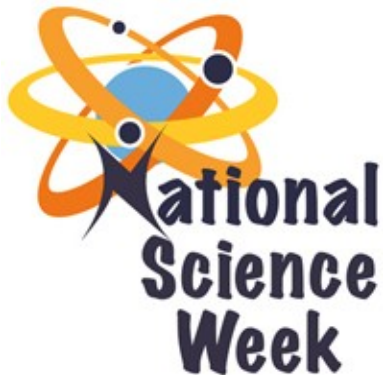




science and technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

National Science Week Project Brief
2005 - 2009



1. INTRODUCTION

1.1 Policy and Strategy Context

Education and training, and research and development are amongst the central elements of the National System of Innovation. The White Paper on Science and Technology (1996) recognises the importance of Public Understanding of Science, Engineering and Technology (hereafter referred to as science) in establishing a successful National System of Innovation and through which social and economic progress can be achieved in our country.

Major challenges facing our science system identified by the National Research and Development Strategy (2002) include inadequate renewal of the science and technology human resources and making it representative of the country's demographics.

Part of the Department of Science and Technology's integrated strategy in response to the above challenges involves broadening a pool of matriculants with passes in Mathematics and Science appropriate to enter for science-based degree studies, particularly Blacks and girl learners. An even more pressing challenge is persuading more of our youth to pursue careers in science, engineering and technology.

1.2 Description of the Event

National Science Week is an annual country-wide celebration of science, led by the Department of Science and Technology. Science-based activities involving various stakeholders and/or role players are conducted during the same week in all the nine provinces.

1.3 Project Objectives

The objectives of the National Science Week are:

- ⇒ to create awareness of the important role science plays in people's daily lives;
- ⇒ to encourage our youth to consider studying and improving their performance in mathematics and science;
- ⇒ to attract more of our youth into science, engineering and technology (SET) careers; and
- ⇒ to contribute towards initiatives to identify, and nurture youth talent and potential in maths, science, engineering and technology.

1.4 Principles Applicable to the Delivery of the Project

The following are basic guidelines to support and direct the planning and implementation of the National Science Week:

- ⇒ Provincial activities should take into consideration scientific areas where the province has geographic and knowledge advantage.
- ⇒ Supporting of learning of mathematics and other science disciplines should be integrated into the overall design of activities.
- ⇒ The programme should display a healthy balance of information, learning and fun.
- ⇒ Optimum use of existing infrastructure should be prioritised.
- ⇒ Application of resources should be cost effective and economically optimal within the stated strategic objective of the project.
- ⇒ Maximum economic spill-over should be generated to ensure optimum economic impact of the project, especially support of local youth service and unemployed science graduates.
- ⇒ The project should, where possible, be integrated with other science awareness initiatives in the country.
- ⇒ Overall design should integrate ongoing DST initiatives, e.g. PUB, SKA, etc.
- ⇒ Overall design should take into consideration communicating to the public achievements in the science system since the inception of the first democratic government.
- ⇒ The science week should offer the target audience an opportunity to learn more about the Department and science councils (including national facilities).
- ⇒ Branding of the project should promote and maintain good image of the Department.
- ⇒ Co-operative government, in particular the DoE - DST Collaboration Agreement, should be promoted.

2. DELIVERY STRATEGY

2.1 Target Audience

The objectives of the National Science Week will be achieved through activities targeting:

- ⇒ Learners;
- ⇒ Parents;
- ⇒ Educators;
- ⇒ Politicians or decision-makers; and
- ⇒ General public.

2.2 Theme

The National Science Week 2005 - 2009 will be celebrated under the theme ***"Tomorrow's Science & Technology are in our Youth's Hands"***

The theme is informed by the need to respond to the 'frozen demographics' by investing in our youth, especially the majority of whom are historically disadvantaged. This will be achieved by broadening the coverage of the National

Science Week, and manage the perception that science is foreign by encouraging access to locally developed science concepts and materials.

Since its inception in 2000, the major activity of the National Science Week has been exhibits assembled at a fixed venue. Some of the shortcomings inherent to this approach include:

- ⇒ provinces with less historical backlogs and higher socio-economic index such as Gauteng and Western Cape hosted good quality exhibits;
- ⇒ low coverage, since the fixed venue can only serve the audience in its vicinity, and those within a radius of 100 km who are able to travel to the venue;
- ⇒ high transport costs associated with the transportation of learners to the fixed venue; and
- ⇒ it remains difficult to determine a strategic position for the fixed venue.
- ⇒ Using one mode/agency of delivering the event

2.3 Thrusts

Two thrusts have been identified for the National Science Week 2005 to 2009. In recognition of the world-wide celebrations of the World Year of Physics – 2005, the 2005 edition of the National Science Week will include as its third thrust, the World Year of Physics. The following two thrusts will remain in force until 2009:

2.3.1 Scientific areas where provinces have knowledge and geographical advantage

Event organizers in each Province will identify scientific areas where their Province have geographic and knowledge advantages, and develop activities to achieve the objectives of the National Science Week.

