

SCIENCE CENTRE

Report to Advisory Board on Activities November 2009 – November 2010

1. Staff:

- Prof JJA Smit – Manager, appointed for 2010
- Mrs Z Friesling – Assistant to Manager, appointed for 2010
- Mr A Masigo – NSTF/DST volunteer, appointed for from 1st January 2010 – 31st December 2011.
- Ms KR Marungwana. Appointed 1st January 2010, left for permanent employment 31st July 2010
- Ms RB Setlosa, Appointed 1st August 2010 – 31st December 2011. For specific tasks (e.g. Astro Quiz and National Science Week) alumnus volunteers and university staff were employed.

2. Conference attended:

Annual SAASTEC Conference 23 – 27 November 2009 at Sutherland by JJA Smit.

Smit made a presentation, displayed apparatus to illustrate how the Frontiers of Science and International hot topics can be demonstrated.

The solar telescope developed in cooperation with the Faculty of Engineering was for the duration of the Conference demonstrated by the three engineering students, Mr Le Riche Jordaan, Hannes Lourens and Pieter Labuschagne under supervision of Prof Jan de Kock.

The Small Scale chemistry and general sciences kits, developed by Prof CJ and Mrs HM du Toit was also demonstrated.

3. Presentations by JJA Smit

3.1 Sutherland Conference, 23 – 27 November 2009:

Relating simple experiments to hot topics.

3.2 Sters club, 14th November 2009. Tlokwe Town Hall:

Dark matter and Global heating (Apparatus relevant to the presentation were displayed).

The Solar telescope was also on active display at the Town Hall during the event.

4. Activities

The Science Centre focused its activities on community service.

4.1 STERS club.

Participation in cooperation with staff and members of the Club. The members of the Club and the Chairperson regularly visited the Science Centre during the year.

4.2 Shadowing programme 1 – 5 February 2010.

This programme was financed by SAASTA to the amount of R5 000. SAASTA selected five Science Centres in SA to host staff of other Science Centres to *shadow* the staff at the host centres in order to acquaint them with the day-to day running of a science centre. At the Potchefstroom Science Centre a full programme covering all activities and aspects of management of the centre was presented.

In cooperation with the Hermanus Science Centre an instrument to measure the effectiveness of every hands-on experiment in a science centre was developed during the week of interaction.

4.3 Astro Quiz.

This National Quiz on Astronomy is governed by SAASTA. In North-West province the Science Centre executed the quiz. Grade 7 learners from 36 schools in North West province were invited to participate in the Quiz. Schools were required to send a team of four learners to the Science Centre. Written materials compiled by SAASTA were distributed to schools. The Quiz consisted of five rounds. In the First round all 36 schools participated. Then the 50% top scoring teams went through to the next round. The fourth round was the final for North West province. Potchefstroom Central School was the winner and in the second position was Are Bokeng Primary School, Kanana near Orkney. Prizes were handed to each of the two winning schools at ceremonies at the schools. The National final round (Round 5) was scheduled for 29th October at the Observatory in CapeTown. JJA Smit led the team. Potchefstroom Central came 7th.

4.4 National Science week 2010.

This week is annually arranged by SAASTA. Due to the World Cup Soccer tournament the week was this year from 2 – 7 August.

The Science Centre organised this week in cooperation with MSTstaff and subject advisors of North-West Education Department. Thirty six schools from the Dr Kenneth Kaunda Educational District participated. A total of 3 271 visitors experienced the activities offered. The daily programme consisted of visits to the Science Centre, the Botanical Garden, Zoology museum, interactive Chemistry/Physics demonstrations, Career and Study Guidance. Presentations on Biodiversity and IKS were made to all groups.

The presenters were:

- Science Centre: Dr SD Rapule and Mr N Morabe
- Botanical Garden: Mr M Smit and Ms L Molebatsi
- Zoology museum and IKS: Mr A Hudson and Mrs L Hudson
- Chemistry demonstrations: Mr J Roscher
- Physics demonstrations: Prof J Smit
- Career and Study Guidance: Mrs K Foutie.

