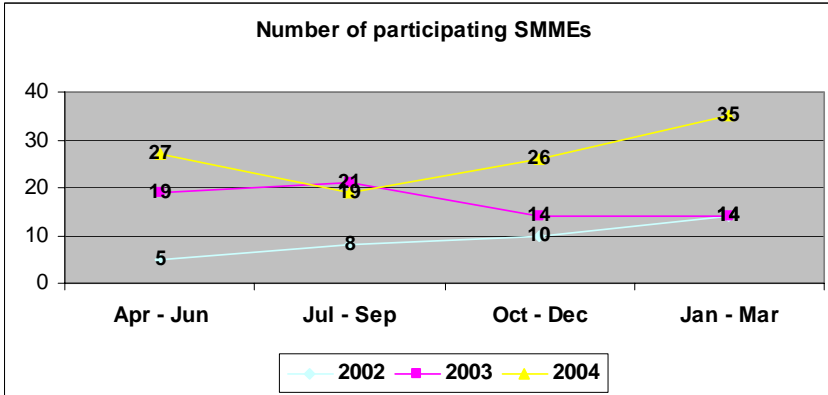
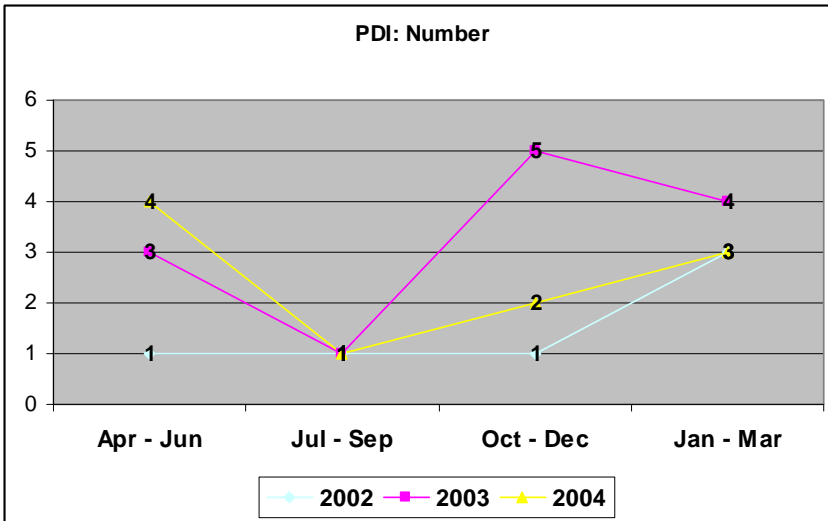


WEB STATISTICS

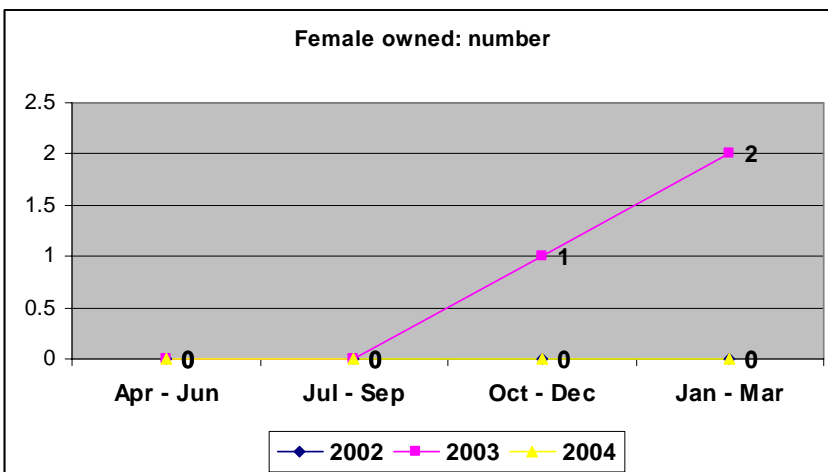
1. SMMEs ASSISTED



2. PDI: NUMBER



3. FEMALE OWNED: PERCENTAGE & NUMBER



4. MAJOR PROJECTS: VALUE, NUMBER & DETAILS

4.1 Re A O Leboga CC for Montsamaisa-Bosigo Tow Bar Value: R50 000.00, TSP contribution: R22 000.00



L-R: Danie Hattingh (ACTS), Gerson Phosa and Sophia Tumelo (Re A O Leboga cc), Ian Wedderburn (ACTS)