2.3.2 Indigenous knowledge

The Minister of Science and Technology launched the Indigenous Knowledge Systems Policy in March 2005. This Policy provides a framework that will underpin the National Science Week.

Drawing linkage between indigenous practices which have been part of the indigenous people's lives and modern science will help increase the appreciation of science by communities. Certain science fields like biological diversity, which are governments' priority across the globe, stand to benefit from the inclusion of indigenous knowledge, since a significant component of indigenous practices utilizes genetic resources.

The recent success story involving the development of a mosquito 4odelling candle by the Council for Scientific and Industrial Research (CSIR), and the continuing scientific investigation of around 20,000 indigenous plants under its bio-prospecting programme bears testimony.

2.4 National Launch

The national launch of the event will be done by the Minister on a Thursday preceding the focus week. A rotational approach will be adhered to in selecting Provinces to host the national launch. Care will be taken not to repeat the launch in a province that has already hosted it.

2.5 Date of the Event

The National Science Week will be conducted during the second week May. This will always include two Saturdays in an effort to accommodate participation of parents and other community members who are not available during the week.

2.6 Delivery Approach

The National Science Week event will be conducted through of a collection of the activities outlined hereunder:

2.6.1 Open days

In terms of the implementation plan of the DoE-DST Collaboration Agreement, potential talent will be identified for nurturing. Learners identified for nurturing will participate in open days falling under two categories:

Higher Education Sector

Arrangements will be made with institutions of higher learning under this category to afford learners an opportunity to:

- ⇒ experience the use of apparatus and facilities that are not available at their schools (this could include performing selected curriculum-based science experiments); and
- ⇒ participate in SET career orientation sessions.

Industries and science councils

Where possible, industries and science councils will be requested to accommodate guided tours of their facilities by learners. Such visits will be structured in a manner allowing an interactive experience between learners and scientists.

2.6.2 Lectures and seminars

Interactive science lectures and seminars based on the thrusts of the event will be organized. Presenters will be identified from various sections of the science system. Lectures or seminars should be designed and conducted in an entertaining manner. Researchers who conducted their research through public funding will be encouraged to communicate their research to the people. Public awareness of major research

activities in which the government has committed funding should be visibly e.g. the Coelacanth, Antarctica and the recently launched centres of research excellence.

2.6.3 *Traditional games*

Logical thinking, mental prowess and concentration are key to mathematics and science learning. Games and products which promote these are available in the market, but inaccessible by ordinary people due to their high selling prices. As part of promoting the learning of mathematics and science through cultural inheritance, traditional games like *muravharavha* and *mufuvha*, which are easily accessible by will be organized for general public and learners.

2.6.4 *Media talks / Public discussions*

The nine South African Broadcasting Corporation's stations broadcasting in indigenous languages conducts science education programmes. Slots will be secured to:

- ⇒ Host scientists discussing topics of community interests.
- ⇒ Host listeners phone-in sessions, discussing topics of community interests (listeners unable to access phones will be afforded an opportunity to send letters to the participating station.
- ⇒ Science quizzes with sponsored prizes open to learners and/or general public.

2.6.5 *Learners' competitions*

Although smaller competitions contributing to the project objectives will be organized the following will be a major national competition:

Through invitation of proposals and a competitive process, ten higher education sector institutions will be selected to develop and run national competitions. Each selected institution will run its science competition where there will be five winners from disadvantaged communities. Each winner will be awarded R15, 000 towards first year study fees of a science-based degree at a participating institution. The competition will be structured in a way which maximizes the participation of Blacks and girl learners in designated SET careers.

2.6.6 *Role modelling*

Science-based professionals who could serve as role models will be organized to talk to learners (and parents where possible) to encourage learners to consider SET careers.

2.6.7 *Educators workshops*

Educators' workshops to enhance their science literacy and teaching of mathematics and science will be organized. This will be done in full collaboration with the Department of Education at both national and provincial levels.

2.6.8 Science exhibits

Interactive exhibits that are available at science centres and related institutions will be used to enhance quality of educational experience by the target audience. Existing science centres will be engaged to establish how they intend to participate in the National Science Week in their Provinces or assisting under-resourced provinces.