On Thursday 5 August presentations were made in the Alumni Hall by Academy of Science of South Africa (ASSAF) staff under Mr Takalani Rambau. These presentations were scheduled to be at the same venue, but succeeding the 1st year Faculty of Engineering students' display of projects they developed as part of their studies during the year. NSW10 visitors had the opportunity to visit the display of projects and to attend the ASSAF presentations. ASSAF offered lunch to all engineering students and participating staff on that day.

Mrs Z Friesling assisted the Manager of the Science Centre in the arrangements and overall management of the activities.

Mr A Masigo assisted with the special task to coordinate and supervise the marshalls.

Fourteen marshalls were appointed to guide the daily groups. Marshalls were selected from Hexagon Trust bursary holders.

The week was financed to the amount of R135 000 according to a contract with SAASTA. North-West Education Department promised to pay the expenses for transport of learners from their respective schools to the University campus and back. NWED also promised to pay for lunch and breakfast packs for every learner.

4.5 Hydrogen fuel:

SAASTA donated electricity generating hydrogen fuel plant to the Science Centre. This plant was installed in the Potchefstroom Science Centre and Mr A Masigo was trained on the use of it at Sci-Bono Discovery Centre, Johannesburg on 15th March 2010.

On 11th October 2010 J Smit attended an information session at Pretoria on a SAASTA driven awareness programme on hydrogen as fuel for the future. The Science Centre will apply for financial assistance to be able to participate in this programme.

4.6 Programmatic Support.

SAASTA/DST annually offers Science Centre to apply for Programmatic Support. For 2010 the Science Centre's application to develop new apparatus to the amount of R111 000 was successful.

4.7 Projects to develop other Science Centres.

Historic

In 2008-9 Apparatus manufactured on campus by *Instrumentmastery* in Faculty of Engineering were installed at

- Four Science Centres, financed by departments of Education and TRANSNET in the *Sharp Minds programme*. The four Centres are at Matubathuba (KZN), Moretele (North West), Puthiditjaba (Qwa-Qwa, Free State) and Sekhukune (Limpopo).
- Mondi Science Centre at Piet Retief, Mphumalanga
- Olwazini Science Centre, Golden Horse Casino, Pietermaritzburg, KZN. Locally manufactured apparatus were supplied by *Instrumentmastery* to The Lesotho National Science Centre at Maseru.
- The SASOL sciences centres at Sasolburg (Boitjorisong) and Secunda (Ozisweni)

In year of report 2010

Assistance in the development of three more centres were given by the Manager of the Potchefstroom Science Centre

- At Witbank, Mpumalanga, the new science centre financed by Anglo Coal, MTN and ESKOM in cooperation with Mpumalanga Education Department was equipped with apparatus manufactured locally. The layout of the centre was supervised, apparatus installed and staff attended workshops on the use and maintenance of the apparatus.
- A Science Centre on the Mafikeng campus NWU was developed. In a contract with NWU a feasibility study was conducted, alterations for the conversion of the old cafeteria to a science centre were planned and supervised and apparatus for 60 experiments were constructed, installed and staff of the Faculty of Natural Sciences, Mafikeng campus attended workshops on the utilization of the centre. An NSTF/DST volunteer, Mr Tshepiso Molaba assisted in the developments and launch for the brief period 15 July – 31 August 2010. The Centre was launched by Honourable Minister Naledi Pandor, Science and Technology on 30 August 2010. An alumnus volunteer (2008-9) from Potchefstroom Science Centre Ms Lerato Molebatsi manages the Centre till 31 December 2010. The post of a permanent Manager is advertised. The development of the Centre was made possible by contributions to the amount of R500 000 by SAASTA/DST for the apparatus and NWU provided the building, alterations to it, running costs and other expenses.
- Apparatus to the amount of R400 000 for a Science Centre for Northern Cape was developed by *Instrumentmastery*. As soon as a suitable venue is found by Northern Cape the apparatus will be delivered, installed and staff will be required to attend workshops. The development of the apparatus was made possible by financial assistance from SAASTA/DST.
- University of Limpopo: The Manager of Potchefstroom Science Centre advised the Manager of the Science Centre at University of Limpopo on the development of a new science centre on the campus. It is expected that this Centre would add locally manufactured apparatus to their existing apparatus. The new centre is expected to become operational by the middle of 2011.
- University of Venda Science Centre: *Instrumentmastery* manufactured apparatus for this Science Centre too. The new apparatus would add to the apparatus manufactured at Potchefstroom already in use.
- Transnet in cooperation with the education departments of KZN and Western Cape provided funds to equip the Science Centres at Durban-South and Vredenburg with small scale chemistry and physics sets. The chemistry sets were developed and manufactured by two staff members, Faculty of Natural Sciences (Prof CJ and Mrs HM du Toit). The physics sets were supplied by the commercial firm EDUTRADE. Workshops on the use of these sets were arranged by the Manager of the Potchefstroom Science Centre.

