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The CSIR Annual Report 2000



Our Vision - To be the best in technology, leadership and partnering, and - through our people - fight poverty, build global competitiveness and make an enduring difference in people's lives.

Our Mission - As a uniquely South African organisation, the CSIR is committed to innovation. We exist to support sustainable development and economic growth in the context of national priorities and global challenges. We create value for our clients, partners and stakeholders by providing technology solutions and information, establishing ventures and licensing intellectual property.

Our values - CSIR people • have a passion for Excellence • live Service, striving to anticipate, meet and exceed the needs of our clients and stakeholders • recognise that it is People who make things happen - and work towards others' growth and development • strive always for Relevance - finding solutions to real needs, making a difference - national priorities are our priorities • are committed to Innovation - our lifeblood: from idea generation through to practical implementation •...always with unshakeable integrity

ESPRIT - The spirit of the CSIR

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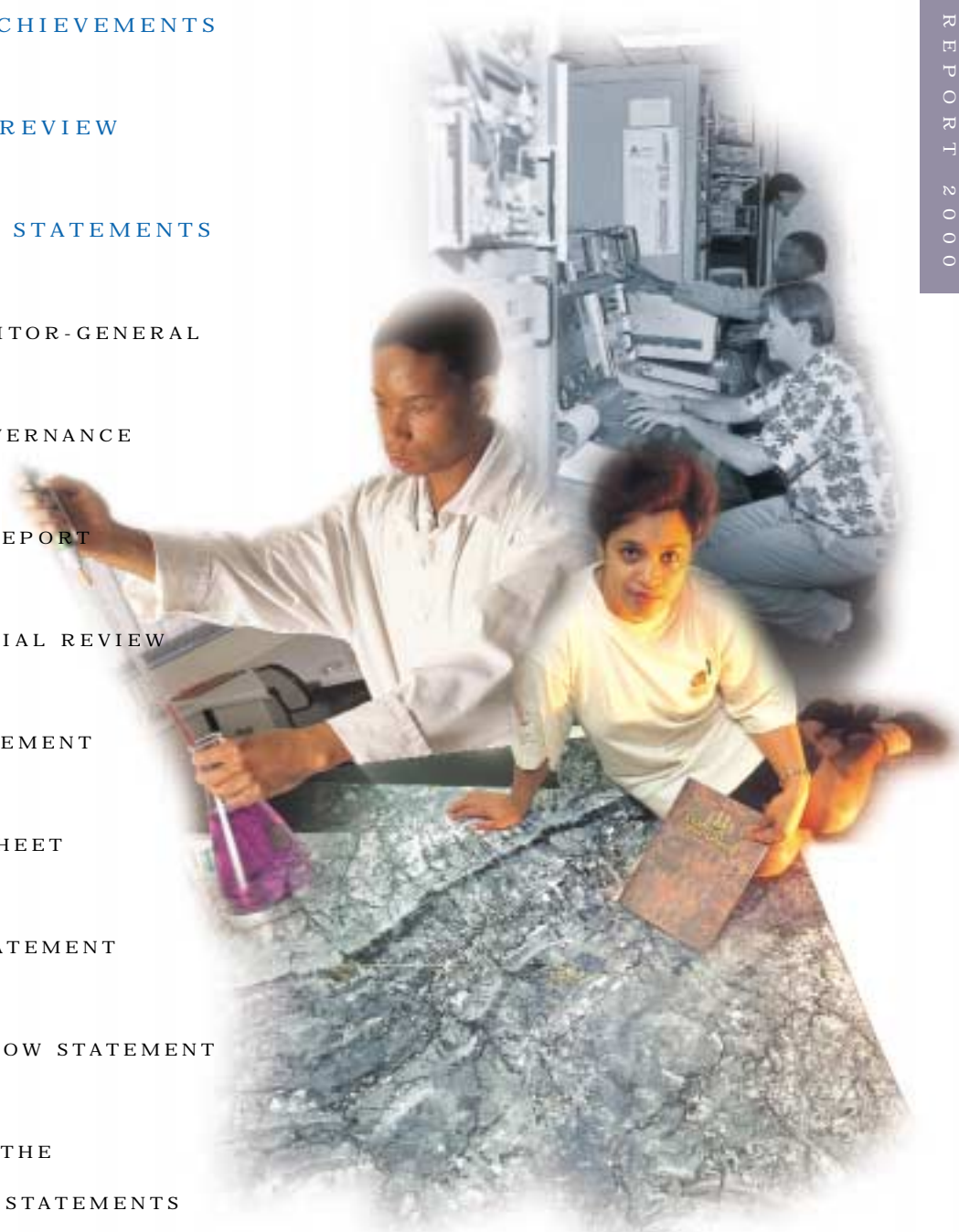
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Highlights and achievements



Our contribution

The CSIR's efforts in putting science and technology to work for a better society, while serving the needs of the industrial and commercial communities, were recognised at the highest level. The 1999 National Science & Technology Forum (NSTF) Award for the most outstanding contribution to science, engineering and technology by a corporate organisation, was awarded to the CSIR. The NSTF is an independent body, representing the vast majority of scientific, engineering and technological stakeholders in South Africa and acts as a sounding board for government on matters of policy.



"In the turbulent white water of globalisation, deregulation, ever escalating competition and the amazing pace of technological development in the new information economy, it is a case of 'partner or perish' if we are to maximise our impact out of the science and technology domain. In addition to rapidly and continuously changing the way we look and feel, we must change the way we do things to really optimise our contribution to making South Africa the global winner it can be." *Dr Geoff Garrett*

Our diverse technological achievements during the year under review, and their impact on competitiveness, sustainable development and an improved quality of life, are profiled in *Technology Impact*, the companion document to this Annual Report. In this report we highlight some achievements which, we believe, demonstrate the diversity of our activities and our commitment to delivering technology solutions.

Our aim is to be globally competitive and locally relevant to leverage delivery through the Presidential Imperatives programme in support of Government, and to make a positive and meaningful difference to the quality of life of all South Africans.

Corporate Governance acknowledged

The CSIR celebrated two achievements: as overall winner of the Corporate Governance Award for 1999, as well as the winner in the best Medium-Sized Organisation Category. This is a prestigious national award which recognises

achievement in governance practices among private and public sector organisations in South Africa. The

adjudication panel commented: "The

award was made to the CSIR for endeavouring to link the value they add to stakeholders and their organisational successes to their governance processes. Furthermore, the CSIR has made huge strides in a relatively short period of time relating to employment equity and worker participation, while stakeholder communication elevated them above the other participants."

Some technical highlights

The achievements that we highlight here, and those portrayed in *Technology Impact*, show how we have supported the key pillars of the Government's Science and Technology Policy and demonstrate our progress in delivering technology and innovation to make a real difference.

Safer chemical processing, helping to transform the minibus taxi industry and fire-safe design of buildings

- A CSIR-developed world-class gas/liquid technology is providing safer chemical processing in the manufacture of high value-added chemicals and thereby offering the speciality and fine chemicals industry a cost-effective alternative to the limited number of technologies available.
- The CSIR has played a key role in the ongoing transformation of the minibus taxi industry through participating in the National Taxi Task Team. The aim of this team is to create a safe, reliable and efficient passenger transport system in South Africa by establishing taxi co-operatives, industry regulation and control, formalised taxi governance structures, and the train-

ing and capacity building of drivers, operators and other stakeholders.

- The CSIR's Draft Firecode is making its contribution to the "fire safe" design of buildings by providing a means of establishing acceptable levels of fire safety, economically, without imposing unnecessary constraints on other aspects of the building design.

Analysing aerodynamics, helping to drive employment and transferring rock engineering knowledge

- Epsilon Engineering Services and the CSIR are jointly involved in a project to develop, manage and market a specialised computer program to analyse the aerodynamics of stores carried on aircraft and predicting the path they will follow when released.



Some technical highlights (continued)

- *Naledi ya Afrika*, a new company in which the CSIR has a minority shareholding, is helping to drive employment in urban and rural communities by facilitating mass access to training and education through utilising relevant communications technologies.
- A CSIR publication on rock engineering knowledge for tabular hard rock mines provides state-of-the-art knowledge on how to reduce or prevent rock-related accidents on mines, the major cause of fatalities in this industry.

Providing more accurate foetal monitoring, helping to curb pedestrian casualties and making mines safer

- A joint CSIR/Medical Research Council project, funded by DACST, has resulted in a low-cost, stand-alone measurement device for monitoring the blood flow in the umbilical cord to ascertain normal foetal development. Successful development of this diagnostic equipment will allow foetal monitoring to be carried out widely in primary healthcare facilities.
- The CSIR has developed Pedestrian Management Plans for provinces that include casualty databases and the identification of hazardous locations, to help curb pedestrian casualties, which cost South Africa an estimated R2,55 billion annually.
- Research by the CSIR into non-explosive rockbreaking for the major platinum mining groups is focused on developing mechanised mining methods to improve productivity and safety.

Bringing rural schools “on-line”, providing a unique service to the indigenous handcraft sector and increasing biotechnology capacity

- Rural schools in Manguzi, KwaZulu-Natal, are being brought on-line with a completely wireless Internet connection, by using a combination of satellite and wireless radio technologies. The project was voted winner in the “Equal Access” category of the prestigious international Stockholm IT Innovation Competition for 1999/2000.
- A unique CSIR-facilitated service is helping the indigenous handcraft sector with project and technical skills training, product design and establishing and optimising production facilities. Key role players include DACST, regional government, funding organisations and tertiary education institutes.

- A biotechnology project, jointly undertaken by the CSIR and Rhodes University, is strengthening the bio-catalysis capacity in South Africa which is critical for the production of many food additives and chiral pharmaceuticals.

Developing sustainable settlements, investigating links between crime and drug abuse, and guiding structural design for students

- In collaboration with the Department of Housing and endorsed by nine Government departments, the CSIR's newly published “Red Book”, which sets out guidelines for the planning and design of human settlements, is assisting professionals and policy makers to create sustainable and vibrant human settlements in South Africa.
- The first phase of an investigation into the link between drug abuse and crime, a CSIR-coordinated groundbreaking study in South Africa, has identified a high level of drug use among arrestees at police stations.
- A new book on the theory and design of steel structures to the South African Code SABS 0162 has been published by the CSIR in a joint effort between researchers, academics, consulting engineers and contractors. The book is a guide to structural and civil engineering students at Technikon and Universities.

Simulator technology to train pilots, satellite imagery helps in natural disasters and new instrument scans rockfaces

- The CSIR's radar environment simulator technology is being used to evaluate countermeasures that protect aircraft from radar weapons systems and to train pilots in anti-missile countermeasures.
- The value of satellite information for factual decision-making during natural disasters was highlighted when the Satellite Applications Centre provided satellite imagery during two Southern African natural disasters, namely the Cape fires and the floods in Mozambique and the Northern Province.
- The Reef Detector, a low-cost, hand-held instrument, has been developed by the CSIR to scan the rock face and delineate the gold bearing reef in real time.

Rendering satellite tracking services, fighting crime through crime pattern analysis and commercialising breathable fabric

- The CSIR's Satellite Applications Centre has experienced significant business growth, almost doubling its external income in the past year. This growth stems from its activities in the international satellite operations business - rendering tracking, telemetry and command services; ground segment establishment for international clients and geo-information applications.
- The CSIR's Crime Pattern Analysis technology is being routinely applied for the first time in an extensive anti-hijacking initiative. Smart GIS technology was deployed to track and help convict gang members of an infamous Cape Town gang responsible for a spate of murders in 1995.
- The CSIR has successfully transferred and commercialised its breathable laminated technology to BreatheTex. The technology can be used, *inter alia*, in the manufacture of protective outerwear and garments for healthcare workers, providing protection against virus transfer.

Supporting national sports teams, reporting on environmental impacts and striving for environmentally sustainable manufacturing

- Key successes in the CSIR's sports technology initiative have been the development and application of advanced game analysis systems. These have been gainfully used by South African national teams in a number of sports codes.

- The Zambian Government accepted the environmental impact report that the CSIR completed for the proposed hotel and resort development at the Eastern Cataract of the Victoria Falls in Zambia. Since this development is in an area that is part of a declared World Heritage Site, a detailed environmental management programme was also drawn up for this development.
- The CSIR's competence in life-cycle assessment is helping the manufacturing industry to measure and express the environmental performance of its products and process services.



Collaboration and some new initiatives

World-class partnering

- The CSIR and the University of Pretoria joined forces in creating a strategic alliance that will help enhance South Africa's international competitiveness and boost sustainable development in the region through significantly increased collaboration between the two organisations.
- A partnership between the Gauteng Provincial Government and the CSIR/UP Alliance forms the foundation of the Innovation Hub, a powerful lever for economic growth in Gauteng. The Hub will build on and encourage partnerships in research and innovation and enhance South Africa's international S&T competitiveness.
- A co-operation agreement was signed with the UK's Defence Evaluation and Research Agency (DERA) aimed at contributing substantially to programme risk reduction on the recently announced major defence acquisition packages.

Firsts for the CSIR and South Africa

- A medicinal plant extraction facility for the production of complex botanical mixtures for use in human clinical trials, the first of its kind in the world, has been established at the CSIR.
- The CSIR's Information and Communications Technology business unit became a member of the World Wide Web Consortium in 1999, the first WWWC member from the African continent.
- A Radon Calibration Facility, now available at the National Metrology Laboratory (NML), is the first to provide South African mining and other industries with a reliable, internationally equivalent radon calibration service and also support future research activities in radon measurement.
- The National Product Development Centre has been established at the CSIR to act as a single contact point for design and manufacturing businesses and to help them in distinguishing their products in the global market place through excellent cultural, industrial and engineering designs.
- The CSIR has become the only FORE certified training

facility in Africa. FORE is a global supplier of advanced networking solutions and widely recognised as the company that commercialised ATM technology.

- The CSIR's dust explosion vessel, the only apparatus of its kind in Africa, is also the first to have been granted an international calibration certificate. The device is used to determine the explosibility parameters of industrial, agricultural, pharmaceutical and metal powders.
- The Automotive Industry Development Centre (AIDC), a critical industry-driven initiative, has been established to provide accessible and affordable world-class technical and project-focused resources to the local and international automotive industry. The CSIR has coordinated this initiative, which is supported by DTI, DACST, the Gauteng Provincial Government, the Greater Pretoria Metropolitan Council, the Bavarian State Government, the Fraunhofer Institute of Germany, local automotive and component manufacturers, and the University of Pretoria.
- An MSc in Water Resources is being offered by the University of Pretoria and the CSIR as part of the UP/CSIR strategic alliance in water research. The course develops skills at a postgraduate level to benefit both students not yet employed, as well as professional researchers employed by organisations such as Eskom, Sasol and the various water boards.
- A first-of-its-kind National State of the Environment Report, and various City State of the Environment Reports, have been produced by the CSIR and will be available on the Internet, in hard copy and on CD-ROM.
- A joint CSIR Daimler/Chrysler initiative is assisting in the development of a local sisal industry capable of producing auto-grade sisal fibre for the production of automotive components. The first successful application will be used in the new Mercedes C class right-hand drive vehicles that are being manufactured in South Africa.
- A National Laser Centre (NLC), facilitated by DACST, has been established combining CSIR and NECSA expertise to increase the use of laser technology by SA industry.

“We acknowledge the crucial role of our people in building an organisation based on our values of excellence, service, people, relevance, innovation and integrity. Whatever the challenge, the people of the CSIR are making a difference, making their vision of a better tomorrow come alive.”

The following represents a small selection of some of the more than 7 000 contracts undertaken by the CSIR during the year under review:

- Undertook work for USAID to help strengthen African food processing and develop entrepreneurial networks.
- Undertook an Environmental Impact Assessment for the oil and gas exploration industry in Angola.
- Developed a set of urban indicators to monitor the extent to which urban policies affect the quality of life in urban areas.
- Supported the SZ-1S mission for the Chinese government which involved the launch into space and re-entry of an unmanned spacecraft.
- Provided specialist technical assistance to the Craft Planet project for the Royal Bafokeng Nation, involving the expansion and optimisation of their product range and production systems, and providing technical training and assistance with the marketing of their products.
- Completed the first phase of a hardware-in-the-loop simulator facility to evaluate the robustness of operational radar systems against electronic attacks.
- Contracted to manage Coaltech 2020, a major collaborative research effort between the State, labour, industry and research organisations, to provide the technology to extend the useful life of the Witbank Highveld coalfield.
- Developed a manual for crime prevention to assist local authorities, through environmental design, to combat crime at a local level.
- Monitored performance under traffic of recycled pavement materials treated with foamed bitumen.
- Assisted the Mauritian Small and Medium Industries Development Organisation (SMIDO) in structuring and improving its Technology Services Centre and providing production support to local SMEs.
- Developed a laser system for marking automotive components.
- Analysed ground water samples to monitor the extent of contamination in ground water on a site used as a chemical complex.
- Investigated the spate of bus accidents in South Africa to establish probable causes and recommend actions to minimise future occurrences.
- Developed a long-distance day/night surveillance system for the Defence Force.



Celebrating performance excellence

CSIR Outstanding Achievers

Talent, innovation and commitment to excellence characterise the people within the CSIR. Our outstanding achievers - individuals and teams - are once again acknowledged for their invaluable contributions to establishing the CSIR as a world-class enterprise and their continued quest to deliver high-quality, value-added products to our clients and stakeholders.

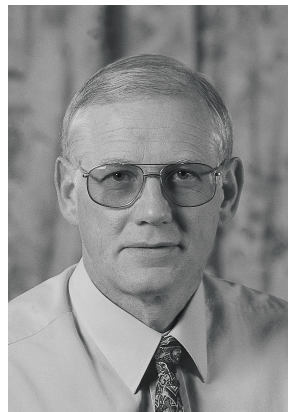
- Renier Balt brought exceptional dedication to managing the Satellite Applications Centre, motivating and empowering those who help to launch the SAC's projects and plans into the stratosphere.
- Tsietsi Maleho, in his second role as CEO of the National Year 2000 Decision Support Centre, met the daunting challenge of getting a poorly motivated organisation back on track and clearing away regional and national stumbling blocks to lead the way in a mission-critical countdown to zero hour, Y2K.
- Dr Dirk Bezuidenhout transformed the Electro-Optics group into a world-class centre of excellence, motivating a small yet highly skilled team to reach new heights of technical and business expertise.
- Nthabiseng Matsobane is dedicated to the twin duties of developing business opportunities and empowering women. She went beyond the call of duty to formulate strategies, manage stakeholder relations, foster partnerships in the public and private sectors, and - most important - keep the customer satisfied.
- Maria Joe Coetzee made Integrated Development Planning her own special mission. She provided in-depth training for councillors and officials in local and provincial government and devised, co-ordinated, and brought to life a manual to assist local authorities to plan best for a brighter future for all.