The Montsamaisa-Bosigo Tow Bar is a solid-connection towing rod manufactured from steel tubing. The Tow Bar is collapsible allowing for easier storage being approximately 1120mm long in its 'storage/closed' condition. In its 'towing/open' condition it is 1910mm long. The Tow Bar has a weight of approximately 9 kilograms.

The Shackle Strap is used to attach the Tow Bar to the towing and towed vehicles. The Strap is removed from the Tow Bar and inserted through the vehicles towing attachment ring. It is then reattached to the Tow Bar by means of the bolts or clevis pins. Two bolts/clevis pins must be used per strap at all times.

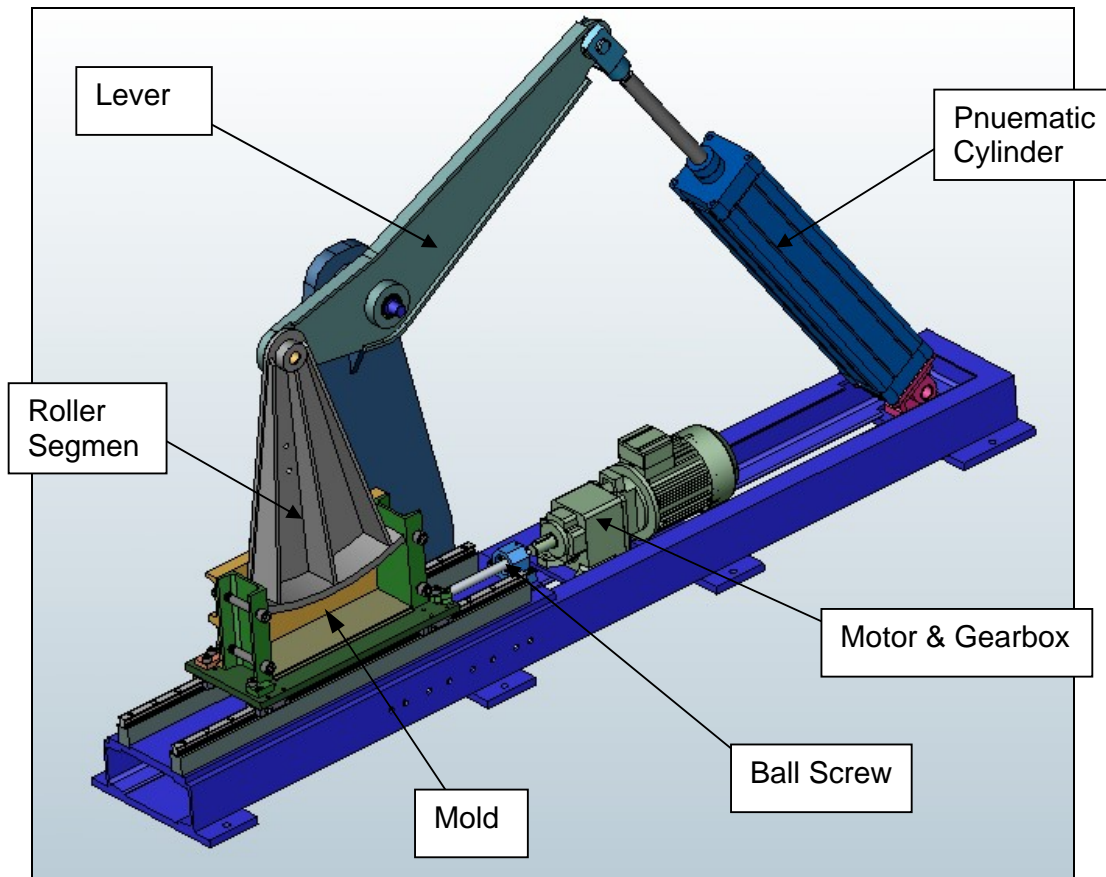
The Shackle strap can also be set in two positions for towing, named the 'short' and 'long' positions. If possible the 'short' position should be used as this position limits the amount of movement possible between the end of the Tow Bar and the vehicle towing attachment point.

