WHAT DOES THE PUBLIC KNOW AND FEEL ABOUT SCIENCE?

The Department of Science and Technology (DST) released a draft Science Engagement Framework for comment. But before embarking on a science engagement strategy, it is important to know what the public already knows and feels about aspects of science. ***Sylvia Hannan***, ***Vijay Reddy*** and ***Andrea Juan*** report on the public's responses as gleaned from the South African Social Attitudes Survey (SASAS).

Since 1994, South Africa has promoted awareness and understanding of science and technology. This is evident in the White Paper on Science and Technology (1996), which emphasises the development of science literacy and promoting awareness of the power of science and technology.

Activities and programmes of public engagement have increased over the last two decades. This is clear from the first South African conference on the public understanding of science, held in December 1996 at the University of the Western Cape; the first science festival in 1997, then called the Sasol SciFest; parliament's designation of 1998 as the first Year of Science and Technology (YEAST); the first science week in March 2000, directed by the former Department of Arts, Culture, Science and Technology, which led to national science week from 2004 onwards. This was followed in 2006 by the implementation of a Youth into Science Strategy by the Department of Science and Technology.

Within this context it has become increasingly important to measure public awareness, knowledge and attitudes to different aspects of science. Over the years, a number of specialised science-related modules were introduced into the South African Social Attitudes Survey (SASAS) to understand the view of the public (Table 1).

Table 1: The science-related modules introduced to SASAS since 2004

Module	Years included	Focus of the investigation and reports
Environment	2004 2010	**2004:** State of the environment, pollution, genetic modification, governmental involvement, environmental responsibilities of individuals, environmental issues **2010:** Knowledge and the causes of and solutions to environmental problems, people vs environment, responsibility for protecting the environment, costs of environmental protection, personal role in environmental protection
Biotechnology	2004	Knowledge of biotechnology, genetic engineering, genetic modification, cloning, new technologies, uses of biotechnology, acceptance of biotechnology
Climate change/ global warming	2007	Knowledge and concern of climate change, causes and results of climate change, responsibility for prevention, government involvement
Indigenous knowledge	2009	Opinion of indigenous knowledge, government promotion of indigenous knowledge, roles in indigenous knowledge, sources of information
Nuclear energy/ technology	2011 2013	**2011 and 2013:** Concerns about and the knowledge, benefits, uses, risks, and role of nuclear energy in South Africa, the role of the government, sources of information
Energy	2011 2012 2013	**2011 and 2012:** Household energy sources, energy expenditure, energy needs, electricity quality and cost, ways to save energy, electricity provision **2013:** Electricity, expenditure on energy, energy needs
Public relationship with science (including astronomy and the Square Kilometre Array – SKA)	2010 2013	**2010:** Promise reservation index, sources of information, science knowledge **2013:** Knowledge of science and scientific research, promise reservation index, science at school and as a career, sources of information, interest in science and technology developments, science centres and museums, attitude to astronomy, knowledge of and attitudes about SKA

Source:

More than three-quarters said they knew very little about global warming or biotechnology.

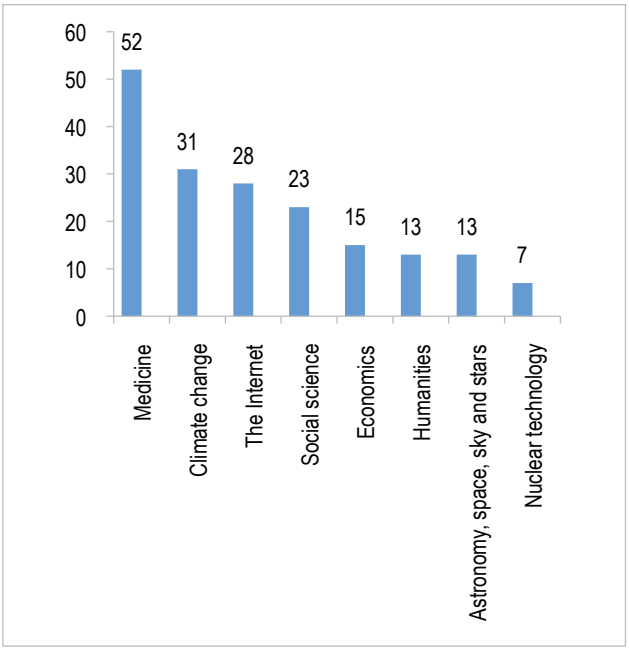
The public's general relationship with science was previously reported on in the HSRC Review (2013). While the government is committed to and invested in these scientific areas and the debate is largely driven by experts, it is important to elicit the views of members of the public, and ensure they are informed and participate in these debates.

In the 2013 SASAS, more than half the respondents indicated they were not informed about science and scientific research. For example, more than three-quarters said they knew very little or nothing about global warming or biotechnology. Biotechnology is the use of biological processes, organisms, or systems to manufacture products intended to improve the quality of human life in areas such as health, agriculture and industry. In 2001, the government published the National Biotechnology Strategy.

In the survey on nuclear energy, only 18% of respondents said they were knowledgeable about these issues. The government has a commitment to the future of nuclear energy in the country, and has stated that nuclear power is necessary and desirable (www.world-nuclear.org).

Figure 1 provides an indication of public interest in different aspects of science and technology.

Figure 1: Public interest in science and technology



Source: SASAS 2013

Only 8% felt they knew a great deal about the causes of environmental problems.

The environment was another topic about which there appeared to be a lack of knowledge. Only 8% single of participants surveyed felt they knew a great deal about the causes of environmental problems, and 7% felt they knew a great deal about the solutions to these problems.

Climate change is one environmental problem that has received increased media attention in recent years. The government recently published a White Paper on the National Climate Change Response. Consequently, more information on climate change should be communicated to the public. This will enable citizens to gain the necessary knowledge to participate in such discussions, and to understand how they may personally contribute to the protection of the environment.

70% wanted laws for businesses to protect the environment.

The role of the government was also highlighted in the SASAS responses: 70% of respondents indicated the government should put more money into renewable energy and energy-saving devices. Further, around three-quarters of the public advised government needed to spend money on campaigns to encourage people to use less energy.

Two-thirds of participants said the government should spend more on preserving, protecting and supporting indigenous knowledge, while three-quarters of the public indicated government should promote small businesses using indigenous knowledge and support communities and individuals involved in traditional practices (2009).

In 2010, 63% of the public responded that the government should pass laws to make ordinary people protect the environment, and 70% wanted laws for businesses to protect the environment.

41% of respondents thought 'modern science does more harm than good'.

A disquieting view gleaned from the SASAS was the public's concerns about the impact of science. In 2008, 41% of respondents thought 'modern science does more harm than good'. This increased to 49% in 2009. Three-quarters of the public felt that 'science makes our way of life change too fast' (2013).

As the country continues to invest in science, technology and innovation for economic and social development, it is equally important that the views of the public are also taken into consideration. ■

Authors: Sylvia Hannan, junior researcher, Education and Skills Development (ESD) programme, HSRC; Dr Vijay Reddy, executive director, ESD; Andrea Juan, junior researcher, ESD.