Renier Balt



Tsietsi Maleho



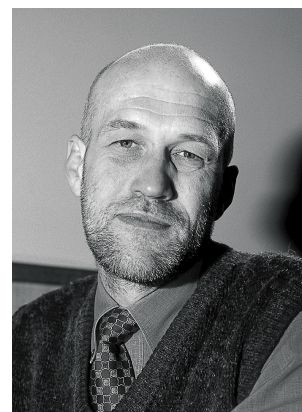
Dr Dirk Bezuidenhout



Nthabiseng Matsobane



Maria Joe Coetzee



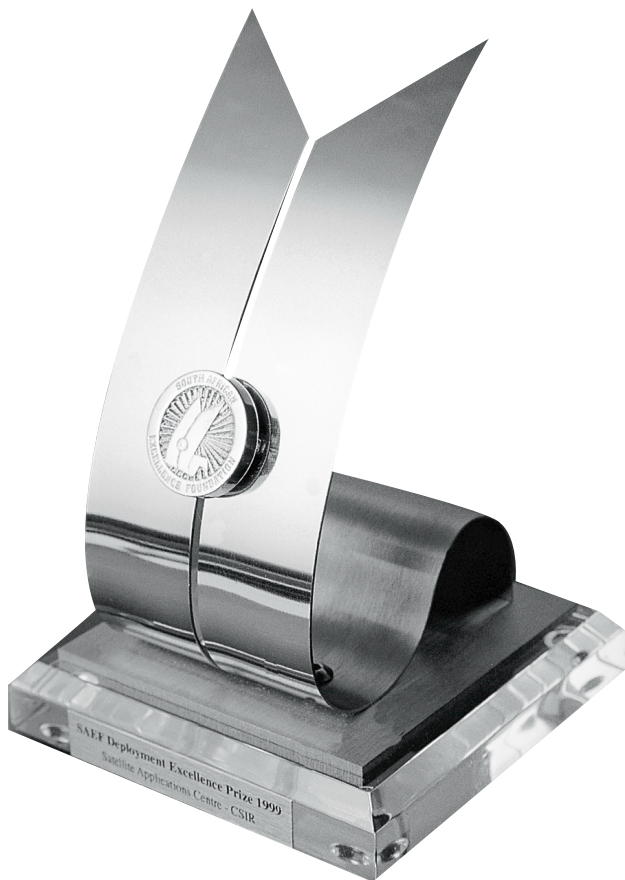
Dr Ray Durrheim

- Dr Ray Durrheim led the establishment and successful completion of the first year of the DEEPMINE Research Programme, thereby laying a solid foundation for addressing the technical issues of mining at a depth of 5 000 metres.

- Ltr: Ezra Jele, Mathew Chetty, Marlene Koper, Richard Gordge, Susan Smith, Elizabeth Law, Barend Taute, Kaya Mpepo, Pieter Coetzee, Graham Wright (Project Manager), Steven Meyer (absent) and Peter D'Abreton (absent) helped South Africa on its way to seeking the sporting goal of a lifetime by providing vital input to and assistance for the 2006 Football World Cup Bid.
- Ltr: Thys du Plooy, Hendrik Theron, Francois le Roux, Jean-Jacques Juame, Pierre Barlow, JP Delpont, Michelle Petersen, Erlank Pienaar, Jan Roodt, Pieter Botha, Francois Collin and Francois Lessing (absent) earned international recognition in assisting and advising the South African forces on the most effective ways of combating the threat of guided anti-aircraft missiles during peace operations in territories beyond our borders.
- Ltr: Dave Harcourt, Busi Dube, Queen Kgabo, Thabang Jase and Tshidi Masemola applied innovative systems and solutions to the challenges of food processing across the African continent, by working at grassroots level with disadvantaged communities, and by helping to set up successful pilot business models and micro-enterprises.
- Ltr: Steyn du Plessis, Johan Hattingh, Annatjie Orsmond and Amie Hunter compiled the award-winning submission for the highly sought-after Corporate Governance award. The submission reflected the strength of the CSIR's people, its vision and its business.
- Ltr: Rodney Milford, Ron Watermeyer (Soderlund and Schutte), Gustav Coetzee, Sihle Dlungwana, Caswell Mtombeni (Public Works), PD Rwelamila, Nick Davis, Sam Amod (DEC Consultants), Spencer Hoddgson (Public Works), Marcolene Roach, Mark Kelly and Andrew Merrifield (absent), in partnership with industry, helped provide a viable framework for growth, transformation and development in the South African construction industry.



Some of the recognition received for our achievements



- The CSIR's Satellite Applications Centre was awarded the 1999 SAEF (SA Excellence Foundation) Award (level 2) (pictured above) for its culture of quality and business excellence.
- Marten Grundlingh and Louise Watt received the William T Pecora Award, jointly sponsored by the US Department of the Interior and the National Aeronautics and Space Administration (NASA), for outstanding contributions to the understanding of the earth by means of remote sensing.
- The National Association for Clean Air (NACA) Management Award was presented to Dr Petro Terblanche for her outstanding contribution to the cause of clean air in South Africa, and her leading role in creating awareness of air-pollution exposure in urban communities through research leadership and publications.
- Johan Hattingh won the Institute of Internal Auditors of SA's "Best Contribution to the Internal Auditing Profession" Award for 1999.

- Calie Adlem received the coveted S2A3 Bronze Medal for his work on treating waste water through an innovative and inexpensive process.
- Antony Cooper and Peter Schmitz won first prize for the "Most Innovative Use of Mapping" at the First International Crime Mapping Competition for their map "Breaking Alibi's through Cellphone Mapping".
- Andrew Merrifield won the 1999 Murray & Roberts Award for his leading role in initiating and setting the direction for the Construction Industry Performance Improvement initiative.

Recognition for our expertise

- Dr Pedro Monteiro has been appointed to the Scientific Steering Committee of the AfriBasins component of the LOICZ (Land-Ocean Interactions in the Coastal Zone) Programme. This programme is part of IGBP (International Geosphere and Biosphere Programme), formed by the International Council of Scientific Unions.
- Dr Geoff Meese has been appointed an Expert Evaluator by the European Commission's (EC) DG XII for the Fifth Framework Programme.
- Dr Peter Ashton has been elected Vice-President of the International Association of Hydrological Sciences International Commission of Water Quality.
- Dr Eugenia Barros was invited to represent South Africa at an international conference on the scientific and health aspects of genetically modified food.
- Anna Balance managed and coordinated the National State of the Environment Report, which has been rated as outstanding, on behalf of the Department of Environmental Affairs and Tourism.
- Reinie Meyer has been elected President of the Geological Society of South Africa.
- Dr Adi Paterson has been elected President of the Associated Scientific and Technical Societies of South Africa.
- CSIR Fellow and one of the SAC's longest serving employees, Willem Botha, was awarded the MT Steyn Medal for achievement in Natural Sciences and

Technology by the South African Academy for Science and Arts. The award was made in recognition of his life-long contribution to space matters, in which he has been involved since the first Sputnik launch.

- Bongani Memela has been acknowledged by both President Thabo Mbeki and DACST Minister Dr Ben Ngubane for his leading role in the application of technology foresight methodologies in the South African context.
- Dr Güner Gürtunca has been made Vice-President of the International Society of Rock Mechanics (ISRM).
- Dr Nielen van der Merwe has been elected the first president of the newly constituted South African National Institute of Rock Engineers (SANIRE).
- Gerrie Mostert was chosen by the Canadian International Development Research Centre to serve on a review panel of Chilean S&T institutions specifically focusing on the role of the Centre for Mining and Metallurgical Research in the national context.

Honour for Past and Present CSIR Presidents

- Sir Basil Schonland (1896 - 1972), founder and first President of the CSIR, was named the *Financial Mail's* South African Scientist of the Century.
- Current CSIR CEO and President, Dr Geoff Garrett, received the Engineer of the Year Award and was elected an Honorary Fellow of the South African Society for Professional Engineers.

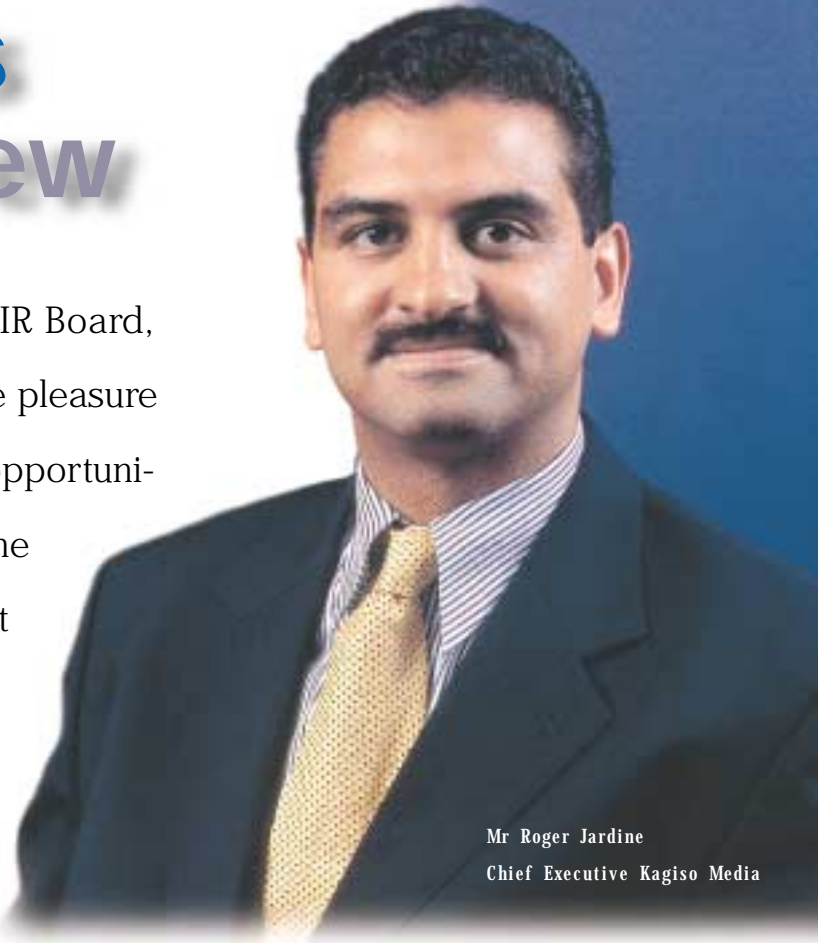


Sir Basil Schonland



Chairman's Review

As the new Chairman of the CSIR Board, this, my first review that I have the pleasure of presenting, provides an ideal opportunity for a new perspective of how the organisation is positioned to meet the challenges of a future which, in the South African context, is characterised by a complex mixture of conflicting demands.



Mr Roger Jardine
Chief Executive Kagiso Media

As highlighted in the recent Foresight Study undertaken by the Department of Arts, Culture, Science and Technology, we South Africans are a people focused on the here and now, as we face the challenge of transforming a society with huge disparities, into a nation at peace with itself and able to compete in the global market place. We live in a world where globalisation is a dominant force in world economics and, for South Africa, wealth creation and quality of life within this country rely on our ability to maintain a careful watch on globalisation and new technologies.

While South Africa has, in its short history as a democracy, made significant strides in laying the basis for an improved and sustainable quality of life, there can be no argument that we still have a considerable way to go. The figures speak for themselves: some 40 per cent of all South Africans live in poverty, and 75 per cent of these live in rural areas where they are deprived of access to health services. The housing backlog for the country, as a whole, is close to 3 million dwelling units, and among people aged 20 years or older, more than four million South Africans have never had any education.

Key to national economic prosperity

The role of the CSIR must be viewed against such a background as technological development and innovation has, and always will be, the key to national economic prosperity, to an improved quality of life and to wealth creation. While our survival in the short term depends on the ability to embrace current technologies, the important role of creativity, know-how, imagination and innovation must not be forgotten. The strong link between economic prosperity, competitiveness and innovation is very clear - the challenge now is to develop mechanisms to improve the capacity of South Africans to innovate, and to create innovative industries.

This is a challenge that is made even more urgent by the need to optimise our limited resources. In a knowledge economy such as ours, highly skilled people have become a key resource critical to success, and many studies have highlighted both the need for integration of resources and the need to increase the production of scientists, engineers and technologists competent in the emergent technologies.



Dr Bill Venter
Executive Chairman
Allied Electronics
Corporation Limited
(Altron Group of
Companies) and
previous Chairman



Mr Les Boyd
Deputy Chairman
Anglo American Corporation
of South Africa Ltd



Mr Khaya Ngqula
Chief Executive Officer
Industrial Development
Corporation of
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Mr Khomotso Phihlela
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Ms Lyndall Shope-Mafole
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Studies Programme,
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the Built Environment, UCT



Dr Dhiro Gihwala
Director: School of Science,
Peninsula Technikon



Ms Anne Letsebe
Deputy Director-General
Office of the President and
Head of the Cabinet Office



Mr Eugène van As
Executive Chairman
Sappi Limited



Mr Kymus Ginwala
Founder and former
President: Northern
Research and Energy
Corporation, Boston, USA



Ms Joan Joffe
Group Executive for
Corporate Affairs
Vodacom



Dr Zavareh Rustonjee
Special Advisor to the
Minister
Department of Trade
and Industry



Ms Nobusi Shikwane
Chief Executive Officer
Datavia, Transnet Group



Dr Nthoana Tau-Mzamane
Deputy Director-General:
Science and Technology
Department of Arts,
Culture, Science and
Technology

Chairman's Review continued

Building partnerships

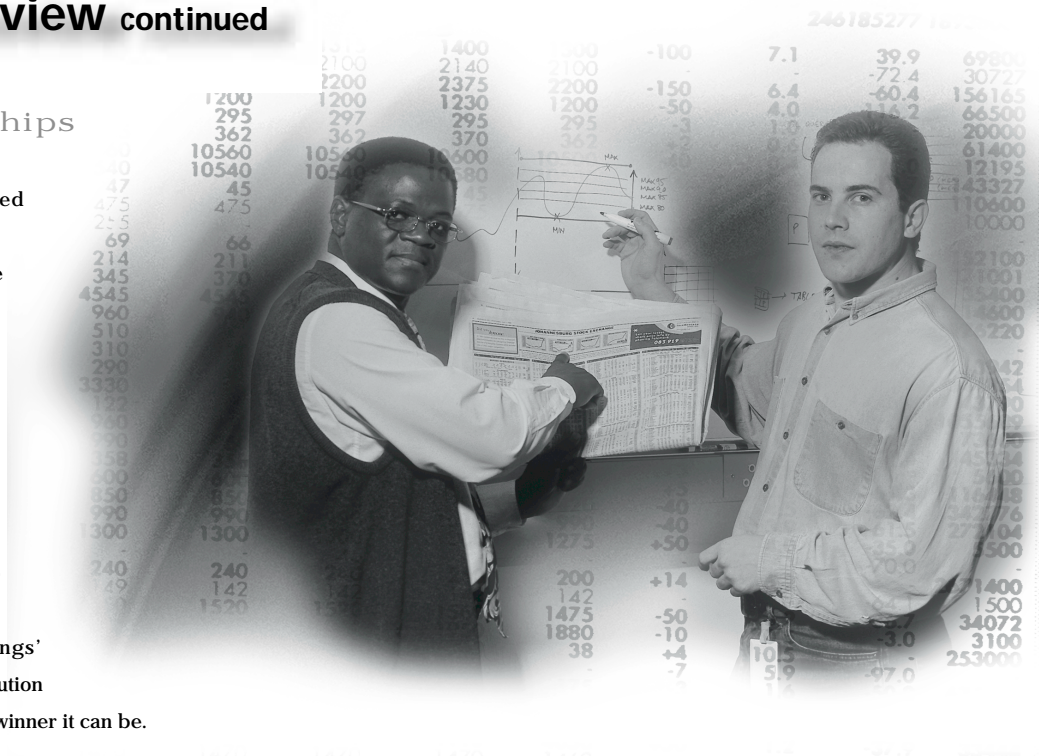
Continuously escalating global competition, as well as increased competition for funds and for skilled people, means therefore that it is critical to build alliances to maximise the impact of science and technology in the economic and social domain. As clearly articulated by CSIR President, Dr Geoff Garrett, in addition to rapid and ongoing change to the way we look and feel, we must change the 'way we do things' in order to optimise our contribution to making South Africa the global winner it can be.

This need to build alliances, and to pool our resources and skills to attain global competitiveness, is the approach being adopted in the establishment of the Gauteng Innovation Hub. It is to the credit of the CSIR that it has shown itself to be fully cognizant of the need to maintain a critical mass to enable South Africa to compete globally in science and technology. It has, over the past year, actively pursued a 'Team South Africa' and 'porous boundaries' approach, seeking to build and reinforce the many collaborative and consortium arrangements it has with other institutions in the country.

In this context, a highly important development has been the challenge taken on by the CSIR and the University of Pretoria to build a world-class partnership with a significant educational, research and technology transfer infrastructure. In considering strategic alternatives to enhance collaboration between the two organisations, it has been fully recognised that the value chain, or 'pipeline' of people development, knowledge generation, business activities and venturing, associated with knowledge-intensive institutions, is becoming increasingly important, and creates entirely new approaches to the institutions themselves.

