learned about this when we held an international conference on tribology in South Africa. I also learned, and I quote from Swan and Fitton's 'SA Tribology Project 2010', that "tribology ... is a complex science that ... has a tremendous effect on industry at large, from energy consumption and wear in the largest machines to the joints in our bodies." I can go on, "Tribology is the study of friction and wear. Without friction the world as we know it would not exist: we would all slide around endlessly. ...".

And this is where it gets interesting, and I quote: "Friction generates wear and heat. Heat developed through friction wastes energy, and sometimes requires more energy to dissipate the heat, such as through a cooling system. At the same time wear takes place on both rubbing surfaces."

Why did we need to hold an international conference on the subject? Because the university syllabus in engineering courses doesn't cover it. Shall I explain? I quote "Reference to standard graphs for lubricant viscosity may be covered, but no mention is made of other lubricant qualities. No correlation is made between tribology and its ability to control or reduce friction and wear."

If we understand tribology better, then we can save a lot of energy and a lot of money.

But on a more serious note, a lot of science is like this – there is a wonderful enthusiasm for a subject combined with a shocking ability to communicate that enthusiasm to ordinary people. And for scientists, and the public, that is a big problem.

You will have heard of the Gunning-Fog index. It calculates how many years of formal education a reader needs to understand a text. If a text is awarded a fog index of 12, it means a reader needs 12 years of education to understand the text. Most of scientific writing scores 40 or more.

That's why good science journalism and reporting can be as important as science itself, and why the Siemens Profile Awards for reporting on science and technology is such a significant event.

Let me give you a couple of high-profile examples. Take HIV/AIDS.

With an estimated 5.6 million people living with HIV in 2009, South Africa's epidemic remains the largest in the world.

The encouraging news is that HIV is not spreading as fast as it was barely five years ago.

South Africa now has the largest antiretroviral therapy (ART) programme in the world, with over 1 million children and adults enrolled.

There has been a decline in the rate of HIV incidence, accompanied by signs of a shift towards safer sex among young people.

There is a much higher prevalence rate amongst women than men, and it is clear that [women are at greater risk than men](#).

And that is partly why the CAPRISA 004 study at UKZN was so important. The CAPRISA 004 study found that an antiretroviral microbicide reduces the risk of HIV and herpes infections in women.

CAPRISA 004 was a test-of-concept study designed to explore whether tenofovir gel could prevent HIV infection, rather than a definitive trial designed to provide all the necessary information for product licensure.

The results of the CAPRISA 004 study need to be confirmed by other studies to enable licensure and subsequent public availability for HIV prevention.

Now all of this is complex for non-medical people to understand. It requires specialist journalists to communicate. Instead of local enthusiasm for a medical breakthrough, we ran into unconstructive criticism.

In his column published in the *Sowetan* on 27 July 2010 ("[Research on HIV prevention gel put black lives at risk](#)"), Andile Mngxitama attacked the CAPRISA 004 researchers for using black people as labrats.

The thing is this. You and I are suspicious of trials that put HIV-negative people at risk of contracting HIV.

Yet this is how trials have to work. One arm of the trial receives a comprehensive prevention package as well as the vaccine candidate, and the other arm receives a comprehensive prevention package and a placebo.

Participants don't know whether they are receiving the vaccine or the placebo. Participants who become infected with HIV are given access to ARVs. For example, [in the Thai trial](#) out of 16,000 volunteers, only 125 became HIV positive, of whom 51 had been given the vaccine and 74 received a dummy injection (a placebo).

It is getting easier to recruit trial participants because there has been a paradigm shift in the way trials are conducted. It is no longer a case of researchers coming into a community, conducting research and leaving.

Now clinical trials are there for the long haul, getting to know and supporting the people they are working closely with, building trust.

I would argue that it would have been more beneficial to have a public debate about other issues.

For example, last month another trial showed that HIV “treatment is prevention”. By that I mean that we now know that early antiretroviral treatment prevents the transmission of HIV from infected men and women to their uninfected partners. The trial is conclusive. It’s a “game changer”. Early treatment prevents transmission of the disease. That’s what we now know.

But what do we do about it? What is the best policy to adopt? There was much discussion in New York earlier this month at the UN conference about spending more money now - to save lives now and money later. The UN wants countries to spend \$22 billion by 2015 so as to treat 13 million people, but even this vast sum would not cover everyone.

But lifelong anti-retroviral treatment is not sustainable. Surely we need to find a vaccine?

Did you know that in South Africa we have wiped out the maternal transmission of AIDS to infants?

Then there is SKA. Let me tell you about SKA.

The Square Kilometre Array will be a radio telescope, far more sensitive than any radio telescope that exists anywhere in the world today.