The figure below shows how the shackle strap should be located when the Tow Bar is in its storage condition. Note that this position should not be used for towing as only one bolt / clevis pin will be taking the load.

On certain vehicles the towing point is orientated in such a manner that the Shackle Strap is required to be in a vertical position while on other vehicles it must be in a horizontal position. The Outer tubes of the Tow Bar can be rotated through 90° by means of selecting the desired holes on the inner section of the Outer Tube. These are shown encircled below and must be used to adjust the Shackle Strap from a vertical to horizontal position or vice versa.

4.2 Laboratory Roller Compactor

Value: R165 000.00, TSP contribution: R90 000.00



Project Description:

ACTS was requested to design and manufacture a machine to simulate a full-size road roller compactor. This machine is to be used in a testing laboratory for research purposes. There are currently machines available, manufactured in England, but these are excessively expensive, being in the region of R250 000-00.

The figure above shows the layout of the machine. A roller segment compacts the soil sample in the mold by a down force. This force is supplied from a pneumatic cylinder through a lever, creating mechanical advantage. The mold is moved backwards and forwards on a carriage below the roller segment. This movement is driven by an electric motor through and gearbox coupled to a ball screw. The ball screw being attached to the carriage. This creates the rolling action of the roller thereby simulating the road rollers compacting action.

This design is significantly cheaper than the imported version, approximately a third of the price.

4.3 Projection Welder

Total: R154 207. TSP contribution: R65 000.00)

ACTS did the design and development of a projection welder for an SMME's which will install the final product on the assembly line of a local car manufacturer. An extensive report on the developed product can be seen in the section "Highlights" of this report. The project assisted in the localization of parts for the vehicle export program which should result in providing more job opportunities for the local economy.

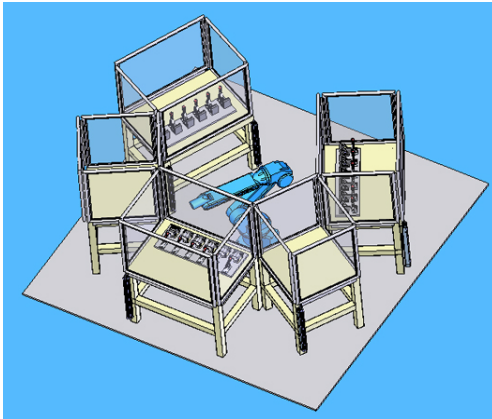
If a two machines approached were to be followed the cost would have outweigh the benefit. Welding two parts on one machine is not standard practice, thus with this unique solution the manufacturer of the projection welder gained an advantage over his competitors. The client of the SMME assisted now also has the opportunity to increase the productivity related to this part.

This project assisted the SMME to demonstrate there ability to solve and overcome complicated problems. The only problem area identified are that if a too large difference in press parts, form batch to batch, are experienced the welding fixture may have to be adjusted from batch to batch.

This however could be overcome by introducing strict process and material control measures to ensure good quality press parts.

4.4 Yenza Robot Welding Platform

Total: R470 000.00. TSP contribution: R216 970.00



ACTS is assisting with the design, development and installation of a robotic welding cell for the welding of pressed brackets for the automotive sector. ACTS will also assist with the design and development of fixtures to handle a variety of components.