Maintaining an acceptable balance

Just as South Africa faces the conflicting demands of satisfying short-term local needs which are informed by a



strong social agenda and ensuring wealth creation in the long term through international competitiveness, the CSIR itself is seeking to strike a balance between its critical role in contributing to the development and upliftment of all communities within South Africa, and the need to be a self-sustaining contract research organisation. Without a doubt this is one of the key challenges facing the CSIR in the future, as it seeks to grow its external income in a market-driven, financially sustainable way, while also positioning itself as a relevant and effective contributor to the national pursuit of sustainable development. Achieving business growth through focused business development, locally, regionally and internationally, is a strategic priority for the CSIR. The past few years have been devoted to ongoing repositioning as an externally focused contract research organisation that is truly responsive and delivers technologically based products, services and information relevant to the needs of clients and stakeholders. Looking within the CSIR, the organisation must be commended for how an outputs-driven approach, with rigorous performance monitoring, drives its operating culture.

Globalisation

This business imperative is a significant force in driving the CSIR's globalisation initiatives. Organisations, particularly knowledge-intensive organisations such as the CSIR, are increasingly being ranked according to their ability to

participate effectively in global markets. Besides seeking to build world-class partnerships within South Africa, the CSIR is therefore also seeking strategic international partnerships, and over the past year has established joint ventures in countries with strong potential markets for our technological offerings.

National priorities

Back home, however, it is heartening to see the extent to which the CSIR's business goals also reflect the key policy and development imperatives that have been highlighted by President Thabo Mbeki where organisations such as the Science Councils must play a role in making a positive and meaningful difference to the quality of life of all South Africans. These imperatives, which were reinforced in the outputs of many of the sectors reviewed in the Foresight Study, are crime prevention, job creation, rural development, urban renewal, regional integration, national human resources development and HIV/AIDS.

Besides the work being done independently by the CSIR for some years now, the organisation has actively responded to the call to Science Councils to pool their resources. The CSIR has been tasked to co-ordinate the crime prevention imperative, and has also been involved in and launched a number of initiatives in the areas of sustainable development (as described in *Technology Impact*, the companion document to this Annual Report).

Our people

While much of this review has been outward-looking in terms of how the CSIR contributes to the growth of our country, the people inside the CSIR must be profiled. It is only with their knowledge, skills, professionalism and dedication that the CSIR can continue to fulfil its commitment to the realisation of our nation's goals and priorities. In this knowledge economy it is not physical assets that make an organisation great, but the intellectual capital that resides within the organisation. Recent international reviews have confirmed the CSIR's standing as a world-class enterprise and in the past year the organisation was once again the recipient of highly prestigious local awards - winning the 1999 Corporate Governance Award and the National Science and Technology Forum Award which was presented this year for the most outstanding

contribution to science, engineering and technology by a corporate organisation.

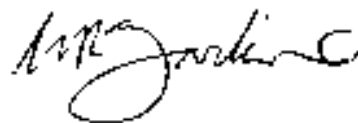
Once again we highlight and congratulate the exceptional achievers in the CSIR in this Annual Report, but we must also highlight the depth of talent, innovative capability and enthusiasm which I have seen displayed throughout the organisation in my short tenure as Chairman.

The progress made by the CSIR in terms of achieving transformation with excellence must also be noted as the organisation strives to improve individual and organisational performance. This is done through continuously enriching our staff's technical competence, ability to work with others and leadership skills, and at the same time enhancing demographic representivity, particularly at the professional staff level.

In closing I would like to thank Dr Bill Venter for his invaluable contribution and unfailing loyalty to the CSIR during his tenure as Chairman of the Board and 16 years of service as a member of the CSIR Board. The vision, wealth of experience and knowledge that he brought to the CSIR certainly helped steer the organisation steadily towards the achievement of its objectives, through highly turbulent times. We also gratefully acknowledge his fellow retiring Board members for their special contributions and for their ongoing support and co-operation.

We are also immensely grateful for the loyal support of our valued clients, partners and suppliers and for the continuing interest in our activities by our stakeholders.

Finally, I would like to welcome my new Board members and thank them for their support in these early months of my tenure as Chairman. Having witnessed the wealth of talent and loyalty that resides within the CSIR, I am honoured to be part of such a team.



Mr Roger Jardine
Chairman

Report by the Auditor-General

TO PARLIAMENT ON THE GROUP FINANCIAL STATEMENTS OF THE CSIR FOR THE YEAR ENDED 31 MARCH 2000

1. AUDIT ASSIGNMENT

The group financial statements as set out on pages 17 to 55, for the year ended 31 March 2000, have been audited in terms of Section 188 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), read with Sections 3 and 5 of the Auditor-General Act, 1995 (Act No. 12 of 1995) and Section 14 (1) of the Scientific Research Council Act, 1988 (Act No. 46 of 1988). These financial statements, the maintenance of effective control measures and compliance with relevant laws and regulations, are the responsibility of the President of the CSIR. My responsibility is to express an opinion on these financial statements and the compliance with relevant laws and regulations, applicable to financial matters, based on the audit.

2. REGULARITY AUDIT

2.1 Nature and scope

2.1.1 Financial audit

The audit was conducted in accordance with generally accepted Government auditing standards which incorporate generally accepted auditing standards. These standards require the audit to be planned and performed to obtain reasonable assurance that the financial statements are free of material misstatement. The audit was also planned and performed to obtain reasonable assurance that, in all material respects, the relevant requirements of the Reporting by Public Entities Act, 1992 (Act No. 93 of 1992), have been complied with. An audit includes:

- examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements;
- assessing the accounting principles used and significant estimates made by management; and
- evaluating the overall financial statement presentation.

I believe that the audit provides a reasonable basis for my opinion.

2.1.2 Compliance audit

Furthermore, an audit includes an examination, on a test basis, of evidence supporting compliance, in all material respects, with the relevant laws and regulations applicable to financial matters. I believe that the audit provides a reasonable basis for my opinion.

2.2 Audit opinion

2.2.1 Financial audit

In my opinion:

- the group financial statements fairly present, in all material respects, the financial position of the CSIR and the group as at 31 March 2000 and the results of their operations and cash flows for the year then ended, in accordance with the generally accepted accounting practice and in the manner required by Schedule 4 of the Companies Act, 1973 (Act No. 61 of 1973), and other reporting requirements as set out in the Reporting by Public Entities Act, 1992, and the regulations thereto;
- the information furnished in terms of Sections 6 and 7 of the Reporting by Public Entities Act, 1992, is fair in all material respects and, where applicable, consistent with that of the preceding year; and
- the transactions that came to my attention during the audit were in all material respects made in accordance with the mandatory functions of the CSIR as determined by the law or otherwise.

2.2.2 Compliance audit

The transactions of the CSIR that I have examined during the course of the audit were in my opinion, in all material respects, made in accordance with the relevant laws and regulations applicable to financial matters.

3. EMPHASIS OF MATTER

Without qualifying the audit opinion expressed above, attention is drawn to the following matter:

3.1 Certain subsidiaries excluded from the annual financial statements

Quality Electronics Development (Pty) Ltd was not consolidated, because the Board of the CSIR was of the opinion that it would be of no real value to the users of the financial statements in view of the insignificant amounts involved. I concur with this decision.

4. APPRECIATION

The assistance rendered by the CSIR during the audit is sincerely appreciated.



H van Zyl
for the Auditor-General
Pretoria

19 June 2000

Corporate Governance

GOVERNANCE PRINCIPLES

Framework

Corporate Governance, technically, is about the organisational arrangements that have been put in place to provide an appropriate set of checks and balances on the stewards of the organisation. The objective is to ensure that those to whom the stakeholders entrust the direction and success of the organisation act in the best interests of these stakeholders. It is about leadership with integrity, responsibility and transparency.

The CSIR is committed to principles and practices that will provide our stakeholders with the assurance that the organisation is managed soundly and ethically. We have established a management model which governs and provides guidance for the way that all employees, not just the leaders, interact with our various stakeholder groups.

The underpinning principles of the CSIR's corporate governance practices rest upon the three cornerstones of an effective and efficient organisation, namely day-to-day management processes, a long-term strategic planning process and effective transformation processes. All these processes are supported by CSIR systems which are used to plan, execute, monitor and control the strategic and operational domains of the organisation. The supporting infrastructure and its evolution is documented in our management model which is regularly reviewed and updated.

The CSIR Board and its Executive Board believe that the organisation has applied and complied with the principles incorporated in the Code of Corporate Practices and Conduct as set out in the King Report.

Financial statements

The CSIR Board and the Executive Board are responsible for the preparation and integrity of the annual financial statements and related financial information included in this Annual Report. The financial statements are prepared in accordance with generally accepted accounting practice. The external auditors are responsible for independently auditing and reporting on the financial statements in conformity with generally accepted auditing standards.

Risk management

In the case of risk management, the CSIR Board retains control through the final review of key risk matters affect-

ing the organisation. The focus of risk management in the CSIR is on identifying, assessing, managing and monitoring all known forms of risk across all business units. CSIR systems have been put in place to review aspects of economy, efficiency and effectiveness. Management is involved in a continuous process of improving procedures to ensure effective mechanisms for identifying and monitoring risks, such as skills, technology, reputation, Parliamentary Grant, legislation compliance, professional liability and general operating risks. Equal consideration is given to matters of safety, health and the environment as to the more obvious risks such as financial risks.

Operating risk management

The CSIR endeavours to minimise operating risk by ensuring that the appropriate infrastructure, controls, systems and people are in place throughout its business units. Key practices employed in managing operating risk include segregation of duties, transaction approval frameworks, financial and management reporting and monitoring of metrics which are designed to highlight positive or negative performance across a broad range of key performance areas.

Financial risk management

Financial risks are managed within predetermined procedures and constraints as identified and detailed in the various CSIR policies and the setting of annual goals and objectives. Compliance is measured through regular reporting against the business goals, internal audit checks and external audit verification.

Approval framework

The CSIR Board has adopted an approval framework which governs the authorisation processes in the CSIR. It deals with, *inter alia*, the construction of strategic plans, development of business plans and budgets, appointment of bankers and key service suppliers, appointment of personnel, approval of salaries and acquisition and disposal of assets. It also defines authority levels in relation to organisational position.

Appropriate controls exist to ensure compliance with this framework. A comprehensive set of procedures exists to provide the necessary checks and balances for the economical, efficient and effective use of resources. The essence of this framework is that it is comprehensive, clear and unambiguous, and easy to assimilate and internalise.

Internal control

The CSIR Board has ultimate responsibility for the system of internal controls. The key controls required to ensure the integrity and reliability of financial statements have been identified in conjunction with the internal and external auditors. Close co-operation between the external auditors and CSIR Corporate auditors ensures adequate and efficient audit reviews of the proper functioning of these key controls.

The annual audit plan is based on the key financial risks to the organisation. The work programme that gives effect to the plan is reviewed by the Audit Committee at their November meeting and ratified or modified, as necessary.

Employee participation

The CSIR strongly encourages effective and modern workplace practices and relationships to foster employee participation and work process involvement as a key practice at all levels in the organisation. Employee participation happens, for example, through self-directed teams, transformation action groups, union representation, a leadership development programme, technical and strategic focus groups and task teams, and employee satisfaction measurement processes.

Charter of Ethics and Organisational Values

The CSIR Board and Executive Board have approved and adopted a Charter of Ethics which reflects its commitment to a policy of fair dealing and integrity in conducting its business. The Charter, which incorporates the CSIR's Code of Conduct and links closely to its set of values, requires all employees to maintain the highest ethical standard, ensuring that business practices are conducted in a manner which, in all reasonable circumstances, is beyond reproach. Monitoring ethical behaviour is devolved to business unit level and transgressions are addressed by means of procedures detailed in the CSIR's Conditions of Service. Our annual employee survey includes, by design, questions formulated to determine the organisational climate as it relates to values and ethics. The results from the survey are used to inform and adapt, as necessary, internal processes linked to these issues, such as the ongoing values entrenchment process.

Safety, Occupational Health and Environmental Management (SHE)

As a corporate citizen, the CSIR acknowledges its obligation to its employees and the communities it serves to conform in its operations to safety, health and environmental laws and the internationally accepted standards and practices. Its commitment to provide a safe and healthy workplace for its employees is demonstrated by the CSIR's achievement of a 4-star rating, co-audited by

the National Occupational Safety Association (NOSA).

In 1997, the CSIR commenced with the implementation of the internationally recognised Environmental Management System, ISO 14001, which included the development, publication and adoption in 1998 of an Environmental Policy for application throughout the organisation at all its sites.

General

The CSIR acknowledges that systems of corporate governance should be continuously reviewed to ensure that they are sound and consistent with world-class standards in a way that is relevant to the business of the CSIR and the evolution thereof.

We will continue to comply with all major recommendations of the Code of Corporate Practices and Conduct as set out in the King Report on Corporate Governance.

GOVERNANCE STRUCTURES

CSIR Board

The CSIR Board approves the mission, strategy, goals, operating policies and priorities for the organisation and monitors compliance with policies and achievement against objectives.

CSIR Board members are appointed for a term of three years by the Minister of Trade and Industry. With the exception of the President of the CSIR, all the members of the CSIR Board are non-executive. CSIR Board members are actively involved in, and bring independent judgement to bear on Board deliberations and decisions. A formal system is in place to evaluate Board member participation and performance. The CSIR Board, whose current number of members meets the statutory minimum requirement, meets quarterly. For the year under review, the Board met on 9 June, 27 August, 17 November 1999 and 25 February 2000.

The CSIR Board has the following committees: the Human Resources and Remuneration Committee, the Audit Committee, the Mergers, Acquisitions and Commercialisation Committee, and the Science and Technology Committee (see Table on page 19). These committees comprise members of the CSIR Board and a CSIR Vice-President ex-officio.

An important initiative introduced in 1999 is a formal and structured Board induction process designed to give new Board members an understanding of the business and the risks associated therewith.

Executive Board

The Executive Board has executive responsibility for the CSIR and consists of the Chief Executive Officer (CEO)

and five Executive members responsible for the portfolios of Finance and Commercialisation; Human Resources; Technology for Development and Policy; Technology and Information; and Business Development. The Executive Board meets bi-weekly.

Management Board

The Management Board is responsible for strategy implementation and managing the day-to-day affairs of the CSIR and its business units in accordance with the policies and objectives approved by the CSIR Board. This Board comprises the members of the Executive Board, together with the nine business unit directors (profiled in *Technology*

Impact). The Management Board meets twice monthly.

The Chief Executive Officer of the CSIR is the President, whose address is given on the inside cover of this report.

The coming into effect of the Public Finance Management Act, Act No. 1 of 1999, on 1 April 2000 will necessitate certain responses by the CSIR, which will impact on governance matters. The CSIR is studying the ongoing developments in this Act and its regulations and is confident that it will exceed the governance requirements embodied in this legislation.

CSIR BOARD COMMITTEES 1999

Committee Audit	Members	Meetings	Purpose
	Mr Eugène van As (Chairman)	3.6.99	Deals with all matters prescribed by the regulations issued in terms of the Reporting by Public Entities Act, 1992.
	Mr Les Boyd	23.11.99	Controls the final review of the key risk matters affecting the organisation. Determines the scope, and reviews and approves the annual audit plan and the work of the CSIR Corporate auditors. Acts in an unfettered way to understand the dynamics and performance of the organisation with no artificial boundaries created by protocol.
	Dr Dhiro Gihwala		
	Mr Khomotso Phihlela		
	Dr Geoff Garrett		
	Mr Albert Jordaan (ex-officio)		
Human Resources and Remuneration	Dr Bill Venter (Chairman)	21.5.99	Provides the vehicle for the CSIR Board to influence and control human resources and remuneration in the organisation. Determines human resource policy and strategy. Approves remuneration changes and bonus payments.
	Prof Anton Eberhard	24.8.99	
	Ms Anne Letsebe		
	Mr Khomotso Phihlela		
	Dr Geoff Garrett		
	Dr Namane Magau (ex-officio)		
Mergers, Acquisitions and Commercialisation	Dr Bill Venter (Chairman)	15.12.99	Reviews the strategic business viability of any proposed merger or acquisition of significance. Reviews the principles involved in contractual arrangements. Advises on negotiating processes in merger, acquisition or commercialisation processes. Makes appropriate recommendations to the CSIR Board on whether the relevant acquisition or merger is in the interests of the stakeholders.
	Prof Anton Eberhard		
	Mr Khomotso Phihlela		
	Prof Friedel Sellschop		
	Dr Geoff Garrett		
	Mr Albert Jordaan (ex-officio)		
	Dr Anthos Yannakou (ex-officio)		
Science and Technology	Prof Friedel Sellchop (Chairman)	5.5.99	Provides guidance and advice on the long-term trajectory and composition of the CSIR's science and technology portfolio in the context of the needs of the country. Ensures that key innovation and research processes are conducted effectively and benchmarked against international best practice, and that research outputs, organisational climate and credibility remain congruent with the role and objectives of the institution.
	Prof Anton Eberhard	29.11.99	
	Dr Dhiro Gihwala		
	Dr Geoff Garrett		
	Dr Adi Paterson (ex-officio)		
Joint Strategic Governance Committee of the CSIR Board and the Council of the University of Pretoria (UP)	Mr Ben Alberts, UP (Co-Chair)	20.1.2000	Meets regularly to approve and oversee the effective implementation of the joint CSIR/UP strategy and business plan. The primary roles are to act as a facilitator and sounding board to assist senior management of both institutions in carrying out approved plans; to undertake a "watching brief" on behalf of the respective constituencies; to assess progress against plans and report back to constituencies; and to ensure effective communication with the governance structures of the respective institutions.
	Mr Eugène van As (Co-Chair)		
	Prof Esmé du Plessis, UP		
	Dr Geoff Garrett		
	Ms Anne Letsebe		
	Dr Zavareh Rustomjee		
	Mr Hancke Scheepers, UP		
	Prof Johan van Zyl, UP		
	Dr Bruce Foulis (ex-officio)		
	Prof Jan Malherbe, UP (ex-officio)		

Executive Report

On behalf of the CSIR Board, we have pleasure in submitting to Parliament, through the Minister of Trade and Industry, this report and the audited financial statements of the CSIR for the year ended 31 March 2000.

