

Defending science in the era of Trump

US President Trump's administration heralds a new anti-science era - from climate change denial to travel exclusions. Why did this happen, what does it mean and what can we do?

With the presidential election of Donald Trump, there is a rising tide of US policies, orders and statements that threaten the position of science and fact. Denial of climate change, evolution and the need for vaccinations are examples of this.

Trump's denial of science

Trump has tweeted that climate change is a hoax created by the Chinese to make US manufacturing non-competitive. This is despite vast scientific evidence supporting the fact of climate change, as well as the significant contribution of human actions to such change. Furthermore, he appointed Scott Pruitt, a climate change denialist, to run the Environmental Protection Agency.

Trump has appointed creationist Betsy DeVos as the US Education Secretary. Creationism is a religious belief that denies evolution, one of the most studied scientific fields.

Trump has also expressed opinions that vaccines are linked to autism. Vaccines have eradicated smallpox, almost eradicated polio, decreased incidences of measles and whooping cough, to name a few of the successes.

The US president's anti-science position has the potential to significantly and negatively impact health, the environment, the advancement of knowledge, and science in general.

Mr Yousuf Gabru, Chairperson of the South African National Commission for UNESCO, noted that this anti-science move in the US government will also have an impact on scientific funding and collaboration.

He was speaking at the Discussion Forum on 'Implications of the US President's actions and policies for science and scientists'. The event was held 8 March 2017 in Gauteng and hosted by the National Science and Technology Forum (NSTF).

Post truth and fake news

Amid the anti-science movement is the rise of fake news and the notion of post-truth. Post-truth refers to "circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief" (Oxford Dictionary).

Post truth and fake news need to be seen in the context of widespread science and health illiteracy. This anti-science era is not just about defending science during Trump's administration, but defending the position of science in general.

Science communication through social media

Prof George Claassen from the Centre for Science & Technology Mass Communication, Department of Journalism, University of Stellenbosch, defined steps scientists can take to communicate science effectively using social media. Here are some of them:

- Create and maintain a Twitter account (or other social media page). It's cost-effective, increases public interest and creates opportunity for scientific collaboration and possible funding.
- Build connections with relevant news media, creating a higher probability that the story will be picked up.
- Monitor your field of science - setting the record straight when there are inaccuracies or false news.
- Foster trust among the social media public with regular updates, accurate information, and making science interesting and understandable.

Rise of the right wing

An understanding of the drivers that influenced Trump's election will provide a basis for response to the current anti-science movement. Prof Siphamandla Zondi, Department Head: Political Sciences, University of Pretoria, presented on this at the NSTF Discussion Forum.

Zondi noted that Trump represents a rise of the right wing, a reaction of anger and disillusionment. This phenomenon is echoed across the globe, such as the the population of the UK voting for Brexit and the rise of the right in France.

For people in the US, Trump also represents the unorthodox and a desire to shift political and economic systems, as well as any frameworks (such as science) that don't support the basis for anger and disillusionment. These social forces have a foundation in growing uncertainty.

Impact of uncertainty

Prior to 1998, the world focused on democracy, actions for a healthier planet, global cooperation and socio-economic investment. With the 1998 financial crisis came negative growth and a depressed economy. "There was an uncertainty about the world's direction," said Zondi. "How does the world work? Can dreams come true?"

Consider this in the context of the American Dream. This notion, that anyone can achieve anything, was called into question. One of the reactions was to seek blame, looking at 'the other' (such as Mexicans). Zondi says that Trump's rhetoric on making America great again was seen by US voters as a positive response, with Trump positioned as the president who will rescue them.

US insularity and nationalism

Trump's 'America first' orientation focuses on giving back to the US versus giving international aid, says Zondi. It's a message of insularity and nationalism. Trump's reaction to 'the other' is to build walls, both physically and in other ways, from the US-Mexico wall to non-physical walls such as denying entry through visa legislation.

Impact of US

The US has significant international influence. Importantly, how the US behaves impacts on how other countries behave. Zondi says that this drive for the unorthodox and anger against established practices has become normalised through Trump's actions. This has serious negative impacts, especially for science.

Race and genetics

Prof Himla Soodyall, Associate Professor at the division for Human genetic, University of Witwatersrand and National Health Laboratory Service, presented on 'Unpacking racial profile'. Following are some of the points:

- There is no such thing as a pure population. Genes show a shared ancestry and the source of genetic material is in Africa.
- Human variation is a product of adaptation, shaping how we look. 90% of variation is within the group in a specific area.
- There is no biological or genetic basis for 'race'. It is socially constructed.

According to Zondi, Africa is not a priority for Trump. The US president's focus is on trade and investment and Africa isn't a big spending area. While science and technology feature in trade and investment, it's in the context of growing protectionism with the focus on benefits for the US.

Further to this, Zondi says that cooperation on science and innovation will be different without political will. Multilateral cooperation will regress, except in cases where it serves narrow US national interests.

SA's response

SA needs to manage the relationship with the US, says Zondi. It's important to maintain existing trade relations and, at the same time, for independent institutions such as universities, science councils, NGOs and companies to build stronger relationships with counterparts in the US.

Other NSTF Discussion Forum speakers promoted getting civil society involved, making science information accessible, and providing the public with a scientific world view. This public engagement is needed to ensure that science is a part of dialogue and addressing issues.

Gabru did note a positive outcome - the active resistance by scientists globally. He says that South African scientists should act in solidarity with American scientists, demonstrating and discussing issues openly.

Recommendations

- Create a statement of support from the South African science community. Themes include resistance against the curtailing of US scientific endeavour and promoting factual information in response to the 'post-truth' phenomenon.
- Drive science communication and science activism, and enable scientists to create a strong voice through channels such as social media.
- Engage with the South African science community on further actions.

[Video clips](#) with the full presentations and discussion can be found on the NSTF web site (www.nstf.org.za).

Speakers that addressed the forum can be contacted through the spokesperson.

Spokesperson: Ms Jansie Niehaus (Executive Director: NSTF) can be contacted through the NSTF Office at:

Tel: +27 (0)12 841-3987/2632/4995
Fax: +27 (0)12 841-3025
E-mail: enquiries@nstf.co.za
Web site: www.nstf.org.za

About the NSTF

The National Science and Technology Forum (NSTF), established in 1995, is a broadly-representative stakeholder body for all SET and innovation organisations in South Africa, which seeks to influence policy formulation and delivery.

The NSTF Awards are unique in SA, recognising the outstanding contributions of individuals and groups to SET and innovation.

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www.nstf.org.za
E-mail: enquiries@nstf.co.za
Tel: +27 12 841 3987
Fax: 27 12 841 3025

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