The manual welding of components is preventing Yenza Manufacturing from expanding their current business due to the bottlenecking of production at these points. A number of clients have also indicated that they will no longer accept manual welded parts as it presents a higher risk to the quality performance as compared to automated welding systems. The new system will increase Yenza Manufacturing's production rate, improve quality and allow them to retain current market share with the scope of expanding in the near future.

Currently Yenza Manufacturing cannot use their available press capacity to its full potential due to their inability to weld the press components faster. Robotic welding is the only acceptable automated welding technology available for welding high volume complex parts.

On completion this will allow Yenza Manufacturing to:

- keep current business with OEM's;
- increase production rates, allowing them to press a large variety of parts; and
- expand their client base.

As this is a project in which a current system is redeveloped and automated parallel to an existing system the risk involved are relatively low. However there is pressure due to the possible cancellation of a contract if the system is not operational within six to eight weeks.

The design and development of the robot platform will be done simultaneously with the development of the fixtures. Staff training will be completed prior to completion of the automated cell. The market is an existing one and the potential for new work has been confirmed by Yenza Manufacturing.

4.5 Rubber moulds

Total: R141 700.00. TSP contribution: R121 700.00



Alf Siyona, MD, East Cape Superabrasives

ACTS in conjunction with TDDC (Tool Design and Development Centre) in East London are designing the tooling and moulds for the production of rubber components for the automotive industry as requested by the client. At this stage it was decided to focus on one of the components that hold the best potential for the SMME. The development of a rubber compound is also receiving attention.

The impacts of the project once completed are:

- Assist the company to expand its current services and product line.
- Grow BEE involvement in the automotive component sector.
- Current components are imported – therefore successful completion will grow local content usage with possible export to follows.
- Once full production is started it will increase turnover and create a number of production related jobs.

Product quality requirements for these types of components are extremely high and ways will have to be identified to assist the SMME entry into the existing markets. This could result in an extended development phase for the automotive products. It however is envisage that once the necessary technology platform and process skills has been developed the client need to enter the market with a different product (e.g. tap seals) before becoming a supplier to the automotive industry.

5. MAJOR EQUIPMENT BOUGHT: VALUE, NUMBER AND DETAILS

5.1 Dyno cell development:

•	Miscellaneous	R 2 633.00
•	Gasket set for heat exchanger	R 2 743.00
•	Paddle type flow switch	R 1 133.00
•	Valve Actuator	R 2 730.00
•	500 VA Transformer 220/110V	R 440.00
•	1,5 kVA Transformer 220/110V	R 1 095.00
•	Fitment of throttle controller	R24 578.00
•	Ventilation system	<u>R22 389.00</u>
		R57 741.00