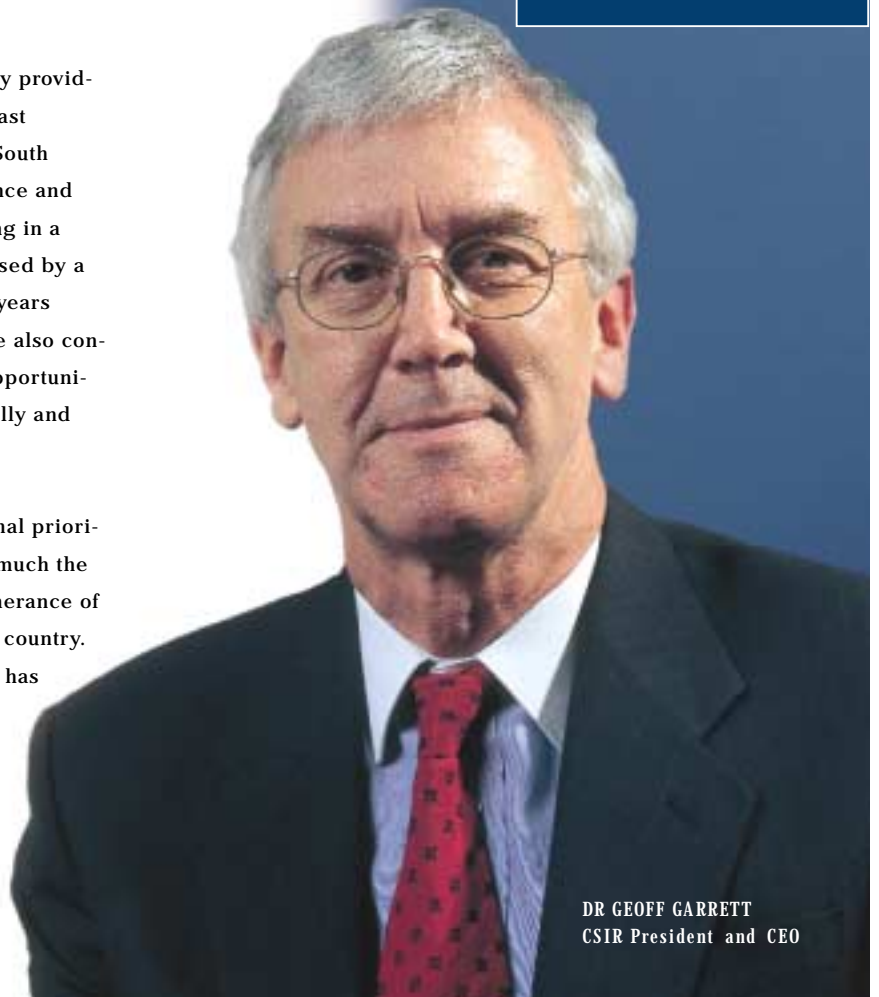
In the opinion of the CSIR Board, who fulfil the role of directors as envisaged by the Companies Act, Act No. 61 of 1973, the financial statements fairly reflect the financial position of the CSIR and the CSIR group, as at 31 March 2000, and the results of its operations for the year then ended.

INTRODUCTION

The year leading up to the 21st century certainly provided an ideal opportunity to reflect both on our past progress and on our contribution to the future. South Africa, and the CSIR, the country's leading science and technology provider, are without doubt operating in a highly complex environment. This is characterised by a need to consolidate the strides made in recent years towards a better life for all South Africans, while also continuing to meet the emerging challenges and opportunities of an ever-changing environment, both locally and globally.

With the CSIR's mandate governed by the national priorities of South Africa, it is heartening to see how much the people in the CSIR have contributed to the furtherance of sustainable development and growth within our country. During the year under review, this performance has been recognised externally through receiving important awards for excellence, including the prestigious national Corporate Governance Award, the National Science & Technology Forum Award for an outstanding contribution to science, engineering and technology, and the top award of the South African Excellence

“Our strengths as an organisation mirror our strengths as a nation in bringing together diverse skills, cultures and perspectives in pursuit of a greater goal, as we discover new solutions, encourage innovation, build alliances and expand the frontiers of knowledge.”



DR GEOFF GARRETT
CSIR President and CEO



DR NAMANE MAGAU
Human Resources



DR ANTHOS YANNAKOU
Business Development



DR ADI PATERSON
Technology and
Chief Information
Officer



MR NEO MOIKANGO
Technology for
Development and
Policy



MR ALBERT JORDAAN
Finance and
Commercialisation

Foundation, which went to our Satellite Applications Centre. However, we also live in a world of diminishing boundaries, and our continued success and indeed existence depends on our ability, as an outward-looking technology solutions business, to compete in the global market. For the CSIR, as for South Africa, global competitiveness depends crucially on how well we make use of our own intangible assets, such as our skills and creativity, and how well we gain access to new ones by partnering with others and harnessing the power of the information economy. Our activities during the year under review demonstrate how well we have achieved this. Our goal now is to build on the successes of the past to ensure excellence in science and technology in the future.

ACTS AND LEGISLATION

As a statutory research council, established by Government, the CSIR is governed by the Scientific Research Council Act (Act No. 46 of 1988, as amended by Act No. 71 of 1990). We are listed as a Public Entity in terms of the Reporting by Public Entities Act, 1992.

OUR MANDATE

The CSIR's Act records our mandate as follows: "In the national interest, the CSIR, through directed and multi-disciplinary research and technological innovation, should foster industrial and scientific development, either by itself, or in partnership with public and private sector institutions, to contribute to the improvement of the quality of life of the people of South Africa."

FUNCTION AND OBJECTIVES

The nature of our business
Within the framework of our mandate, we source and

develop knowledge and technology that enable us to provide technology solutions and information, establish ventures and license intellectual property. We exist to support sustainable development and economic growth in the context of our country's national priorities and global challenges.

The focus of our Parliamentary Grant investment supports our core process of innovation and remains centred around the key initiatives of the National System of Innovation, as well as the complementary priorities of the Government.

The essence of our strategy

The CSIR's vision, mission and values provide us with a solid foundation as we pursue our strategic trajectory into the new millennium. While our vision and values remain robust for the years ahead, our constantly changing environment has required some small, but important, refinements to our mission (as stated on the inside front cover of this Report). These key refinements acknowledge that global challenges have become our challenges, that relationships with our partners, clients and stakeholders are integral to our success, and that enhanced attention is required to licensing intellectual property and establishing ventures as these are key areas of future growth for us as an organisation.

Our strategic priorities: 2000 to 2003

South Africa's national imperatives and global challenges provide the macro-strategic framework within which we construct our business plan and business goals. Using a series of scenarios for our knowledge-worker business,

Executive Report continued

and for our South African environment, we have identified five strategic priorities which focus our attention as an organisation.

Approved by the CSIR's new Board in February 2000, these strategic elements will (re)frame our attention as an organisation over the next three years, and beyond. The five priorities are:

- **Positioning the CSIR as a leading knowledge and technology solutions provider through our strategic alliance with the University of Pretoria** - our goal is to create a world-class alliance that will have the critical mass to compete globally in science and technology; offer opportunities that will attract and retain the best people; reinforce and support the objectives of the National System of Innovation; and create an internationally effective flagship for South Africa in the new millennium.
- **Business growth through focused business development locally, regionally and internationally** - as our core Parliamentary Grant continues to reduce (but with great opportunities in a considerably growing, but increasingly competitive, Innovation Fund), we will continue to grow the CSIR's external income in a market-driven, financially sustainable, relevant and impactful way in all the domains of our external business, with tight cost control underpinning our ongoing financial sustainability.
- **CSIR people: achieving transformation with excellence** - our focus is on creating an enabling environment and agile systems to facilitate the retention and attraction of talent, and to grow our culture of innovation. This includes providing stretching career development opportunities, the continuous enrichment of our technical competence(s), developing the ability to work across boundaries, building leadership skills in our business areas and developing exceptional client relationship-building and partnering skills. Correspondingly, we will strive for substantially enhanced demographic representivity, particularly at the professional staff level.
- **Enhanced impact on South Africa's sustainable development and the Presidential Imperatives** - the focus of our Technology for Development (TfD) activities is on quality delivery and a consistently enhanced track record in the packaging and transfer of technology into the development domain. In partic-

ular, and closely linked with the efforts of our sister Science Councils, we are seeking to respond proactively, and with real impact, to the Presidential Imperatives of job creation, crime prevention, HIV/AIDS, rural development, urban renewal, human resource development and regional integration in Southern Africa.

- **Leveraging the CSIR's intellectual capital and knowledge resources through harnessing the power of information and communications technology** - as these technological forces fundamentally change the dynamics of business, our goal is to utilise the best approaches to knowledge management to grow our contribution, offerings and performance in and through information and communications technology (ICT), as a fast-follower globally and a leader in the information society in South Africa, SADC and the continent.

Our operational priorities: 1999/2000

The CSIR's strategy translates into operational priorities against which our performance, both quantitatively and qualitatively, can be measured. These priorities in turn provide our business goals.

The preceding section has summarised the key elements of our (refined) three-year strategy which, for subsequent financial years, will require appropriate reprioritisation of focus in the operating environment (for example, around the implementation of our strategic convergence with the University of Pretoria). For this reporting period, however, our specific **business goals** have been to **grow our business, embed quality in everything we do, create an increasingly innovative and rewarding working environment for our people, make an impact on sustainable development and harness the information revolution.**

PERFORMANCE AGAINST OUR BUSINESS GOALS

The CSIR's performance against our business goals is summarised in the Table on page 23 for easy reference. The section that follows provides more detailed information about the achievements and progress made in the respective goal areas.

GOALS, TARGETS AND PERFORMANCE RESULTS IN OVERVIEW

GOAL	KEY PERFORMANCE INDICATORS	TARGET	PERFORMANCE RESULTS
GOAL 1: GROWING OUR BUSINESS THROUGH ENHANCED BUSINESS DEVELOPMENT AND NEW BUSINESS INITIATIVES	Increase total income	8,8%	Achieved (9,1%)
	Increase total external contract income <ul style="list-style-type: none"> Private sector growth 19,5% Public sector growth 17,9% National safety and security sector growth 37,4% International sector growth -1,3% Net margin 22,7% Cash & cash equivalent holdings R13,4m Ratio of external earnings to total income R20,7m Commercialisation 58,0% Improve internal processes and implement new joint ventures	Establish Technovent with subsidiaries	Exceeded (38,5%) Good progress (R11,0m achieved) Exceeded (R55,4m) Achieved (58,4%) Achieved (5 new companies formed)
GOAL 2: EMBEDDING QUALITY IN EVERYTHING WE DO	Customer satisfaction	CSIR objective 75%	Exceeded (81,7%)
	International Peer Reviews 1999/2000 <ul style="list-style-type: none"> Textile technology field Investment process and approach in core activities Technology for Development 	Performance at least comparable to industry and international norms	<ul style="list-style-type: none"> All three reviews completed Results indicate good progress made
	Peer recognition	Participation on an ongoing basis in relevant national awards and competitions	<ul style="list-style-type: none"> Corporate Governance Award: winner as best in medium-sized organisation and overall winner NSTF* Corporate Award for S&T contribution
	Excellence assessment	Participation on an ongoing basis in the South African Excellence Foundation's (SAEF) assessment process	CSIR Satellite Applications Centre (SAC) winner of the 1999 SAEF Award (level 2) for quality and business excellence
GOAL 3: CREATING AN INCREASINGLY INNOVATIVE AND DIVERSE WORKING ENVIRONMENT	Safety, Health and Environment <ul style="list-style-type: none"> SHE* audits Disabling Injury Frequency Rate (DIFR) ISO 14001 	Rate of 85% Less than 5 Obtain and retain certification for all CSIR business and corporate units by 2001	Exceeded (89%) Achieved (4,2) Certification programme on track
	Staff satisfaction	CSIR objective 75%	Good progress (73,7%)
	Staff Diversity <ul style="list-style-type: none"> Total staff complement 2 788 Professional staff 45,6% of total staff Black professional staff 20,8% of total prof staff Female professional staff 31,0% of total prof staff Total black staff 36,9% of total staff Total female staff 38,7% of total staff Bursaries and internships <ul style="list-style-type: none"> Black bursars 75% of total bursars Female bursars 40% of total bursars Interns 80% black, 50% female Training <ul style="list-style-type: none"> Staff development 	Enhance rapid skills & competence development through CILLA* Equip 120 less educated employees with basic reading, writing and arithmetic skills	Below target (2 730) Good progress (45,4%) Achieved (21,0%) Achieved (31,7%) Exceeded (38,2%) Achieved (38,8%) Good progress (73,3%) Good progress (38,8%) Exceeded (85,8% black, 60,8% female)
	Adult Basic Education		Good progress (700 staff attended focused courses)
Achieved			
GOAL 4: MAKING AN IMPACT ON SUSTAINABLE DEVELOPMENT AND PRESIDENTIAL IMPERATIVES	Active and relevant involvement in national priorities	<ul style="list-style-type: none"> Invest strategically in rural development through HIIPs* Ongoing support for the MACs* Support SMMEs to increase competitiveness Help to create a public understanding of S&T 	Good progress Good progress Good progress Some progress
	Active and relevant involvement in the Presidential Imperatives (PI) programme	Actively lead, participate in and support the Science Councils' activities in the PIs	Good progress in CSIR's crime prevention, rural development, SMME development (job creation) and urban renewal programmes Focus area for attention - Science Councils' collaboration
GOAL 5: HARNESSING THE INFORMATION REVOLUTION	Development of strategic framework for IT activities	<ul style="list-style-type: none"> Architecture standards policy Policy and procedures to align IT activities across the CSIR Lowering of total cost of ownership of internal IT platforms 	Achieved Good progress Focus area for attention
	Fostering a strong IT culture Managing of strategic IT initiatives	<ul style="list-style-type: none"> User training Achieve Y2K compliance Co-ordinate knowledge management 	Trained 2 300 employees Achieved Significant progress
	Effective deployment of web technology as commercial vehicle and key management communication tool	<ul style="list-style-type: none"> Develop and pilot a generic set of IT measures Set web standards and strategies Identify e-commerce applicability to CSIR business 	Pilot achieved and ongoing focus area for attention Ongoing focus
	Continued refinement of the investment of our Parliamentary Grant to ensure IT richness of development offerings	<ul style="list-style-type: none"> Refinement of CSIR Management Model Effective use of an Intranet Enhance IPT* Track IT-rich investment thrusts and offerings 	Achieved Ongoing focus Ongoing focus Ongoing focus

* NSTF: National Science & Technology Forum SHE: Safety, Health and Environment CILLA: CSIR Innovation Leadership and Learning Academy
 HIIP: High Integrated Impact Project MAC: Manufacturing Advisory Centre IPT: Investment Process Tool

Executive Report continued

GOAL 1: GROWING OUR BUSINESS

During a year in which conditions were relatively tough, the CSIR exceeded its targeted external operating income of R431,3 million by R2,0 million, reflecting a year-on-year growth of 19,9%. Correspondingly 58,4% (1999: 53,5%) of our total income is now derived from non-Parliamentary Grant sources against a target of 58%. The most significant year-on-year growth (38,5%) was achieved in the international market - itself an indicator of quality performance and delivery in the relatively unforgiving global marketplace.

In addition, good growth has occurred in provincial and local government sales, and despite defence spending having declined in real terms over the past four years, the growth of 13,2% in the safety and security sector is noteworthy.

Achieving sustainable real growth in external income, at acceptable levels of profitability, continues to be a critical requirement as we enter the new millennium. As such, a number of growth initiatives for improved market penetration and development in the private and public sectors, both locally and internationally, have been implemented through focused action plans.

In the business sector, these included the strengthening of our manufacturing and materials technology competencies that came into effect in April 1999, to better service the large/formal as well as small and medium manufacturing sectors; the acquisition in February 1999 of AECI's R&D activities to support (mainly) the chemical and biotechnology industries; renewed focus on client satisfaction, loyalty and retention, through continuous improvement of project and marketing management processes informed by regular client satisfaction surveys and ongoing feedback; and continued emphasis on establishing effective and mutually beneficial partnerships and alliances, as well as investigating potential mergers and acquisitions to increase the CSIR's impact in critical sectors of the economy.

In the Government sector, which includes all levels of government as well as parastatals, actions taken during

the past year to grow our business included improved alignment with the industrial, competitive and job creation activities of the Department of Trade and Industry, as well as providing increasing support to spatial development initiatives (SDIs); strengthening and developing structures to contribute to small, medium and micro enterprise (SMME) support, such as our activities in the establishment of Entrepreneurial Support Centres in a number of provinces; focusing our defence technology competence to interface at all levels with the Department of Defence, the South African National Defence Force and parastatals such as Denel; further developing our cross-cutting initiatives such as crime prevention, sport, tourism, logistics; greater effort in supporting consortia-based work; and continuing efforts in supporting Government with IT-based offerings and helping them to harness the information revolution.

Financial performance overview

The total income for the year of R748,8 million exceeded our targeted income of R746,9 million. The Parliamentary Grant was 3,0% lower than in 1998/1999.

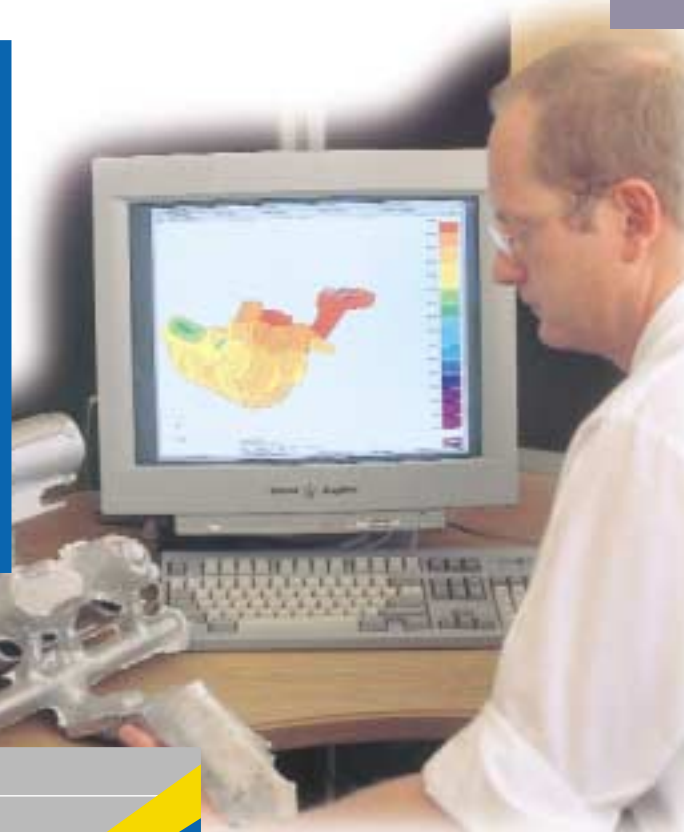
We achieved a net margin of R11,0 million or 1,5% of income (1998/99: R11,7 million or 1,7% of income) against a targeted R13,4 million (1,8% of income). Although the CSIR has traditionally not targeted a high margin, it remains an important measure for sustainability and positive cash flow. Cash flow generated from operating activities for the year being reported on was R43,0 million (1999: R70,7 million). This allowed an increase in cash and cash equivalent holdings to R55,4 million (1999: R43,8 million) against a target of R20,7 million.