Exhibits from different stakeholders and/or role players will be put at strategic points to create awareness. For instance, a shopping centre could be an ideal place where a science council could set up its exhibition stall to interact with the public.

2.6.9 Publications

Publications in the form of booklets, brochures and posters will be distributed to schools and placed at strategic points like public libraries. Publications to be produced will fall into two categories: general science awareness, and science, engineering and technology career education. Disseminating similar information through partnerships with existing popular print media will be used where possible, e.g. the Teacher, the Educator Voice and the SAY (South African Youth Journal).

2.6.10 Outreach activities

Proposals will be invited from individuals or organizations intending to conduct outreach activities in disadvantaged and under-serviced areas. Grants will be made available to individuals or organizations with capacity. Science councils and the Higher Education Sector will be encouraged to participate in outreach activities. Small grants will be made available for this purpose.

2.6.11 Voluntary visits to schools by professionals

The Minister of Science and Technology will appeal to the nation (through media), requesting scientists, engineers and technologists to voluntarily go to schools during the National Science Week, and speak to the learners about their careers and/or give motivational talks. For instance, a civil engineer working on a road project could go to a local school and talk to the learners.

2.6.12 Synergizing of activities

Science activities by other stakeholders and/or role players coinciding with the event will be identified, and where possible synergized. Examples include science festivals and career exhibitions conducted by the SABC during the National Science Week.

2.6.13 Statements of support

As a way of raising the profile of the National Science Week, a call will be made to role players in various sectors of the economy to publish statements of support for the event in the media, expressing the importance of science to their activities.

2.6.14 Starting new science clubs

The National Science Week offers an ideal environment to share with communities the concept of community science clubs. Organizations already involved in science clubs will be assisted with resources to enable them to launch new clubs and/or celebrate National Science Week through their existing science clubs.

2.6.15 Science week fun run

Collaborating with relevant structures, short distances fun runs (approximately 5 – 10 km or less) will be organized culminating in a presentation and public The presentation and discussion will be focusing on the science of the human body (an interactive science exhibit in everyone's possession). The ideal date of the fun run is the first or last Saturday of the focus week.

2.6.16 Community tours of science facilities

Science facilities like Ithemba Labs will be requested to invite communities to visit and learn about their activities.

2.7 PARTNERS

The following constitute a list of DST's partners in conducting the National Science Week:

- ⇒ Provincial and Local Governments
- ⇒ National Departments
- ⇒ Science Councils
- ⇒ Higher Education Sector
- ⇒ Corporate Sector
- ⇒ Science NGOs
- ⇒ Educator Unions
- ⇒ Professional Associations
- ⇒ Science, Engineering and Technology Institutes
- ⇒ Traditional healers
- ⇒ Traditional leaders

2.8 PUBLICITY

Publicity of the event will be carried out in a manner consistent with government communication policies and led by the DST's Communication Sub-programme. A project communication strategy will be made available by the DST's Communication Sub-Programme in collaboration with the national project manager.

2.9 PROJECT MANAGEMENT

- 2.9.1 The South African Agency for Advancement of Science and Technology (SAASTA), a business unit of the National Research Foundation, will serve as a national project manager.
- 2.9.2 SAASTA will be required to establish a competent multidisciplinary project team led by a competent Project Manager with a sound science and project management background.
- 2.9.3 SAASTA's appointed Project Team Leader will provide team members with Terms of Reference outlining among others, responsibilities of each team member. The Terms of Reference should be made available to Project Team members during the first Project Team meeting.
- 2.9.4 The multidisciplinary project team must have team members with sound knowledge and expertise in the following areas:
 - ⇒ Science, mathematics and technology curriculum support;
 - ⇒ Science, engineering, mathematics and technology careers;
 - ⇒ Science awareness; and
 - ⇒ Communication.
- 2.9.5 In executing the project, SAASTA will be required to adhere to project milestones schedule jointly agreed to by DST and SAASTA.
- 2.9.6 Project communication between SAASTA and DST will be handled in the following way:
 - ⇒ *SAASTA will submit signed monthly reports to the DST. Monthly reports will be forwarded to the Science and Youth Manager and copied to the Deputy Director: Out of School Programmes, who serves DST's National Science Week Project Manager.*
 - ⇒ *SAASTA's Project Manager will keep DST abreast of all developments on the implementation of the National Science Week through DST's Project Manager by providing milestone-based progress reports.*
 - ⇒ DST's Project Manager will participate in advisory capacity in SAASTA appointed Project Team meetings.

3. EVALUATION OF EVENT

An independent evaluator will be appointed to evaluate the event according to the terms of reference to be provided to the national project managing organisation by the Department of Science and Technology or as agreed by DST and SAASTA.