

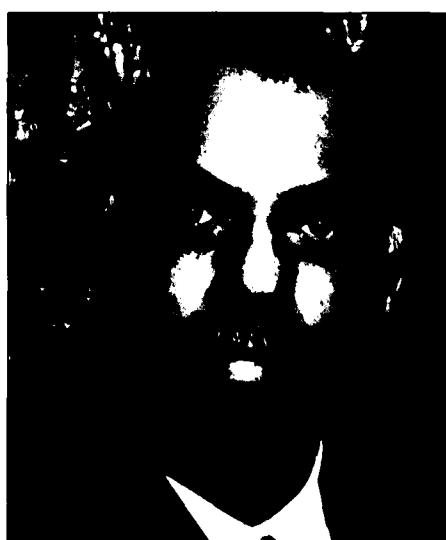
## CSIR realigns with core purpose grounded in science

*With the celebration of its 60 years of existence in 2005, the Council for Scientific and Industrial Research (CSIR) is refocusing its core activities to adhere to its founding purpose that is grounded in science and technology.*

**T**he reconfiguration of the CSIR will increase its overall research content and strengthen the research base. According to CSIR president and CEO, Dr Sibusiso Sibisi, the aim is a large-scale renewal to ensure that the CSIR remains relevant in the ongoing development of the country's economy and society. He sees a fundamental change in the CSIR's priorities, with increasing emphasis on transforming human capital and performing relevant knowledge-generating research to fulfil the organisation's mandate more effectively.

The CSIR's staff complement in March 2005 was 2 379, with researchers making up 60,3%, and 45,8% of the CSIR's total staff members being black people. Women researchers make up 32% of the CSIR's science base. Sibisi states in the president's overview in the annual report that the CSIR aims to increase the proportion of staff with postgraduate qualifications from the present level of 22,5% to more than 28% over the following three years.

The CSIR's total operating revenue for the year under review amounted to R1 004,2 million, which is 5,7% higher than in 2003/4. It received R366,3 million through the Parliamentary Grant, an increase of 13,4% that is largely due to the incorporation of the National Laser Centre into the CSIR. The organisation's year-on-year growth since 2001 is 12,4%, with the most significant year-on-year growth (17,2%) in the public sector.



Vishnu Pillay of the CSIR

In addition to building relevant alliances with institutions and agencies abroad and on the African continent, the CSIR has been working with the Department of Trade and Industry (the dti) locally to set up a structure for venture capital in support of technology transfer. This long-term initiative is still in its early stages and according to Jardine in the chairperson's review in the CSIR annual report, "the challenge now is to find promising technologies with all the right ingredients (such as an experienced team of entrepreneurs) to take the technology to market, or companies that will adopt the technologies. The primary source of technologies will be science councils and higher education institutions."

Some research and development highlights listed in the CSIR annual report include the following:

#### **Bioscience**

- Edible, biodegradable coating for export fruit to extend shelf-life;
- A biotechnology-based process to extract natural carotenoids from algae (carotenoids = natural compounds responsible for colour of plants, eg ripe tomatoes and carrots);
- The production of pharmaceutical proteins in plants;
- Nanotechnology to develop a DNA-based delivery system for insulin gene therapy.

#### **Environmental science**

- A landmark study on the capacity of southern African ecosystems to deliver services;
- The conservation of river biodiversity;
- Treating acid mine water drainage;
- The development of synthetic forests of the future through nanotechnology.

#### **Information, communications and space technology**

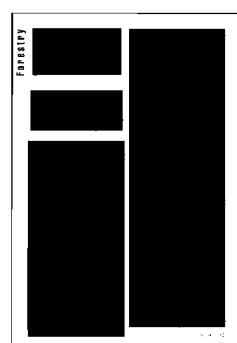
- The launch of the Meraka Institute, the African advanced institute for information and communications technology (ICT);
- Participation in the Community Owned Information Network (COIN) to remove technology barriers regarding wireless access infrastructure;
- Satellite imagery and data for decision-making and research;
- ICT supporting independent living for persons with disabilities, including advanced research in human language technologies.

#### **Infrastructure technology**

- Architectural engineering for more effective healthcare facilities;
- The first survey to measure intrinsic logistics cost for the South African economy;
- Intelligent transport systems for the promotion of technology applications;
- The study of the energy performance and efficiency of buildings.

#### **Manufacturing and materials technology**

- Implementation of the national Advanced Manufacturing Technology Strategy;
- Advances in integrated electronic sensor technologies offer advantages to the manufacturing and defence sectors;
- Nanotechnology applications in manufacturing and the use of nanometrology techniques in support of nanoscience;
- Research on new or alternative energy technologies, eg hydrogen economy and related fuel cells, dye-sensitised solar cells and clean coal technologies.



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**Mining technology**

- Protecting the health and safety of mine workers;
- Optimising the safe extraction of minerals;
- Mine hoist rope testing facility ensures better mine safety;
- Sustainable development through studies and strategies to determine the environmental compliance and performance of South Africa's mining industry.

**Peace, safety and security**

- A cyber security science centre to fight cyber crime and cyber terrorism through research and human resource development;
- Development of a modular armoured vehicle for an upgraded, protected vehicle to transfer money safely;
- Design of a trailer for use on land with a quad motorcycle to make life significantly easier for defence operations in Africa;
- The improvement of helicopter safety through a mission planning tool for safe navigation beyond hostile radar detection. □