Internationally active

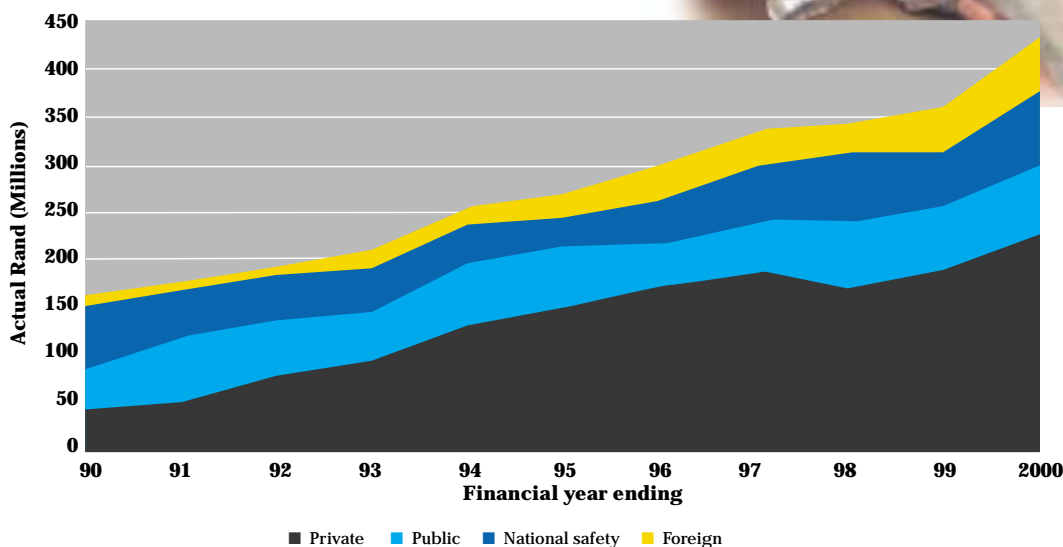
The CSIR's foreign income has grown to R56,3 million in 1999/2000 (1998/99: R40,7 million) or 13,2% (1998/99: 11,4%) of total contract income, with the major sources of income being from Europe, North America and SADC. Growth of 12,8% beyond target was achieved, which reflects an increase of 38,5% over the previous year (1998/99: 22,4%), with a five-year compound growth of 29,2%. Our international strategy of positioning ourselves as a reputable provider of technology solutions, through establishing long-term relationships with multinational companies and knowledge-intensive organisations, remains relevant.

EXTERNAL CONTRACT INCOME PER SECTOR 31 MARCH 2000	5-YEAR COMPOUND GROWTH	ACTUAL 2000 R'000	TARGET 2000 R'000	1999 R'000	1998 R'000	1997 R'000	1996 R'000
External contract income	10.3%	426,601	425,880	356,339	347,982	334,213	300,285
Annual growth		19.7%	19.5%	2.4%	4.1%	11.3%	14.7%
Private sector Annual growth	7.5%	214,445 16.6%	216,969 17.9%	183,983 6.0%	173,582 (3.9%)	180,601 5.7%	170,888 14.6%
Public sector Annual growth	13.1%	91,628 22.2%	102,995 37.4%	74,965 (1.7%)	76,223 63.7%	46,567 (1.1%)	47,073 (4.8%)
National safety and security sector Annual growth	6.2%	64,213 13.2%	56,010 (1.3%)	56,729 (12.7%)	64,967 (17.0%)	78,247 28.4%	60,952 28.4%
International sectors (including Africa) Annual growth	29.2%	56,315 38.5%	49,906 22.7%	40,662 22.4%	33,210 15.3%	28,798 34.7%	21,372 36.4%

FINANCIAL INDICATORS 31 MARCH 2000	ACTUAL 2000 R'000	TARGET 2000 R'000	ACTUAL 1999 R'000
Total income (excl investment income) Growth	748,864 9.1%	746,909 8.8%	686,663 (0.3%)
Parliamentary Grant Growth	315,649 (3.0%)	315,649 (3.0%)	325,469 (3.2%)
External operating income Growth	433,215 19.9%	431,260 19.4%	361,194 2.5%
Expenditure Growth	748,355 8.8%	744,358 8.2%	688,098 (2.4%)
Net margin Growth	11,036 (5.4%)	13,409 15.0%	11,662 59.5%



SOURCES OF EXTERNAL CONTRACT INCOME



Executive Report continued

During the past year, we continued to build business relationships with, for example, General Electric, Lockheed Martin, Daimler-Chrysler, Siemens and the Netherlands Organisation for Applied Scientific Research (TNO).

Taking the lead from the company set up by the CSIR and Snowden in Australia and the establishment of our North American operations in both Houston and California, we continued to evaluate innovative models of doing business internationally. An outcome has been the approval of the acquisition of Quo-Tec Limited in the United Kingdom with effect from 1 April 2000.

Active in the region

As a key provider of technical assistance in the Southern African Development Community (SADC), we focus on regional linkages through networks and alliances, internationally financed projects and regional business development. Our activities actively involve relevant regional institutions to ensure ownership and capacity-building in SADC countries, as well as ongoing learning for the CSIR (examples are highlighted in *Technology Impact*).

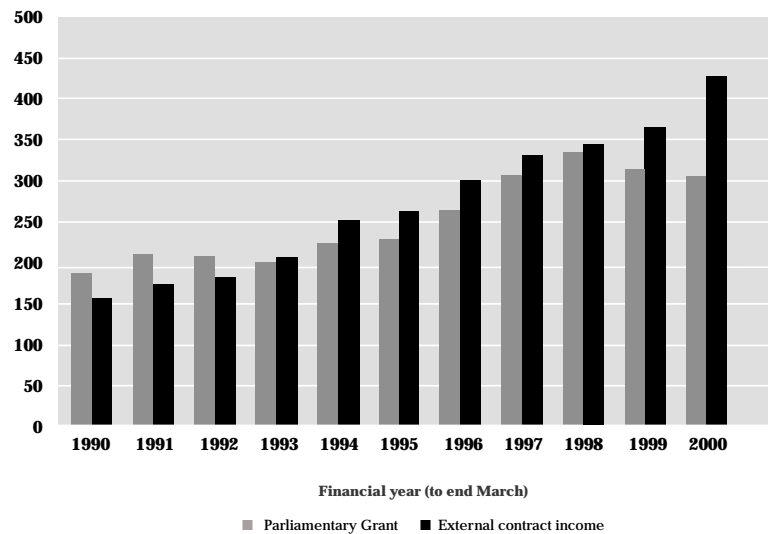
We were again contracted to act as the Africa regional focal point for the World Association of Industrial and Technological Research Organisations (WAITRO) to manage the administrative activities of their African member states.

Competitive funding mechanisms and integrated projects

The CSIR networks extensively through collaborative projects, partnerships and spin-offs to optimise opportunities for growth, which become available through competitive funding mechanisms. These include the Innovation Fund introduced by the Department of Arts, Culture, Science and Technology (DACST), a variety of funds under the Department of Trade and Industry (DTI) and others administered by the National Research Foundation, such as THRIP (Technology and Human Resources for Industry Programme) and the Indigenous Knowledge Systems Fund of the National Research Foundation.

During the year under review, the CSIR led, or acted as a consortium partner in 17 Innovation Fund projects in areas that include crime prevention analysis and decision support; establishing an alcohol/drug-related database and monitoring the alcohol/drug nexus; utilising information

CSIR PARLIAMENTARY GRANT AND EXTERNAL CONTRACT INCOME



and communications technologies in education; culture preservation; plastic waste utilisation; developing an integrated spatial information system; applying probiotic technology in cereals; antenatal screening using Doppler Waveform analysis; optimising timber resources; laser-based remote measurement of atmospheric pollutants; and the use of biotechnology in the chemical industry.

Other integrated projects over the past year have included working with the DTI, Sassa, the Industrial Development Corporation (IDC) and the National Union of Mine Workers of South Africa (NUMSA), in advancing the Stainless Steel Co-operative Development Initiative; a DTI Spatial Development Initiative (SDI) Sector Orientation Programme (in partnership with Mintek); the establishment of the National Laser Centre for the DACST; and health audits for the Mpumalanga Provincial Government.

Operational growth

The performance of the CSIR in 1999/2000 was generally very satisfactory, showing good growth in a difficult market environment, with our business units having achieved significant growth in a number of areas.

Examples include:

- Our impact in the textiles development area reflected significant growth, while a strong market position was established in the indigenous handcraft sector through providing a unique service comprising project facilitation, product design, technical skills training and assistance with establishing and optimising production facilities.

- The CSIR's Satellite Applications Centre (SAC), which does business in geo-information, based on satellite-derived data, and provides orbital services to the launchers, owners and operators of satellites, has doubled its external income over the past two financial years, to R25 million. A large part of this has been secured from international clients.
- In roads and transport technology, good growth has been achieved in Technology & Information Management, with the development of South Africa's first integrated tourism package in CD-ROM format, as well as in providing training programmes for labour-based infrastructure rehabilitation and development.
- Our international market for specialised defence sub-systems has grown and we have seen a strong increase in funding to support our role in stimulating the creation of high-technology SMMEs in the defence environment.
- In manufacturing and materials technology we experienced growth in income from competitive funding sources, especially the DACST Innovation Fund, as well as securing significant Government support for the establishment of a National Product Development Centre.
- External sales in the small but dynamic tree improvement business of our water, environment and forestry technology area have grown by an average of 23% per annum for the last four years, with a rapid increase in demand from overseas companies.
- The acquisition in 1999 of the AECI Research and Development Department and the subsequent research services agreement with AECI boosted private sector external income. New funding was also secured from alternative funding streams, such as the European Union Fifth Framework.
- The environmental, safety and health activities relating to mining saw significant growth over the past year with expansion into several new markets, including epidemiology research (HIV/AIDS), and coal beneficiation. Activities related to mining technology saw a revival in the development of a viable, non-explosive rockbreaking system on behalf of various Platinum Groups.
- There has been a significant increase in our active involvement in the construction industry through helping to facilitate the initiative by the Department of Public Works to establish the Construction Industry Development Board, currently being introduced through legislation.

Actively Helping to Curb Crime

The CSIR is actively involved in the national fight against crime. Through the DACST-funded CSIR Crime Prevention Centre, we provide technological support and solutions to government from national to local levels as well as to the private sector. The Centre acts as a conduit between research and national needs, engages in knowledge management in specific crime prevention focus areas, and facilitates information dissemination and networking. Our activities in this area have, during the last year, extended to include acting as the convenor of the Science Councils' Crime Prevention task team, one of the seven Presidential Imperative programmes, which seeks to facilitate greater impact through collaboration amongst Science Councils, the research fraternity and Government (examples of these initiatives are portrayed in *Technology Impact*).

Supporting South African Sport

The CSIR collaborates with the Sports Information and Science Agency (SISA) of the Department of Sport and Recreation and other sporting bodies, in providing innovative technologies and information solutions to South Africa's sporting bodies and federations. An extension of activities in this area includes the provision of technological support and project management to South Africa's 2006 World Cup Bid, as well as performance analysis and decision support to the country's national teams, including rugby, cricket, hockey, netball and baseball.

GOAL 2: EMBEDDING QUALITY IN EVERYTHING WE DO

As an organisation with a passion for excellence and service, the CSIR strives for continuous improvement, based on performance standards and benchmarking.

As previously indicated, the CSIR was declared the overall winner of the 1999 Corporate Governance Award (sponsored by Deloitte & Touche and the Johannesburg Stock Exchange) and the winner in the category for the best medium-sized organisation. Corporate governance covers the legal, cultural and institutional arrangements that determine the direction and performance of corporations and how they fulfil their responsibilities to stakeholders.

Executive Report continued

CSIR CUSTOMER SATISFACTION SURVEY NOVEMBER 1999 (334 INTERVIEWS)			
Survey categories/Sub-categories	% of respondents who rate CSIR		
	Excellent/ very good/good	Fair	Poor
1 Service delivery	79,4	16,9	3,7
2 Client relationship management	80,7	14,2	5,1
3 Contract management	80,4	15,1	4,5
4 Technology management	86,4	11,7	1,9
5 Quality and value for money	80,9	16,7	2,4
6 Image (including competence, supportiveness, innovativeness, relevance)	82,0	14,2	3,8

We also received the National Science and Technology Forum's (NSTF) 1999 Corporate Award for our contribution to science and technology. The citation specifically acknowledged that our: "contribution to the advancement of science and technology over the past ten years had been forged on the anvil of innovative discovery and development, and its determined application in the interests of all the people of South Africa". It also stated that we had: "maintained an acute sensitivity to issues beyond the immediate technological embrace, in particular those impacting on social and environmental fields".

The CSIR is actively involved in the South African Excellence Foundation (SAEF) self-assessment process. In 1999, our Satellite Applications Centre was judged the winner of the SAEF (level 2) Award, being specifically commended for its leadership role in having kept South Africa involved in space applications in the region for the past 40 years.

Customer satisfaction

During the year under review, we launched a Customer Excitement and Obsession (CEO) programme with a focus on customer-centred leadership and role-modeling, training, systems, information and processes. An independent Markinor survey of customer satisfaction was concluded towards the end of 1999, amongst 334 of our clients. Overall, the CSIR achieved an average of 81,7% in the excellent/very good/good response categories (see Table above), against a target of 75%. A minimum of 30 customers of each business unit were interviewed. The survey report indicated a "high level of commitment towards the

CSIR and an overall positive attitude towards the organisation". Of the customers surveyed, 90% indicated that they would recommend us as a business partner to others, while continuing to use our services in the future. Our technology management skills overall were rated well, as were individual aspects, such as our being experts in the field and keeping up to date with world technologies and information.

In summary, the results indicated that in the perceptions of our clients: "The CSIR is a unique institution and recognised as such. It has important strengths and vast potential. It commands much goodwill from its clients."

The CSIR business units use their specific results from the customer satisfaction survey to address the critical areas where improvement is required. A complementary "Moments of Truth" system was implemented during the year under review to record ongoing feedback from interactions with our customers. This system measures "on brief, on budget, on time" and quality of what is delivered. The overall index for this measure is 78% against a target of 80%. Actions to improve client satisfaction levels are implemented to address areas of concern.

Being environmentally sustainable

Safety, health and environmental (SHE) audits, both announced and unannounced, were conducted and counted 60% and 40% respectively towards achieving our final SHE audit result. The aggregate for individual ratings by business units during the year reported upon was 89% (1998: 92%), against an objective of 85% for the organisation. The disabling injury frequency rate for 1999 was 4,2 (1998:

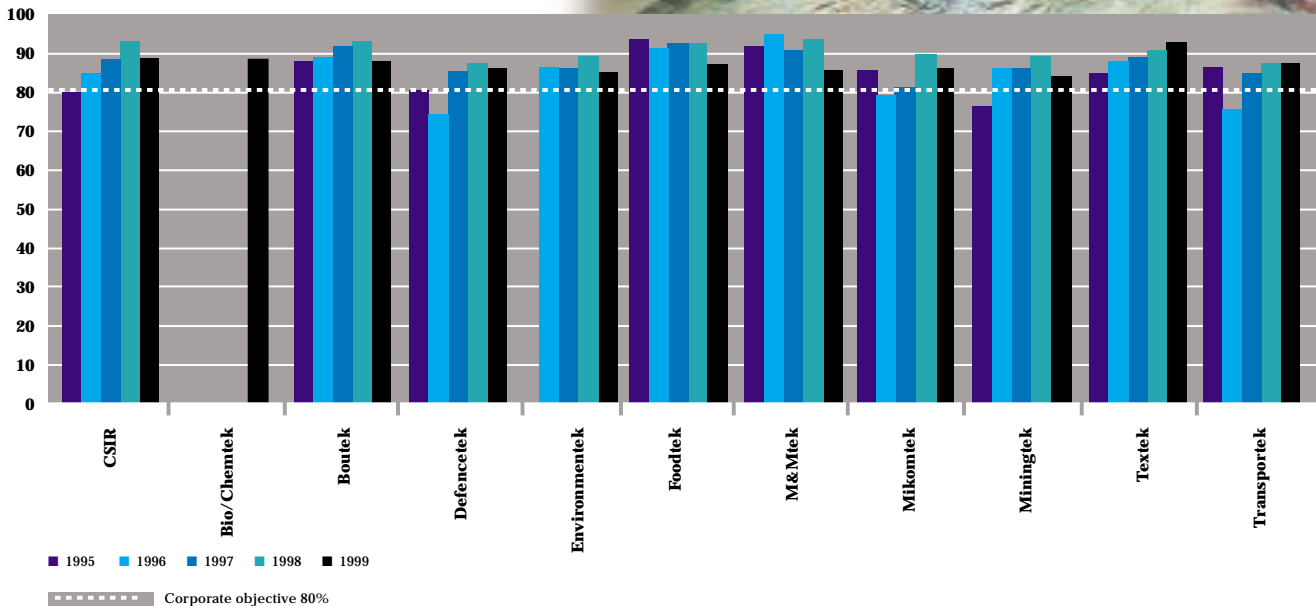
3,8) against an aim of achieving a rate of less than 5 per annum, to comply with our corporate 4-star standard (this frequency rate is calculated from the 82 work hours lost due to the 17 injuries in the reporting 12-month period).

The slight drop in both these aggregates can be attributed to the application of new and revised legislation to our SHE system; a decreased emphasis on safety in business units focusing on restructuring issues; and increased stringency in the audit process.