5.2 XRD Equipment:

Total: R2 400 000.00
TSP contribution: R200 000.00

5.3 Thermo Jet Solid Object Printer:

R629 867.00

5.4 Servo Hydraulic Fatigue Machine:

Total: R1 300 000.00
TSP contribution: R600 000.00

5.5 Scanning Electron Microscope:

Total: R1 200 000.00
TSP contribution: R401 714.00

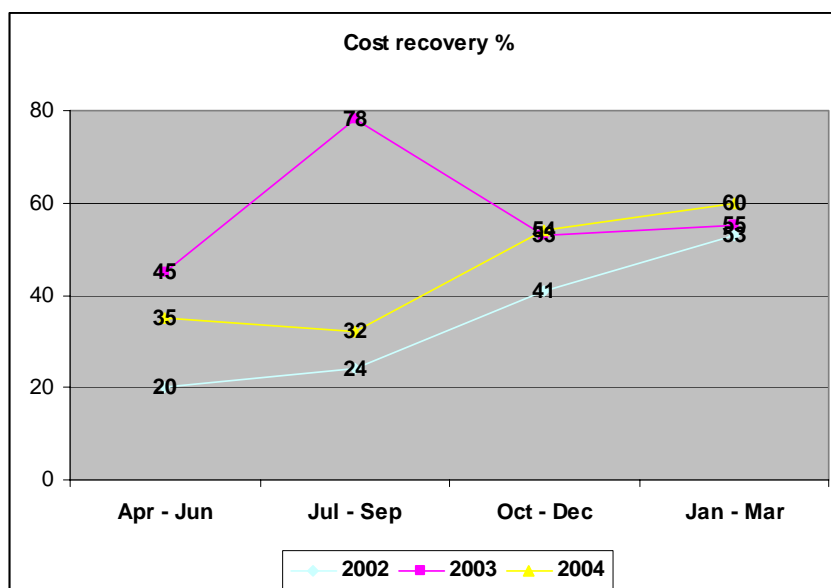
5.6 Optical Stereo Microscope:

Total: R191 000.00
TSP contribution: R18 000.00

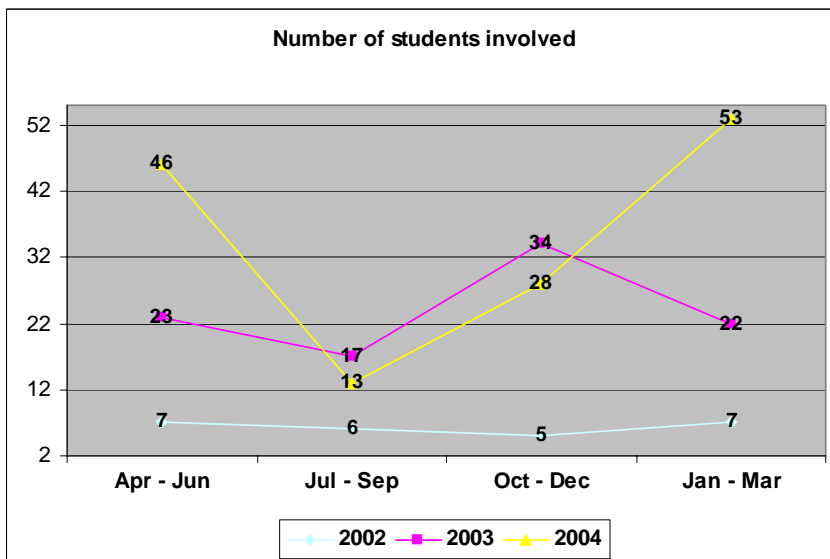
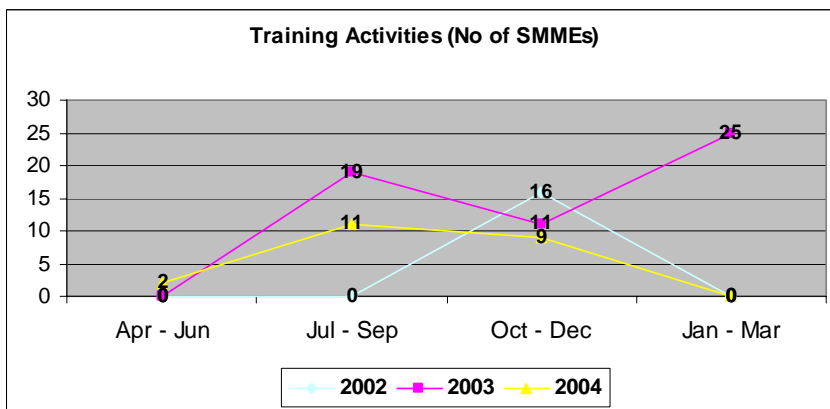
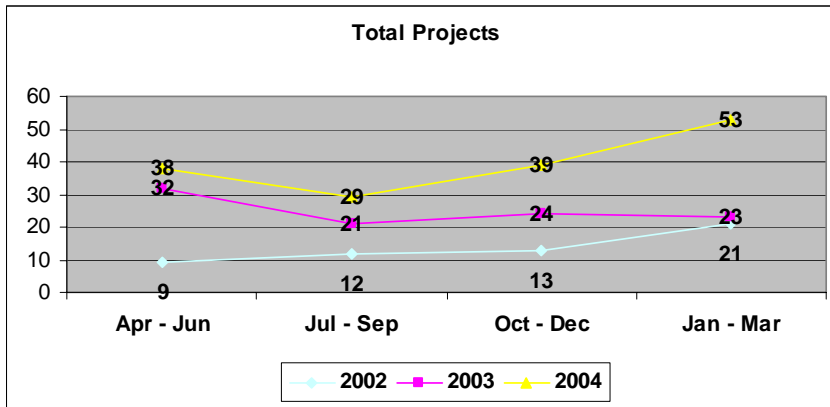
5.7 3D Measuring Equipment:

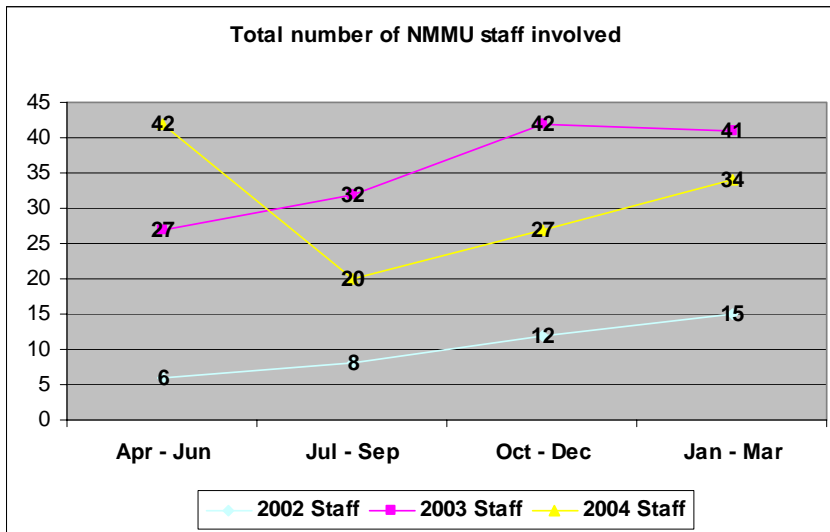
Total: R655 134.00
TSP contribution: R600 000.00

6. COST RECOVERY PERCENTAGE



7. ANY RELATED INFORMATION/STATISTICS THAT WOULD BE OF INTEREST TO THE PUBLIC AND POTENTIAL CLIENTS





VW LASER CELL WORTH MORE THAN R5M DONATED TO NMMU



Volkswagen staff together with Mervin Knoesen, Prof Danie Hattingh, Dr Annelize Els-Botes and Karl du Preez of the Faculty of Engineering.



NMMU Vice-Chancellor Dr Rolf Stumpf and VWSA CEO Andreas Tostmann

NMMU's engagement and collaboration with industry was again illustrated with the launch of the Volkswagen laser cell worth more than R5 million at the University's AMTL Robotics and Mechatronics Laboratory on 18 November 2005. According to **Prof Danie Hattingh**, Technology Manager at the Automotive Components Technology Station (ACTS), the sponsorship of a 2kW Nd:YAG laser by VWSA to The Institute for Advanced Manufacturing and Engineering Research (IAMER) at NMMU will enable researchers to explore further the application of laser in the manufacturing and materials fields as well as providing an educational component to the Engineering Faculty.

The equipment will further enable NMMU to focus on supporting and strengthening the Automotive Industry in the Eastern Cape through research and development, facilitating the transfer of technology and the development of relevant scarce skills. The laser cell is a unit consisting of a 2kW Nd:YAG (Neodymium:Yttrium-Aluminium-Garnet) laser and a robot onto which the laser beam is connected via a fibre optic cable.