Remarks: the apparatus developed at the Potchefstroom Science Centre are in demand due to its user friendliness, durability and clear, concise INSTRUCTIONS and EXPLANATIONS in layman's language provided at every experiment.

4.8 The Science Centre was used for BEd Hons on Friday afternoons and Sediba classes during schools holidays. University staff also utilized the facilities after hours on week days and on Saturdays for extra mathematics and physical sciences classes to high school learners.

5 ACTIVITIES IN LECTURE ROOM

Activities	Statistics
Sediba – Science & Maths	705 Teachers
Dr S Froneman- WVNS 211 classes	88 Students
Trudie Benade- Gimmies Learners	145 learners
Marie Du Toit + Carel Meyer	337 students
DWAF workshop / M Motoboli	20 students
Alta Du Toit Science week- Different schools	30 learners
Jaco Mentz – Astronomy Discussion	33 teachers
Career Exhibition 2010 (KPMG & Price Water Coopers House)	45 students
Pieter Van Zyl (Postgraduate Chemistry)	70 students
Eleanor De Koker (SANERI Research)	27 students
Dr M Lemmer PHSD Students	294 students
Dr M Lemmer (SANPAD Project)	10 representatives
Dr S Rapule & N Morabe – 2nd year Honnorsstudents	24 students
Astro Quiz Teachers Workshop	41 teachers
Astro Quiz Round 1, 2 & Semi final	240 learners + 63 teachers
National Science Week 2010	1998 learners

VISITORS TO SCIENCE CENTRE DAILY FROM 7TH NOVEMBER 2009 – 30TH OCTOBER 2010

Total = **10300** – which include all of the above activities plus the following:

1. The 1st May 2010 was open day on the campus. The Science Centre was open for that Saturday, from 9h00- 16h15 and we had **787 visitors**.
2. Number of schools that visited – **108**: learners **3581**
3. International visitors.

We had visitors from different countries as far as France, Sweden, Columbus, Chicago and Germany.

Dr Lars Hillstrom and Prof Goran Norstrom (from Sweden) visited North West University, Potchefstroom campus for October month. We also had great pleasure from Ms L Grobler from School of Electrical, electronic and computer engineering visiting the science centre with four French lecturers and one U.K consultant. Three Ugandese governmental officials visited the Science Centre during the Science Week.

PLANNING for 2011

The Science Centre will continue to render community service as in 2010. This would involve service to develop other centres in SA and neighbouring countries on request. It will continue with its present staff as in 2010.

SAASTA /DST enters a new cycle of activities in 2011 and as in the past five years full cooperation would be given to assist in executing the new activities. In the programmatic support programmes of DST/SAASTA existing programmes will be completed and application for new support would be made.

Special attention would be given to the Science Centre at Mafikeng campus, NWU. The Manager to be appointed would be supported.

The expectation is that the programme of the Potchefstroom Science Centre would continue as in 2010.