Two of our internal service groups and three of our



SAFETY, HEALTH, ENVIRONMENTAL AUDITS: 5-YEAR HISTORY



business units obtained and retained certification in accordance with the international SABS ISO 14001 code for an Environmental Management System. Our target is for all business units and internal service groups to have attained and retained certification by 2001. Our performance to date indicates the achievement of this objective.

A CSIR State of the Environment Report has been compiled, addressing our involvement in environmental issues, both inside the organisation as well as externally. The report will be published on our Internet site for comments from the public, to help establish a CSIR “environmental barometer”, with the aim of evaluating our performance in the eyes of our stakeholders and including it in our corporate governance practices.

Peer review of activities

The CSIR conducts regular international peer reviews of important parts of its activities to improve efficiency and effectiveness, and to benchmark current practices and establish best practice.

During the past year, reviews were conducted on our activities in textile technology and Technology for Development (TfD). The review panel comprised respected local and international members and results from both the reviews have been used to enhance the strategic direction and focus of these activities.

An internal review was also undertaken on our investment portfolio and approach, and the results used to enhance the quality of investment processes and the effectiveness of inter-unit collaboration.

Executive Report continued

CSIR staff also participated in the review process of local organisations such as the South African Weather Bureau, the South African National Antarctic Programme, the National Laser Centre and the State's vaccine production assets, and served on panels reviewing the activities of a number of international research organisations.

GOAL 3: CREATING AN INCREASINGLY INNOVATIVE AND DIVERSE WORKING ENVIRONMENT

The focus of our human resources strategy, which emerged from the DACST System-Wide Review of Public Sector Science, Engineering and Technology institutions two years ago, has been on creating an enabling environment and agile systems to support our people in meeting new challenges. This has helped us to retain and attract talented people and substantially enhance our transformation process, particularly in the demographic representivity at the professional staff level.

For the CSIR, transformation includes changing both the human face of the organisation and the way in which we do business. In this regard, we are making good progress both in increasingly reflecting the diversity of our society in our staff profile and in building long-term relationships with private and public sector clients and stakeholders.

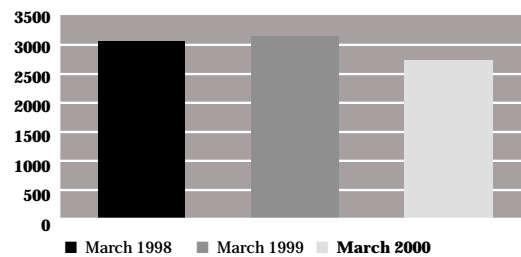
One of the key challenges during the year under review has been the successful implementation of restructuring processes in a number of our business units, largely due to our robust Human Resource systems, as noted by the DACST Review Panel Report in 1998.

Changing the face of the organisation

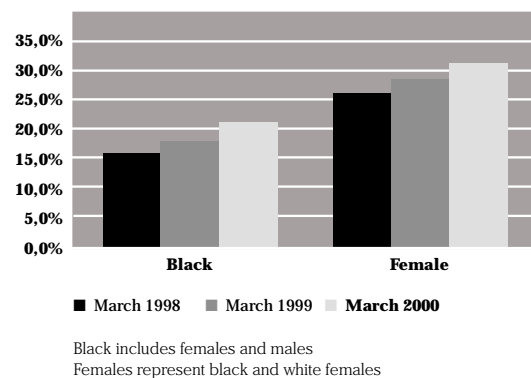
Our staff complement at the end of this financial year was 2 730, down on the previous year (1998/1999: 3 082). This is 2,1% lower than the planned staff complement (2 788) for this period and can mainly be ascribed to ongoing restructuring and the slowing down of recruitment in the light of the difficult economic climate.

Within this context, almost meeting our target for professional staff has been encouraging, as this employee segment now comprises 45,4% of our total staff complement (1998/99: 41,6%) against a target of 45,6% for March 2000.

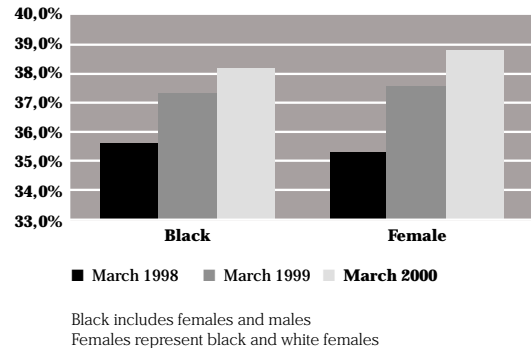
TOTAL STAFF



PROFESSIONAL STAFF COMPOSITION



STAFF COMPOSITION



Gains continued to be made on the demographic transformation front (see Tables above) with positive shifts in the racial and gender demographics of the organisation: of the total staff, 38,2% were black against a target of 36,9%, and 38,8% were female against a target of 38,7%. Of the total number of professional staff in the CSIR, 21% were black against a target of 20,8% and 31,7% were female against a target of 31,0%. Performance against targets in this area is depicted in the Goals, Targets and Performance Table on page 23.

The unavoidable and planned turnover of 17,4% (1998/99: 15,5%), included retrenchments, retirements and temporary employees completing assignments and concluding

contracts. The avoidable staff turnover for 1999/2000 was 5,1% (1998/99: 5,1%).

CSIR bursary and internship programmes

The CSIR's bursary and internship programmes are aimed at attracting quality professionals, addressing historical imbalances, increasing interaction with tertiary education institutions and building science and technology competence in South Africa. During the year under review, 73,3% (target 75%) of our 116 bursars were black and 38,8% (target 40%) were female (1998/99: 71% were black and 34% were female). Currently 28 student interns are receiving training in the CSIR of whom 85,8% are black (target 80%) and 60,8% are female (target 50%).

Training for excellence

The CSIR response to the ongoing challenge for rapid skills development and technical mastery, and the productive utilisation of scarce resources and competence development, is encapsulated within the framework of our human resource development strategy.

The CSIR Innovation, Leadership and Learning Academy (CILLA) completed its first full year of operation, with the primary focus having been on staff development. Over 700 staff attended courses which focused on the most critical areas of organisational training needs. These included career development and performance management, project management, and selling and presentation skills. These programmes also helped us to improve alignment amongst staff to the CSIR's vision, mission and values, and therefore promote transformation.

On the external front, a series of strategic workshops were held during which leaders from across the organisation were encouraged to engage with emerging challenges of the next century, such as the challenge of globalisation and the promotion of technological innovation.

The coming year will see significant change, as all continuing education activities of the CSIR and the University of Pretoria are drawn into a single organising structure, in line with the emerging alliance between our two organisations. This structure will continue to address staff development needs, as well as providing a single channel for all the technical short courses currently provided by the institutions.

We continued to promote our Advanced Leadership Programme, now in its sixth year of operation, which

accommodated 42 candidates of whom 18 were black and 14 were female (1998/99: 43 candidates, 19 black and 16 female). The Technology Management Programme, which aims to enhance employee understanding of the social and economic value of technology, accommodated 7 professionals, of whom 3 were black and 2 were female (1998/99: 16 professionals, of whom 3 were black and 4 were female).

Our Adult Basic Education Training equipped 120 less educated employees with basic reading, writing and arithmetic skills, and during the reporting period an Information Technology Empowerment Programme, which included computer-based training, was made available to staff to equip them with the necessary skills to support the changeover to a standardised desktop computing environment.

Measuring our internal climate

A climate survey to determine our employee satisfaction levels and concerns is conducted annually and allows us to respond in a timely way to address gaps and build on strengths. One of the key achievements during the past financial year has been the establishment of an electronic Employee Satisfaction Survey and a web-based version of our benchmark questionnaire. This new surveying tool is a CSIR product and the result of excellent cross-functional teamwork in the organisation.

These surveys also constitute a measurement instrument for assessing the alignment of our human resource management plans and processes with our overall organisational goals and strategy.

The consolidated results are used to derive an overall "satisfaction index" for each business unit, as well as for the Corporate and service units. Targets are set and the feedback received provides a focus for management attention. The organisational climate, as indicated by the 1999 Employee Satisfaction Survey (ESS) results, continued to show improvement. The overall "satisfaction" index, as indicated in the Table on page 32, reflected a very satisfactory improvement in staff satisfaction. With a 1999/2000 overall index of 73,7%, we are very close to our target of 75% (which is at the top end of industry norms). Particularly noteworthy is the significant improvement over time of the leadership score, where 90% of staff rated their satisfaction as above average to high.

Stimulating innovation in the work environment

With innovation essentially a process journey from

Executive Report continued

EMPLOYEE SATISFACTION SURVEY NOVEMBER 1999

Survey categories/Sub-categories	% Employees who rated satisfaction as*		
	High (above av. 7,6,5)	Average/ Undecided (4)	Poor (below av. 3,2,1)
1 Overall employee satisfaction	89	9	2
2 Leadership	90	8	2
3 Organisational climate and culture	86	12	2
4 Job challenge	88	6	6
5 Job enjoyment	84	7	9
6 Job motivation	81	9	10
7 Organisational effectiveness	84	13	3

(*measured on a 7-point scale where 7 = high, 1 = poor)

CSIR overall results (Overall organisational response rate: 74%)			
Overall Index %			
1996	1997	1998	1999
67,1	68.6	70,9	73,7

“market to mind to market” - or that by which ideas are generated, developed and implemented to create impact in the market - our strategic intervention in this area has gained momentum in moving from the conceptual to the operational levels. During the year under review, a number of initiatives were launched to help stimulate innovation in the working environment.

A review of the investment portfolio of the organisation was carried out to understand the approach towards decision making for investment in the business units and to ensure that the current processes are improved, aligned and more relevant to market needs. The outcome of this review indicated that the culture of technology/investment management is well accepted in all business units and implemented throughout the CSIR, with good design of investment thrusts, review processes and use of investment tools.

Further improvements can be made in understanding “market to mind”, such as market needs, and “mind to market”, such as the commercialisation of offerings, as well as an improved understanding of impact assessment. The results and recommendations of the review have been incorporated as action plans into the business plans of each business unit for 2000/2001.

A number of workshops have been held with business units (attended by industry leaders) to help identify key technological challenges in a range of market sectors.

We have initiated action plans to ensure the “strategic management of innovation” by formally linking technology management (investment decisions) and business development (the market facing activities). We will continue to improve the investment process, through our Technology Managers' Forum and the now-available DACST Foresight studies, and by developing measures from the DACST Key Performance Indicators to measure innovation. There is ongoing focus on the strengthening of core competencies such as IT, biosciences and manufacturing.

A pilot study was undertaken at one of the business units to test a rigorous methodology and software aimed at improving the “front-end” (ideas generation) of the innovation cycle. In addition, a core competence model within the context of scenarios and foresight was developed, to link market offerings to competency development, and implemented in a business unit.

Labour relations

The organisation reacted well to the impact of the new labour and related legislation and the CSIR policies and practices successfully accommodated the new requirements.

For the first time since we entered into a recognition agreement with NEHAWU in 1990, we successfully concluded our wage negotiations after only a few meetings. This is a reflection of the growth in the relationship between the CSIR and its labour union representatives. High-level management discussions were also held with NEHAWU to facilitate the organisation's progress in the restructuring processes that were undertaken during 1999/2000.

Medical Aid Scheme

The CSIR's own Medical Aid Scheme came into effect on 1 April 1997. The objective is one of providing sustainable health care and at the same time limiting costs to an affordable level. The Scheme is based on managed health care principles, with a strong emphasis on co-responsibility between employer and employee.

The Fund is administered by Discovery Health and governed by a Board of Trustees consisting of Mr Albert Jordaan (Chairman), Dr Namane Magau and Ms Suzette Harmse.

Pension Fund

Our Pension Fund is registered in terms of the Pension Fund Act, Act 24 of 1956, and is a defined contribution plan. The Fund performed well compared to similar funds, with an average growth achievement of 23% (1998/99: 0%). The Fund is also governed by a Board of Trustees, consisting of Mr Albert Jordaan (Chairman), Ms Suzette Harmse, Ms Helena Heysteck, Ms Paula Norman, Mr Philip Masemola, Mr Daniel Mosito, Mr Thabo Poole and Mr Gerhard Smith.

GOAL 4: MAKING AN IMPACT ON SUSTAINABLE DEVELOPMENT AND THE PRESIDENTIAL IMPERATIVES

We continued our involvement in the national priority areas of the country through our Technology for Development (TfD) thrust, focusing on small business development (SMMEs), Indigenous Knowledge Systems and High Impact Integrative Projects (HIIPs). This thrust has been reviewed during the past year by a panel made up of international, regional and national experts, and subsequently strengthened as recommendations made during the review were implemented.

At the SMME level, we worked with national Government in programmes such as the Manufacturing Advisory Centre (MAC) Programme, the Business, Referral and Information Network (BRAIN) Programme, the SMME Procurement Programme, the SMME Export Guarantee Scheme, and the Technology Stations Programme.

At provincial level, we worked with SMME desks and departments of economic affairs in various provinces, such as in the North-West Province where we were contracted to manage the Technology Advice and Research Fund. At local level, our SMME activities occur mainly

through our business unit activities, as profiled in *Technology Impact*, the companion document to this Annual Report.

The CSIR has been involved as a member in the Indigenous Knowledge Systems (IKS) Committee, and we have played a role in the draft legislation process for IKS, which is currently under way.

In terms of HIIPs, our focus has been mainly on two community development projects - in the Eastern Cape at Lubisi and in KwaZulu-Natal at Manguzi. The Lubisi project received two awards in 1999.

The past year has also seen an increased focus on rural areas, particularly on the sustainable development of communities in a holistic way, such as our community development projects in the Madikwe area in the North-West Province.

In the coming year, our activities in development will particularly focus on job creation in the SMME sector and rural development. These two areas represent two of the seven Presidential Imperative programmes and we will continue our active role in these programmes through interaction and co-operation with Government, Science Councils, tertiary education institutions, especially the University of Pretoria's Post-Graduate School of Rural Development, business, and other organisations.

Helping to create an understanding of science and technology

In helping to promote greater awareness and understanding of the role and value of science and technology, we participated actively in DACST's 2000 Week of Science, Engineering and Technology activities in the Northern Province and in the Free State, and at SciFest (the annual science festival held in Grahamstown).

We again co-sponsored the annual Science and Technology Journalism Awards, together with the other Science Councils and DACST, which were launched during the Year of Science and Technology in 1998 to give recognition to journalists and science writers who succeed in helping to raise public awareness and understanding of the role and relevance of science, engineering and technology in creating economic prosperity for our country.

Executive Report continued

GOAL 5: HARNESSING THE INFORMATION REVOLUTION

Information Technology (IT) is a core competence of the CSIR that needs to be continually strengthened. During the year under review, a number of activities in support of this goal were implemented.

The development of a strategic framework for IT activity was undertaken, including architecture standards, policies and procedures with the objective of aligning IT activity across the organisation and lowering total cost of ownership of internal IT platforms. Specific progress in this area included benchmarking the total cost of ownership with Gartner Benchmarks, which indicated that the CSIR's total cost of ownership (10,5% of turnover) compared favourably with that of other R&D organisations internationally (14,5% of turnover).

As regards the overarching IT architecture for the CSIR, significant progress has been made with identifying alternative strategic trajectories for the IT infrastructure and the CSIR's portfolio of business applications. In particular, the new challenges of a knowledge economy and the threats and opportunities of e-business have shaped the organisation's view of its business and information architecture to which the technical and application architecture must respond. Other business initiatives in the CSIR have improved processes and minimised paper flow to become increasingly aligned with IT architectural thinking.

Our Web Councils developed a continuous improvement process for our Internet web content, as well as assisting with e-commerce pilot projects, developing standards for our Intranet and entrenching the use of the CSIR Management Model (CMM) (based on the South African Excellence Model). CMM captures all CSIR policies, procedures, practices, standards and key documents in a single web environment.

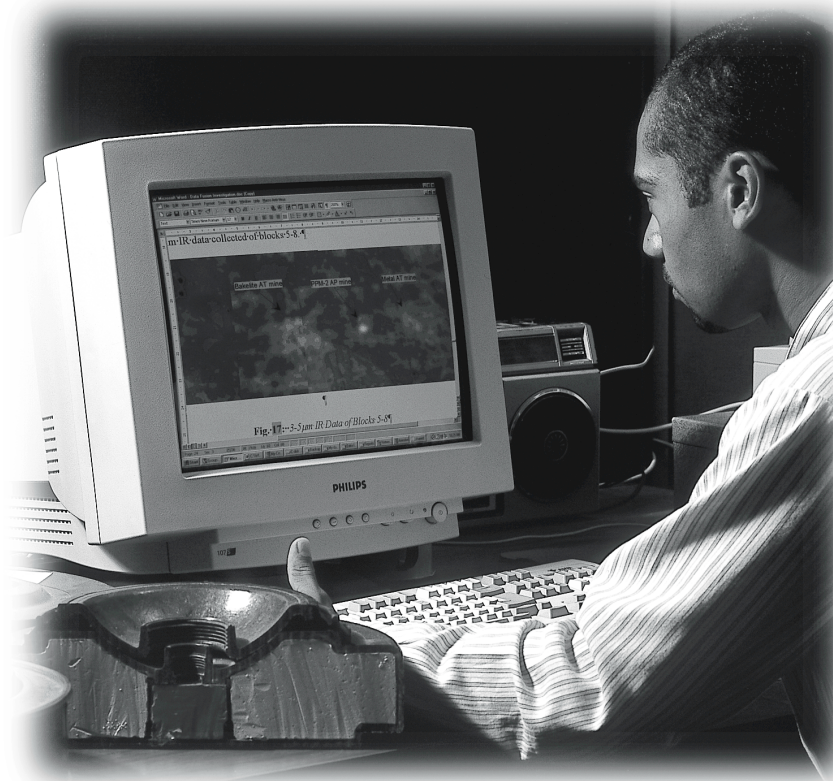
Substantial effort has gone into identifying user IT training needs. A major Computer-Based Training project was implemented to help foster a strong IT culture through awareness and skills creation. Over 2 300 employees participated in this training project, for which SAQA recognition is being sought.

The CSIR's structured process for Year 2000 (Y2K) compliance was completed satisfactorily. An external reviewer

commented that: "We would place on record that in our opinion the Y2K project in the CSIR appears to be one of the most professionally managed Y2K projects we have encountered."

