



Message from the NSTF Executive Director

The virus caught us at a bad time

which is why we need scientists, engineers and educationists

South Africans are more than usually angry and critical. Everything just seems wrong and someone must be held responsible for it. Many are letting off steam on social media and radio talk shows, some are ready to stay at home if required at school, or not to stay home if they're not allowed out, some law abiding people now dare to buy illegal cigarettes or find a way to stock up on alcoholic drinks... It's understandable. The past months have been full of frustration and fear. Businesses have taken a nosedive, and whole industrial and trade sectors have been hammered. Jobs have been shed, or salaries not paid. Government again seems to make nice promises, but then the planned funding might not reach the person who needs it, or not immediately. Etc.

Like many, if not most South Africans, I have been sitting at home following presidential and ministerial addresses, critical commentary and the news. Like everyone else, I have an opinion on everything. However, for this article I decided to take a step back, try to look at the bigger picture and rise above what is merely inconvenient (as opposed to life-threatening).

To be sure, the pandemic has not been easy to manage in any country in the world. It simply travelled too fast to allow for thoroughly considered responses and practical preparation. It is also unprecedented in most countries, and we all had to learn the basics from the Chinese (from their example especially), from the WHO, from local and international experts and eventually, from other countries' experiences. The ease with which this virus is transmitted is astounding, so that no-one was fully prepared anywhere around the world.

In South Africa, it was inevitable that the virus would catch us on our back foot. We had just started to emerge from almost a decade of corruption and mismanagement, and the economy was all but hanging by a thread. Unemployment was at an already unmanageable level, and the lights barely stayed on. The virus had caught us at a time of broken institutions and lagging service delivery and infrastructure maintenance. It had caught us with growing and shameful social inequality, after many years of having neglected the provision of basic human rights.

Suddenly we needed clean water for all, shelter for all, health care for all, internet connectivity for all, and functioning schools for all. The basics. The virus was too fast for us to provide all that in a month or two, but then again, we did have decades before this to set up and provide for the basic needs of our people.

Water. Thousands of schools could not reopen on 1 June because they did not have water. They have to rely on the delivery of tanks and tankers of water. This means that in those communities where the schools are, there is no piped water provision. The provision of water to schools is an old problem, and very little had been done at all before the pandemic.

Health. Our health system had been limping along for many years, with hope of first aid for the system having been abandoned long ago. Even TB protocols for health workers had not been formulated yet, although the intention to do so had been announced in 2017. See the beautifully written article by [Arne von Delft](#): *A convenient untruth: The TB-proof healthcare worker*; published on 3 June 2020 in Daily Maverick. Those protocols would have been useful in the current epidemic.

Schools. Infrastructure provision and repair have been neglected for years. NGOs Section 27 and Equal Education have been pushing for these basics to be done, for years. Sanitation is notoriously part of the problem, with too many schools having to live daily with intolerable conditions. Overcrowded classrooms had been so much a part of education that it is difficult to imagine school without them. But now overcrowding is dangerous, and emergency measures have to be taken to bring an end, at all schools, to traditional overcrowding. Where are the extra school rooms? The teachers? Education cannot happen without teachers, no matter the state of textbooks, and tablets and connectivity, etc. Teachers are simply essential. But we have a historical shortage of teachers, and now we need more than we required before.

Internet connectivity. This has been dreamt of for years. Large numbers of South Africans do have smart cell phones, but data has always been too pricey. (I doubt whether that will change substantially enough to keep everyone connected after the pandemic crisis.) Provincial education departments have dreamt of free wifi for all schools, and tablets for all teachers and learners, and leapfrogging our education backlogs. Although there have been hopeful developments here and there in the country, we are still far from covering all teachers and learners with wifi. This is not as old a problem as all the others, but providing wifi access would enable so much else, and allow education to improve much faster. It would also have been of invaluable assistance in the present circumstances.

Security. Tragically, the greatest failure of the lockdown strategy has been the failure to curb police or SANDF brutality. Eleven people have been killed at the hands of the security forces during lockdown, and citizens have been intimidated and humiliated. Almost a quarter of a million people have been arrested for lockdown infringements. Again, we were not prepared. Security forces have to be trained well to work with civilians. There already was a high degree of traumatising in our society, together with the high crime rate. The security forces are not being well taken care of, nor kept under control.

Even if there had been certainty at the start of January that the virus would arrive on South African flights from overseas, we would still not have had enough time to prepare. It has barely been five months...

No doubt there will be many years hereafter of studying the data, and analysing the policy decisions, and changes brought about, challenges, failures, successes and innovations of this time that we are living through.

Complexity

No matter where you look in the world, the pandemic is interwoven with complexity in societies, and between them. Each country has its own set of complexities. The pandemic has posed a truly wicked problem to all governments, the kind of problem that can never really be solved. Everyone is longing for a vaccine, because then we might conceivably go back to the 'normality' we knew as recent as last year. But the experts have said (including Prof Salim Abdool Karim) that the virus will probably live among us for years.

Modelling can be used as a tool to describe complexity, possibly to better understand phenomena and to predict the future. Modelling economic trends with a view to predicting the future value of commodities and various indicators, is a well established practice and skill. Modelling complex phenomena with various factors and parameters, to predict a variety of future outcomes, is nothing new. However, it is not a perfect predictor at all. At best the models can help to discern and understand the trends, but the more complex the sets of interactions among the various factors are, the less reliable are the predictions.

See the Report on behalf of the South African COVID-19 Modelling Consortium: [Estimating cases for COVID-19 in South Africa - Long-term provincial projections](#) (Report Update: 6 May 2020).

Can scientists help?

Yes, they can. They not only have useful specialist knowledge, but also logical minds.