Astronomers explore the universe by passively detecting electromagnetic radiation emitted by celestial objects. SKA will enable them to do this far more effectively than ever before.

Astronomers will be able to study the formation and evolution of stars, galaxies and quasars - untroubled by dust. They will be able to study the evolution of galaxies and find out unique information about dark matter.

And astronomers will be able to look for alien intelligence with a sensitivity of up to 100 times greater than is now possible, targeting many stars simultaneously.

In order to secure the bid for the SKA - we are locked in competition with the Australians to host the telescope - South Africa has begun with the construction of a demonstrator telescope called MeerKAT in the Karoo area of the Northern Cape province. The MeerKAT will consist of 64 dishes and will be the largest and most sensitive radio telescope in the Southern Hemisphere.

As a region, we are already internationally recognised in the area of astronomy. We are hosts to major astronomy facilities that include the Southern African Large Telescope (SALT) in the Northern Cape, South Africa, and the HESS gamma ray telescope in Namibia.

Economically, the SKA represents the largest science-based capital injection into the African economy by far. The estimated total investment is in the order of €1.5 billion or R15 billion. This investment will result in a number of immediate and long term socio-economic benefits accruing to the entire continent.

Immediate benefits are in the form of research and development opportunities during the design phase. Scientists from universities across the continent have an opportunity to participate in the design of SKA novel technologies and instrumentation.

The construction phase of the SKA will generate localised direct benefits in the form of jobs, procurement and sourcing of local materials in each of the partner countries. A combination of these benefits will contribute to improvement in the sub-Saharan GDP.

In addition to the immediate or short-term benefits, there are numerous long-term benefits accruable to the general community at large. Because of the scientific nature of the project, the biggest benefit will be the improvement of the skills base and access to top international research facilities and networks which will in turn boost our output of scientific publications.

The SKA science provides opportunities for development of new algorithms and underlying mathematics for manipulating large data sets, new imaging technologies and techniques, new data compression algorithms for purposes, as well as new ICT skills beyond what is currently available. These are essential skills which may be applied in other productive sectors of the economy.

In the next ten months the International SKA Office will make the final pronouncement as to who, between Africa and Australia, will host the SKA.

SKA is one of the great science projects of the 21<sup>st</sup> century and it's a project on which South Africans collaborate with scientists from many other countries.

Current and future sciences and technologies hold great promise in terms of speeding up socio-economic development, which is of particular importance to the poorer nations of the world. We need to do all we can to accelerate, not only the fulfilment of that hope, but also the expectation of that hope.

What is the role of the journalist in all this?

First of all she should be able to spot the facts behind government policy or the claims made by science and tech companies for their products or drugs.

For example, [Ben 'Bad Science' Goldacre](#) conducted a little study of health reporting in major UK papers recently and discovered that the majority of health claims made about food and drink were supported by the weakest evidence. But how do you know if you don't have a phd in the particular science field? You don't. Certainly I can't think of any South African journalist who can boast a cv like this: "Ian Sample has been a science correspondent for the Guardian since 2003. Before that, he was a journalist at New Scientist and worked at the Institute of Physics as a journal editor. He has a PhD in biomedical materials from Queen Mary's, University of London."

Even if you don't know the science as a general science journalist, you do have to understand the basic mechanics of science policy. By that I mean you have to understand politics. You have to listen in (recordings are available on the web), even if you cannot attend, portfolio committee meetings in Parliament. That's where government's plans and budgets are interrogated by MPs. I am astonished at the number of journalists who simply rely on SAPA reports of what goes on in parliamentary committees.

We now have a better idea of how newspapers work after the publication of the [Sunday Times 2008 review panel report](#).

Second, science journalists always have to follow the money. A policy story without a budget is a non-story. A policy story with a budget of billions causes the eyes to glaze over. You have to interpret for ordinary mortals and explain how the money is to be spent. Do the sums. Call a friend. It's amazing how many good stories have been broken by doing the basics. I remember the release of our annual research and development numbers last year and the trouble we ran into over an incorrect percentage or the clever analyst who worked out that Stats SA was miscalculating our inflation data a year or so ago.

Third, speak to the minister. Speak to me. You will find me accessible. If I don't know something, I have a whole army to call on for help.

Last, do your own research. It's so much easier to do now with access to the internet than a decade ago. Don't just tweak the press release.

So ask a friend. Ask a scientist. Add a variety of voices. Find out the facts behind the policies. Get the best comment you can. Add a podcast to your story.

I congratulate the winners here tonight. I hope you will intensify your efforts to develop public awareness of science and technology. And I would like to thank all journalists here tonight, winners or not, and encourage you to continue the good work – your country needs your skills, your interpretive abilities, and your communications flair. All hands to the journalists!

I thank you.