During the year a generic set of IT measures was developed and piloted in one of our business units. The intention is to apply these measures across the organisation to enable the ongoing measurement of the level of IT activity in the CSIR.

Our knowledge management initiative has also seen significant growth over the past year. In line with the nature of the organisation, the CSIR has elected to focus on the "personalisation" rather than the "codification" route into knowledge management. This recognises that while significant information is recorded in various documents, much of the knowledge remains tacit rather than explicit. In response to the need to capture tacit knowledge, an investigation has been undertaken into a number of knowledge management systems to identify the best implementation solution for the organisation in the forthcoming financial year.



MANAGING OUR PARLIAMENTARY GRANT

The Parliamentary Grant allocated to the CSIR for the 1999/2000 financial year amounted to R315,6 million (1998/1999: R325,5 million), which represented a decline of 3,0% in nominal terms and close to 10% in real terms. This grant continues to be the key investment resource of the CSIR and is used to create and strengthen operational and technological core competencies and capacity to support our involvement in national initiatives that promote technology as an enabler of economic growth and sustainable development.

The investment priorities in the CSIR are strategically based on national and market needs and technology trends, as well as the ability of the organisation to effectively and efficiently deploy any such investment and develop and deliver appropriate products and services. During the year under review, we further refined our comprehensive approach to technology management and the investment of the Parliamentary Grant, following an in-depth review of the investment portfolio and approach.

During the 1999/2000 financial year, the Parliamentary Grant was largely invested in the technological core competencies of manufacturing (including materials), information technology, environment, bioscience and infrastructure (including housing and transport), together with some support underpinning our competencies in mining research and national safety and security-related technologies. A portion was also invested in organisational/operational core competencies including human resource development, leadership and managerial competency, excellence in R&D and innovation.

The companion document to this Report, *Technology Impact*, profiles a number of scientific and technological developments supported through the Parliamentary Grant investment.

Core investment by Government continues to be a very important instrument to leverage the CSIR's contribution to national priorities. Continued pressure on the fiscus, however, also dictates pragmatic attention to other revenue sources. Thus, with now close to 60% of our overall income funded from external sources, the CSIR compares very favourably with similar institutions internationally. Indeed, few international parastatal research organisations have the ability to generate more than 50% of their operating income externally.

ORGANISATION CHANGES

As an active response to current and future local and global market needs, three important areas in the CSIR were restructured during the past year:

- Food, Biological and Chemical Technologies, to strengthen core technical competencies in the areas of biotechnology and speciality and fine chemicals in order to enable more effective responses to global opportunities in the agro-food, pharmaceutical, fine chemicals, biotechnology and associated markets to help the CSIR become a world-class player in these dynamic markets;
- Defence Technology, with the main aim of developing and maintaining a core technology base to support the South African National Defence Force's technology strategy; and
- Manufacturing and Materials Technology, to support the drive by the manufacturing industry to become the engine for growth and economic welfare in the country.

CHANGES TO OUR MANAGEMENT BOARD

Dr Petro Terblanche, previously Director of the Food Science and Technology business unit, has been appointed as Director of the new business unit of Food, Biological and Chemical Technologies. Mr Neo Moikangoa, whose Executive portfolio includes Technology for Development and Policy, has also been appointed as Director of the Building and Construction Technology business unit. Dr Adi Paterson, Executive Vice-President: Technology, and CSIR Chief Information Officer (CIO), has been seconded on a part-time basis to undertake the equivalent CIO role at the University of Pretoria.

ACQUISITIONS

The CSIR Board agreed in November 1999 to the acquisition of Quo-Tec Limited, a small successful specialist consultancy based in the United Kingdom. The acquisition provides the CSIR with a viable and sustainable technologically-based consultancy in the UK, as well as helping us to expand our services into Europe. This is particularly important in view of the importance of internationalisation as a major component of our growth strategy. Quo-Tec's core business of materials and related manufacturing technology fits in well with the activities of a number of CSIR business units. This acquisition is effective from 1 April 2000.

Executive Report continued

KEY INITIATIVES

University of Pretoria/CSIR Alliance

The rapidly emerging global knowledge economy is driving countries and organisations to become globally competitive and has resulted in highly skilled people - particularly knowledge workers - being a key (and increasingly scarce) resource, critical to success. In addition, it means that South Africa's prime sources of competition for talent are international, not just local.

The White Papers on Higher Education and Science and Technology, in framing the National System of Innovation, have clearly delineated the requirement for substantially enhanced collaboration between the various science, engineering and technology institutions to stimulate national competitiveness and sustainable development. This, coupled with the need for a quantum leap in support of enhancing South Africa's competitiveness, demands the creative consideration of new ways for institutions to work much more closely together.

The decision to develop a strategic alliance between the CSIR and the UP therefore aims to enhance South Africa's international S&T competitiveness, and greatly strengthen the National System of Innovation through establishing a world-class, world-scale consortium with significant educational, research, and technology transfer infrastructure and competence.

This is not an exclusive arrangement, but is intended to build on the significant goodwill and geographic proximity between the two institutions. Indeed, in a world increasingly responsive to a wide variety of alliancing, partnering and co-operation modalities, the combined strategy of the two institutions would - in the spirit of building a "Team South Africa" approach to solving national problems and addressing national priorities - also seek to build on and reinforce the many collaborative arrangements and consortium-based approaches which already exist with other institutions in the country.

Nowhere in South Africa has an initiative been taken which can access such competencies in a holistic way. The CSIR/UP Strategic Alliance, both in terms of the human capital and physical facilities, creates an engine

for growth that is unrivalled in the southern hemisphere. This will, in addition, open the door for substantial expansion of existing international technology and business linkages (web address: <http://www.csir.co.za/csirup>).

The Innovation Hub

The signing of a Memorandum of Understanding between the Gauteng Provincial Government and the CSIR/UP Alliance has ushered in a new era of collaboration, and marks one of the first steps in placing the Alliance firmly in the public eye.

Keenly aware of the benefits of achieving economic growth, the Gauteng Trade and Industrial Strategy (1997) openly challenges the industrial status quo of the Province and foresees the need to reposition the economy through the creation of knowledge-intensive industries. The Innovation Hub seeks to create a unique space where high-tech entrepreneurs and world-class business, education, research and venture capital will meet, network and prosper. Acknowledging that in the information age small, nimble, innovative businesses will become key economic drivers, the Hub will provide support for their creation, nurturing and growth.

The Hub will also provide a new dimension for combining the strengths of the UP and the CSIR with those of business and Government to stimulate new economic activity and provide opportunities for our own innovative technologies to be commercialised (web addresses: <http://www.csir.co.za/csirup/hub> and <http://www.innovationhub.co.za>).

COMMERCIALISATION

During the year under review, the CSIR concentrated its higher-level commercialisation efforts on the further development of models for the successful commercialisation of CSIR offerings.

Such models now include the holding of equity by the CSIR in operating companies based on CSIR technologies and the application of venture capital instruments to enhance venturing. This has led to the formation of Technovent (Pty) Ltd, with four technology groups incorporated as subsidiaries, and one joint venture, namely:



- Plasmatherm (Pty) Ltd provides plasma nitriding surface-hardening services to the industry.
- ThermaSpray (Pty) Ltd develops and applies ceramic and metal thermal spray coatings and offers customised solutions to industry.
- AMP Ceramics (Pty) Ltd designs and supplies high-quality ceramic injection-moulded products to a variety of end-users and equipment manufacturers worldwide.
- BSS (Pty) Ltd commercialises and exploits a selection of CSIR-developed early warning security systems technologies.
- Aeroflo (Pty) Ltd (joint venture) designs and manufactures air particle separators mainly for helicopters. This company uses tubes, patented by the National Energy Corporation of South Africa (previously AEC) which is a partner in this venture, to provide highly efficient low-maintenance filters with minimum power loss.

The turnover of the Technovent group of companies was R8,6 million in its first year of operation, which exceeded expectations.

Another element of the commercialisation thrust has been to encourage the formation of joint equity holding at business unit level to expand the market penetration of our core businesses, especially in the international domain, such as the CSIR Miningtek/Snowden Mining Technology joint venture based in Western Australia. We are also reviewing, with the support of an international review team, our intellectual property management and exploitation within the CSIR, and the role of Technifin (Pty) Ltd in this important area.

OUR SUBSIDIARIES

The activities of the CSIR's subsidiaries, as set out in Annexure A, are, respectively, to invest in and develop research, and implement and transfer technology to industry by licensing new inventions, and to provide finance to develop technology and venture capital to exploit it. The aggregated deficit of the subsidiaries amounted to R7,1 million (1999: R121,000).

POST-BALANCE-SHEET EVENTS

No material facts or circumstances have arisen between the dates of the balance sheet and production of this report which affect the financial position of the organisation as reflected in these financial statements.

FORWARD TO THE FUTURE!

While the CSIR can look back proudly on a sound track record of achievement in science and technology, the highly fluid environment in which we operate requires us to continually review our strategy to ensure our continued contribution to national priorities and to making South Africa the global winner it can undoubtedly be.

Building world-class consortia with a significant educational, research and technology transfer infrastructure and competence is an exciting challenge, and critical if South Africa is to be successful in the turbulent global environment. We are therefore intensifying our efforts to build alliances and partnerships, locally and globally, underpinned by the power of effective information technology, to unleash the full capacity of science and technology in contributing to the betterment of all.

BOARD APPROVAL

The annual financial statements of the CSIR for the year ended 31 March 2000, as set out on pages 17 to 55 of this report, were approved by the CSIR's executive management and the CSIR Board at its meeting held on 13 June 2000. The Board is of the opinion that the CSIR is financially sound and operates as a going concern.

These statements are signed on behalf of the CSIR Board by:

Mr Roger Jardine
CSIR Board Chairman

Dr Geoff Garrett
CSIR President and CEO

Five-year financial review

31 March 2000

	2000	1999	1998	1997	1996
	R'000	R'000	R'000	R'000	R'000
FINANCIAL INDICATORS					
Total reserves	376,253	365,217	353,555	346,245	460,574
Long-term liabilities	9,000	14,350	-	-	-
Total assets	550,886	542,583	490,212	453,862	566,927
Net assets	385,253	379,567	353,555	346,245	460,574
INCOME AND EXPENSE INDICATORS					
Parliamentary Grant	315,649	325,469	336,255	304,030	260,128
External operating income	433,215	361,194	352,519	348,337	305,980
Expenditure	748,355	688,098	704,791	642,222	557,608
Net post-acquisition loss of joint ventures	23	-	-	-	-
Investment income	10,550	13,097	23,327	58,526	34,885
Net income	11,036	11,662	7,310	68,671	43,385
CASH FLOW					
Net cash flow from operating activities	53,540	83,755	57,645	73,043	36,801
Net cash outflow from investing activities	(36,600)	(108,643)	(48,081)	(43,544)	(30,470)
Net cash flow from financing activities	(5,350)	14,350	-	(175,068)	-
Cash and cash equivalents beginning of year	43,784	54,322	44,758	190,327	183,996
Cash and cash equivalents end of year	55,374	43,784	54,322	44,758	190,327
RATIO ANALYSIS					
Asset management					
Net asset turn	2.0	1.8	2.0	2.1	1.3
Return on net assets	2.9%	3.1%	2.1%	19.8%	9.4%
Current ratio	1.3	1.2	1.5	1.7	2.9
Performance					
Total income (excl. investment income) per employee	274.3	222.8	227.6	212.6	177.0
Total external operating income per employee	158.7	117.2	116.5	113.5	95.6
Total income (excl. investment income) per R1 operating expenditure	2.4	2.6	2.1	2.2	2.3
Remuneration as a % of total expenditure	53.5%	55.5%	48.8%	50.6%	43.7%
Net cash generated from operating activities per employee	19.6	27.2	19.0	23.8	11.5
Independence ratio	58.4%	3.5%	52.8%	57.2%	56.7%

DEFINITIONS

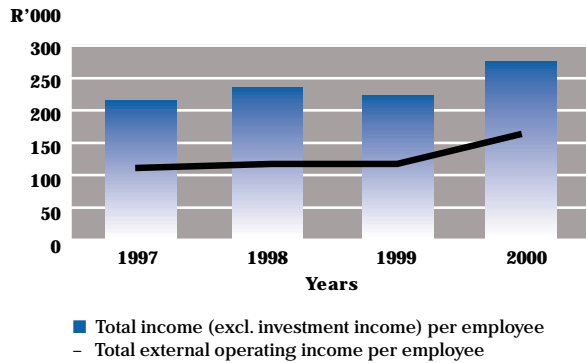
Net asset turn - Total income (incl. investment income) divided by net assets

Return on net assets - Net income expressed as a percentage of net assets

Current ratio - Current assets divided by current liabilities

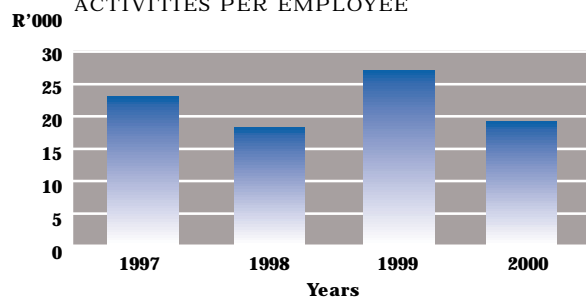
Independence ratio - Total external income (incl. investment income) divided by total income.

INCOME PER CAPITA



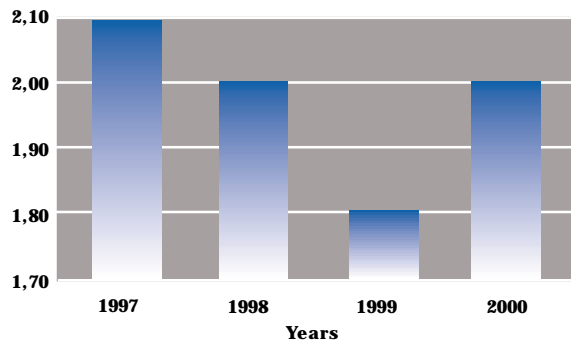
Income per employee showed an improvement due to the increase in total income of the CSIR and a decrease in the number of personnel.

NET CASH GENERATED FROM OPERATING ACTIVITIES PER EMPLOYEE



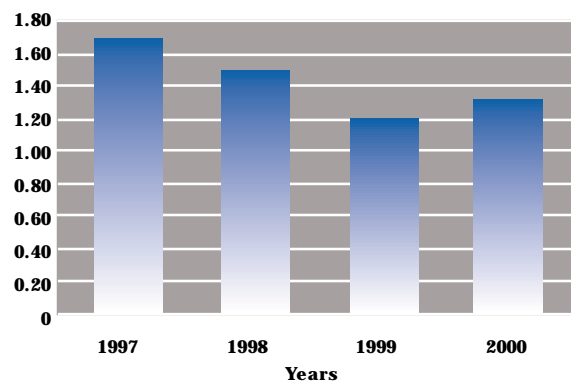
Net cash generated per employee declined due to the decline in advances received from customers.

NET ASSET TURN



The increase in net asset turn is the result of the increase in external income coupled with lower expenditure on property, plant and equipment.

CURRENT RATIO



The current ratio showed a slight improvement due to the improvement of cash resources. The improvement in cash resources is the result of improved cash management.

Income Statement

for the year ended 31 March 2000

	Notes	GROUP		CSIR	
		2000 R'000	1999 R'000	2000 R'000	1999 R'000
Turnover	2	774,217	696,783	747,446	685,934
Other income		1,619	677	1,113	729
Profit on disposal of property, plant and equipment		305	-	305	-
Total operating income		776,141	697,460	748,864	686,663
Expenditure					
Employees' remuneration		418,683	383,767	400,633	382,017
Depreciation	6	40,946	37,130	40,045	36,951
Operating expenses		322,857	275,818	307,677	264,560
Loss on disposal of property, plant and equipment		-	4,570	-	4,570
Total expenditure		782,486	701,285	748,355	688,098
Net operating (deficit)/surplus for the year before investment income	4	(6,345)	(3,825)	509	(1,435)
Income from investments	5	11,232	14,663	10,550	13,097
Net post-acquisition loss of joint ventures	9	(973)	-	(23)	-
Net surplus for the year		3,914	10,838	11,036	11,662
Transfer to self-insurance fund	16	750	-	750	-
Accumulated funds at the beginning of the year		341,987	331,149	355,217	343,555
Accumulated funds at the end of the year		345,151	341,987	365,503	355,217

Balance Sheet

31 March 2000

	Notes	GROUP		CSIR	
		2000 R'000	1999 R'000	2000 R'000	1999 R'000
Capital employed					
Distributable reserves					
Total accumulated funds		355,901	351,987	376,253	365,217
Accumulated funds		345,151	341,987	365,503	355,217
Self-insurance fund	16	10,750	10,000	10,750	10,000
Non-distributable reserve					
Foreign currency translation reserve		313	62	-	-
Long-term liabilities	14	13,989	18,788	9,000	14,350
Total capital employed		370,203	370,837	385,253	379,567
Employment of capital					
Property, plant and equipment	6	283,814	306,234	278,996	305,441
Interest in subsidiaries	7	-	-	31,969	14,874
Investments	8	36,316	33,138	32,110	30,000
Interest in joint ventures	9	6,520	-	277	-
Net current assets		43,553	31,465	41,901	29,252
Current assets		214,209	199,743	207,534	192,268
Accounts receivable	10	110,597	113,680	107,158	112,343
Inventory and contracts in progress	11	45,461	36,536	45,002	36,141
Cash and cash equivalents		58,151	49,527	55,374	43,784
Current liabilities		170,656	168,278	165,633	163,016
Advances received	12	32,911	48,777	32,911	48,777
Accounts payable and provisions	13	137,745	119,501	132,722	114,239
Total employment of capital		370,203	370,837	385,253	379,567