Under these conditions, what does a scientific response look like? There probably is no such thing. There has not been enough time to do the necessary research. It usually takes years to do proper and reliable research. We could expect government to listen to what our scientists say. In particular, our scientists have much experience of the HIV virus and malaria, and TB, and could give advice within the limitations of the similarities of these epidemics with the SARS CoV2. Which they have.

The government has been listening to our scientists who are knowledgeable in these areas. It has acknowledged that scientific advice is crucial and has not dismissed the evidence just for being inconvenient. We can be proud of our government in this respect.

[Glenda Gray's opinion](#), explained to News24 on 18 April, was that scientific approaches were being taken to tackle Covid-19 at the time. She also said that South Africa's response has largely been evidence-led during a time when there simply is not enough evidence. South Africa has already accomplished ground breaking advancement, including sequencing six genomes of Covid-19, which is a reflection of the top-class scientists in our country.

"Our scientific contribution, our understanding of the immune system and virology, and the fact that our HIV scientists are poised to respond and are responding in a wonderful way, is good for our country," Gray said.

The [ASSAf](#) Council issued a [statement](#) on 18 May:

"First, it is crucial that the National Coronavirus Command Council, and the structures reporting to it, such as the Ministerial Advisory Committee on COVID-19, include in its advisory bodies scientists from a much broader range of disciplines. While it is important to have epidemiologists, vaccinologists and infectious disease experts on these bodies, we believe that the pandemic is not simply a medical problem but a social problem as well. This means that social scientists and humanities scholars should also form part of these advisory structures.

"... while it is understandable that the work of the National Coronavirus Command Council deals with managing the immediate crisis, it is not too soon for a broad range of scientific advice to be drawn on to address urgent concerns such as the future of the economy, business, education, human settlements, the environment and, of course, health care reform. The novel coronavirus has laid bare the deep inequalities in our society. We dare not reset as a country without addressing the dangerous fault lines exposed by the pandemic.

"In conclusion, there is an indispensable connection between science and the public trust. In the face of a pandemic, with all the fear and uncertainty of a novel virus, the credibility of governmental

authority depends more than usual on winning the trust of the public. And there is no better way of maintaining that public trust than by speaking with one voice on the authority of evidence-based science and employing remedies in the pandemic that uphold the values of our Constitution.”

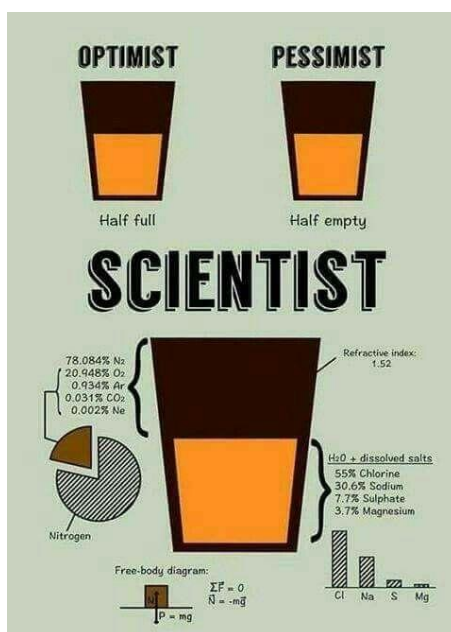
Scientists in a variety of disciplines can certainly help by sharing their knowledge and insights and through ongoing research, but the scientists cannot make the decisions. It is for the political leaders to take scientific evidence on board while they consider and weigh up a multitude of considerations – political, social, economic, etc. Often at NSTF discussion forums, we have heard how it is crucial for a variety of role players to collaborate if science is to benefit people. This is such a situation. The scientists cannot be the decision makers, and the decision makers are not scientists. It is only by working closely together that they can produce outcomes that are credible, useful, practical, and that solve the problems at hand.

However there are another two types of experts that are essential in providing advice to cabinet:

Educationists. Another group of experts that must be included in advisory panels, are educationists. The problems that have beset education under the pandemic and its lockdown can only be solved with scholarly advice as well as a variety of practical professionals. These must include e-learning specialists. Now more than ever, we cannot hope to solve the problems of education without rolling out computer hardware (in whatever form) and wifi access.

Engineers. Because of the complexity of our country and the historical factors described above, other types of experts are also required to guide us through these stormy times. The knowledge and experience of engineers are essential for most large scale projects or interventions. Importantly, they can tell government when certain things will definitely not work – like piping water to schools that are currently without, in a short period of time like two or three weeks (in time for those schools to open on 1 June). No matter how much political weight and persuasive language is used to get them to do miracles, the engineers will tell you when it is simply impossible, and suggest more feasible ways of achieving what has to be done. I urge the ministers to form advisory committees that include engineers of a relevant branch of engineering.

What does it mean to be scientific?



(The graphic was found on Pinterest without attribution.)

Being scientific means analysing what is before you, dispassionately. It is appropriate for scientists to be scientific, or act scientifically. But not always for everyone else. We need the pessimists to caution us, and the optimists to give us hope, neither of which science itself can provide. We need much more than science for the extreme challenges that face us.

Minister Ibrahim Patel put it very well at a government briefing on 28 May:

“There is no perfect science to it,” he said, referring to the decisions around easing of lockdown. There is always a measure of discretion required.

The academy said the coronavirus laid bare the deep inequalities in society. “We dare not reset as a country without addressing the dangerous fault lines exposed by the pandemic,” said Prof Jonathan Jansen, President of ASSAf.

Well said.

The opinions expressed above are those of the Executive Director, Ms Jansie Niehaus, and do not necessarily reflect the views of the [Executive Committee](#) or [members](#) of the NSTF.