Cash Flow Statement

for the year ended 31 March 2000

	Note	GROUP		CSIR	
		2000 R'000	1999 R'000	2000 R'000	1999 R'000
Cash flow from operating activities					
Cash receipts from external customers		457,007	344,191	437,126	342,328
Parliamentary Grant received		315,649	325,469	315,649	325,469
Cash paid to suppliers and employees		(737,007)	(597,295)	(709,785)	(597,139)
Cash generated from operating activities	A	35,649	72,365	42,990	70,658
Investment income received		11,232	14,663	10,550	13,097
Net cash inflow from operating activities		46,881	87,028	53,540	83,755
Cash flow from investing activities					
Property, plant and equipment acquired		(31,932)	(108,110)	(26,980)	(107,549)
Proceeds from the disposal of property, plant and equipment		7,911	1,134	7,885	1,402
Increase in net interest in subsidiaries		-	-	(17,095)	(2,496)
Increase in interest in joint ventures		(7,493)	-	(300)	-
Increase in investments		(120)	-	(110)	-
Net acquisition of long-term patents		(1,824)	(2,572)	-	-
Net cash outflow from investing activities		(33,458)	(109,548)	(36,600)	(108,643)
Cash flows from financing activities					
(Decrease)/increase in long-term liabilities		(4,799)	11,729	(5,350)	14,350
Net cash (outflow)/inflow from financing activities		(4,799)	11,729	(5,350)	14,350
Net increase/(decrease) in cash and cash equivalents		8,624	(10,791)	11,590	(10,538)
Cash and cash equivalents at beginning of the year		49,527	60,318	43,784	54,322
Cash and cash equivalents at end of year		58,151	49,527	55,374	43,784

Note to the Cash Flow Statement

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
A. Reconciliation of net operating (deficit)/surplus for the year before investment income to cash generated from operations				
Net operating (deficit)/surplus for the year before investment income	(6,345)	(3,825)	509	(1,435)
Adjusted for:				
Depreciation	40,946	37,130	40,045	36,951
Loss on disposal of property, plant and equipment	-	4,570	-	4,570
Profit on disposal of property, plant and equipment	(305)	-	(305)	-
Provision for permanent diminution in the value of investments	3,800	-	3,800	-
Unrealised loss/(gain) on forward exchange contracts	903	(380)	903	(380)
Amortisation of technology licensing projects	766	858	-	-
Operating surplus before changes in working capital	39,765	38,353	44,952	39,706
Decrease in accounts receivable	3,083	14,479	5,185	14,536
Increase in inventory and contracts in progress	(8,925)	(10,268)	(8,861)	(9,943)
(Decrease)/increase in advances received	(15,866)	41,335	(15,866)	41,335
Increase/(decrease) in accounts payable and provisions	17,592	(11,534)	17,580	(14,976)
Net working capital changes	(4,116)	34,012	(1,962)	30,952
Cash generated from operations	35,649	72,365	42,990	70,658

Notes to the Annual Financial Statements

31 March 2000

1. PRINCIPAL ACCOUNTING POLICIES

The annual financial statements are prepared on the historical cost basis, in accordance with generally accepted accounting practice, and incorporate the following principal accounting policies, which have been consistently applied in all material respects.

1.1 Basis of consolidation

The annual consolidated financial statements incorporate the annual financial statements of the CSIR and its subsidiaries. The operating results of the subsidiaries are included from the effective dates of acquisition and up to the effective dates of disposal. All significant inter-company transactions and balances have been eliminated.

1.2 Associate companies

Associate companies are those companies in which the group has a significant influence and which it intends to hold as long-term investments. Associate companies are accounted for on the equity method from their most recently audited financial statements or unaudited management information as at 31 March 2000.

1.3 Joint ventures

Investments in jointly controlled entities are accounted for by the equity method from their most recently audited financial statements or unaudited management information as at 31 March 2000. The carrying amount of such investments is reduced to recognise any decline, other than a temporary decline, in the value of individual investments.

Where a group enterprise transacts with a joint venture, unrealised profits and losses are eliminated to the extent of the group's interest in the relevant joint venture, except where unrealised losses provide evidence of an impairment of the asset transferred.

1.4 Investments

Investments, other than in associates or joint ventures, are stated at cost less any provisions for diminution in value. Dividends are accounted for on the last day of registration in respect of listed investments and when declared in respect of unlisted investments. On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is charged or credited to the income statement.

1.5 Research and development

Research costs are charged against income as and when incurred. Development costs of clearly defined products, of which the future technical feasibility and commercial viability have been proven to the satisfaction of the Board, are capitalised (refer to note 1.7.3). The extent of capitalisation is limited to an amount equal to the present value of expected net future income.

1.6 Foreign currencies

1.6.1 Foreign entities

The financial statements of foreign subsidiaries are translated into South African currency as follows:

- Assets and liabilities at rates of exchange ruling at the reporting entities' financial year end.
- Income, expenditure and cash flow items at the average rates of exchange during the relevant financial year.

Differences arising on translation are reflected in non-distributable reserves in the foreign currency translation reserve.

1.6.2 Foreign currency transactions and balances

Transactions in foreign currencies are converted to South African currency at the rate of exchange ruling at the date of the transaction.

Monetary assets and liabilities denominated in foreign currencies are stated in South African currency using the rates of exchange ruling at the financial year end. The resulting exchange differences are dealt with in the income statement.

1.6.3 Financial assets and liabilities

Gains and losses from forward exchange contracts are dealt with in the income statement. Fair values of financial instruments are included in assets and liabilities in the financial statements.

1.7 PROPERTY, PLANT AND EQUIPMENT

1.7.1 Land and buildings

Land and buildings are stated at cost. Buildings are regarded as investment properties and are not depreciated, but provision is made for a permanent diminution in value. Provision for maintenance is charged against income.

1.7.2 Plant, equipment and vehicles

Plant, equipment and vehicles are stated at cost less accumulated depreciation.

1.7.3 Development expenditure and intellectual property

Development expenditure and intellectual property consist of capitalised development costs as approved by the Board. Capitalisation is limited to the present value of expected net future income (refer to note 1.5).

1.7.4 Finance leases

Assets acquired under finance lease agreements are capitalised at their cash cost equivalent and a corresponding liability is raised. Lease payments are allocated between the lease finance cost and the capital repayment, using the effective interest rate method.

1.7.5 Depreciation

Depreciation is based on cost and calculated on the straight-line method at rates considered appropriate to write off book values over the estimated useful lives of the assets, except for:

- Assets costing R2 000 or less, which are written off in the year of acquisition.
- Assets specifically acquired for a contract, which are depreciated over the life of the contract.
- Strategic assets of limited commercial application, which are written down to expected future commercial recoverable value at acquisition, with the remaining book value depreciated over the estimated useful lives of the assets.
- Development expenditure and intellectual property, which are depreciated over a maximum period of three years.

The estimated lives of the main categories of property, plant and equipment are as follows:

Plant	- 10 years
Equipment	- 5 - 10 years
Computer equipment	- 3 - 7 years
Vehicles	- 5 years
Development expenditure and intellectual property	- 3 years

The recorded value of these depreciated assets is periodically compared to the anticipated recoverable amount if the assets were to be sold. Where an asset's recorded value has declined below the recoverable amount, and the decline is expected to be of a permanent nature, the decline is recognised as an expense. To determine the recoverable amount, discounted future cash flows are considered.

1.8 Retirement benefits

1.8.1 Pension Fund

The CSIR operates a defined contribution plan, the assets of which are held in a separate trustee-administered Fund. The benefits payable by the Fund in the future, due to retirements and withdrawals from the Fund, are contributions by members to the Fund together with fund interest at a rate determined by the valuator with the consent of the trustees. The rate is so determined that the value of the total liabilities of the Fund shall not exceed the value of the total assets of the Fund.

1.8.2 Post-retirement benefits other than pension

The CSIR formed an independent Medical Aid Scheme on 1 April 1997.

1.9 Turnover

Turnover comprises:

- The net invoiced value of research, development and implementation contracts, excluding value-added tax.
- Income acknowledged on contracts in progress as calculated per note 1.10.
- The annual Parliamentary Grant.
- Royalties.

Consolidated turnover excludes sales to Group companies.

Notes to the Annual Financial Statements

31 March 2000

1.10 Inventory and contracts in progress

Raw materials and finished goods are stated at the lower of cost and net realisable value. Cost of stock is determined by the average method. Contracts in progress are stated at the lower of cost and net realisable value. Net realisable value is calculated as a percentage of the sales value of work completed, after provision for losses relating to the stage of completion and any foreseeable losses to completion of the contract.

1.11 Deferred taxation

Deferred tax is accounted for using the balance sheet liability method in respect of temporary differences arising from differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax basis used in the computation of taxable profit.

Where the tax effects of temporary differences, including those arising from tax losses, give rise to a deferred tax asset, the asset is recognised only if it is probable that future taxable income will be sufficient to allow the tax benefit of the loss to be realised.

1.12 Comparative figures

Where necessary, comparative figures have been reclassified to ensure comparability.

	GROUP				CSIR			
	2000 R'000	%	1999 R'000	%	2000 R'000	%	1999 R'000	%
2. TURNOVER								
Parliamentary Grant	315,649	41	325,469	47	315,649	42	325,469	47
Contract income	450,045	58	367,188	52	426,601	57	356,339	52
Private sector	226,325	29	192,604	27	214,445	29	183,983	27
Public sector	91,628	12	74,965	11	91,628	12	74,965	11
National Safety & Security sector	64,213	8	56,729	8	64,213	9	56,729	8
International sector (including Africa)	67,879	9	42,890	6	56,315	7	40,662	6
Royalties	8,523	1	4,126	1	5,196	1	4,126	1
Total turnover	774,217	100	696,783	100	747,446	100	685,934	100

3. CHANGES IN ACCOUNTING POLICY

Foreign currency transactions	-	380	-	380
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During the prior year the CSIR changed its accounting policy for foreign currency transactions and balances. Transactions in foreign currency are now converted to South African currency at the rate of exchange ruling on the date of the transaction.

Forward exchange contracts are valued at fair value at year end. This change was necessary to comply with generally accepted accounting practice.

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
4. NET OPERATING (DEFICIT)/SURPLUS FOR THE YEAR BEFORE INVESTMENT INCOME				
The net operating (deficit)/surplus for the year before investment income is arrived at after taking the following items into account:				
Auditors' remuneration	1,369	1,141	1,220	1,001
Audit fees	1,304	1,092	1,162	952
Expenses	65	49	58	49
Exchange (losses)/gains	(534)	4,385	(534)	4,161
Fees paid for services	70,854	56,192	69,791	55,204
Patent costs	1,099	799	1,099	799
Legal costs	1,706	849	1,644	849
Consultants	68,049	54,544	67,048	53,556
Rentals paid for	12,253	7,493	11,732	7,038
Buildings	1,872	454	1,534	-
Equipment	10,381	7,039	10,198	7,038
Board Members' emoluments for services on the Board	156	131	156	131
Abnormal item Amortisation of technology licensing projects	766	858	-	-
5. INCOME FROM INVESTMENTS				
Interest	11,232	14,663	10,550	13,097
Earned	11,298	14,674	10,550	13,097
Paid	(66)	(11)	-	-

Notes to the Annual Financial Statements

31 March 2000

	Depreciation for the year R'000	2000			1999		
		Cost R'000	Accumulated depreciation R'000	Net book value R'000	Cost R'000	Accumulated depreciation R'000	Net book value R'000
6. PROPERTY, PLANT AND EQUIPMENT GROUP							
Land and buildings	-	164,065	-	164,065	157,753	-	157,753
Equipment	(40,485)	382,458	264,191	118,267	426,779	279,402	147,377
Vehicles	(461)	3,714	2,232	1,482	3,076	1,972	1,104
	(40,946)	550,237	266,423	283,814	587,608	281,374	306,234
CSIR							
Land and buildings	-	164,065	-	164,065	157,753	-	157,753
Equipment	(39,659)	377,014	262,870	114,144	425,570	278,910	146,660
Vehicles	(386)	2,942	2,155	787	2,997	1,969	1,028
	(40,045)	544,021	265,025	278,996	586,320	280,879	305,441

	2000 Net Book Value			
	Land and buildings R'000	Equipment R'000	Vehicles R'000	Total R'000
GROUP				
Opening balance	157,753	147,377	1,104	306,234
Additions	6,817	24,247	868	31,932
Disposals	(505)	(12,872)	(29)	(13,406)
Depreciation	-	(40,485)	(461)	(40,946)
	164,065	118,267	1,482	283,814
CSIR				
Opening balance	157,753	146,660	1,028	305,441
Additions	6,817	19,989	174	26,980
Disposals	(505)	(12,846)	(29)	(13,380)
Depreciation	-	(39,659)	(386)	(40,045)
	164,065	114,144	787	278,996

Land and buildings are unencumbered and full details of the titles are available at the registered office of the CSIR. Equipment with a net book value of R998 000 (1999: R280 700) is encumbered (see note 14).

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
7. INTEREST IN SUBSIDIARIES				
Shares at cost			32,551	27,225
Indebtedness			(582)	(12,351)
- by subsidiaries			13,058	2,817
- to subsidiaries			(13,640)	(15,168)
See Annexure A for details				
Total			31,969	14,874
8. INVESTMENTS				
	Number of shares held		Class of shares	
	2000	1999		
Unlisted shares			2,120	-
- BreatheTex (Pty) Ltd	12,000	-	Ordinary	5,800
Provision for share write-off				(3,800)
- Virus Protection Systems (Pty) Ltd	25	-	Ordinary	110
- Aluminum Squeeze Castors (Pty) Ltd	10,000	-	Ordinary	10
- Naledi ya Africa (Pty) Ltd	250	-	Ordinary	-
Executive's valuation of shares (R'000)	2,120	-		
Investments in technology			4,196	3,138
Deposits (funds on call)			30,000	30,000
Total			36,316	33,138

Notes to the Annual Financial Statements

31 March 2000

	GROUP		CSIR	
	2000	1999	2000	1999
	R'000	R'000	R'000	R'000
9. INTEREST IN JOINT VENTURES				
Cost of investments ¹	6,764	-	300	-
Loans to joint ventures	729	-	-	-
Share of post-acquisition loss	(973)	-	(23)	-
	<u>6,520</u>	-	<u>277</u>	-

¹ Included in the cost of the investments is an amount of R6 464 000 for convertible unsecured debenture stock in Miningtek Consultants & Services (Pty) Ltd. The stock is convertible at an extraordinary general meeting of the shareholders. The CSIR will not have the right to vote at such a meeting called. The debenture stock can be converted into a further 100 fully paid ordinary shares. Additional shares will be issued to the other block of shareholders so that after conversion ownership remains in the same percentage as before conversion.

Details of the joint ventures at 31 March 2000 are as follows:

Name of joint venture	Place of incorporation	Portion of ownership interest	Portion of voting power held	Principal activity	Carrying value		Financial year end
					2000	1999	
					R'000	R'000	
Biosys (Pty) Ltd	South Africa	50%	50%	Development of botanical extracts	277	-	31 March
Miningtek Consultants & Services Limited*	British Virgin Islands	50%	50%	Mining industry consultancy	5,856	-	31 March
Aeroflo (Pty) Ltd ²	South Africa	100%	50%	Development of helicopter filters	387	-	31 March

² The CSIR and the National Energy Corporation of South Africa (previously AEC) decided to form the Aeroflo joint venture. At year end the AEC was still awaiting ministerial approval for taking up 50% of the shares in Aeroflo (Pty) Ltd. This has led to Aeroflo (Pty) Ltd being a subsidiary as defined in Section 1 of the Companies Act. As it is the group's intention for the AEC to obtain 50% of the shares in Aeroflo (Pty) Ltd, the control is seen to be temporary. Accordingly, Aeroflo (Pty) Ltd has been accounted for as a joint venture. The information required by paragraphs 62 to 64 of schedule 4 to the Companies Act are included in the disclosure below.

* Unaudited management accounts as at 31 March 2000 were used to account for this joint venture.

The following are details of the significant joint ventures' assets, liabilities and income:

	GROUP		CSIR	
	2000	1999	2000	1999
	R'000	R'000	R'000	R'000
Current assets	<u>10,810</u>	-	<u>319</u>	-
Long-term assets	<u>4,501</u>	-	<u>-</u>	-
Current liabilities	<u>6,323</u>	-	<u>268</u>	-
Long-term liabilities	<u>9,626</u>	-	<u>799</u>	-
Income	<u>23,931</u>	-	<u>39</u>	-
Expenses	<u>25,878</u>	-	<u>81</u>	-

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
10. ACCOUNTS RECEIVABLE				
Trade receivables	87,841	93,077	86,572	91,809
Prepaid expenditure	3,042	2,170	3,042	2,170
Forward exchange contracts	-	380	-	380
Other receivables	19,714	18,053	17,544	17,984
	<u>110,597</u>	<u>113,680</u>	<u>107,158</u>	<u>112,343</u>
11. INVENTORY AND CONTRACTS IN PROGRESS				
Inventory	3,208	5,179	2,749	4,784
Contracts in progress less provision for losses	42,253	31,357	42,253	31,357
	<u>45,461</u>	<u>36,536</u>	<u>45,002</u>	<u>36,141</u>
12. ADVANCES RECEIVED				
Advances on contracts received from clients	<u>32,911</u>	<u>48,777</u>	<u>32,911</u>	<u>48,777</u>
13. ACCOUNTS PAYABLE AND PROVISIONS				
Accounts payable and provisions	136,842	119,501	131,819	114,239
Forward exchange contracts	903	-	903	-
	<u>137,745</u>	<u>119,501</u>	<u>132,722</u>	<u>114,239</u>
14. LONG-TERM LIABILITIES				
Unsecured and interest-free				
IDC	3,257	4,160	-	-
The loan is repayable annually commencing 30 June 1996 in amounts equal to 45% of the net royalty income and/or the net deemed royalty income from specified projects. The loan repayments will be terminated at the earlier of 30 November 2002 or the date upon which the payments exceed the loan amount.				
AECI	9,000	14,350	9,000	14,350
The loan is repayable from 30 April 2000 as follows: 30 April 2000 - R5 350 30 April 2001 - R5 000 30 April 2002 - R4 000				
Miningtek Consultants & Services Limited	1,000	-	-	-
The loan has no fixed terms of repayment				
Secured and interest-bearing				
Capitalised finance leases	732	278	-	-
Total leases	1,019	333	-	-
Less: Portion repayable within one year included in current liabilities	287	55	-	-
The leases are repayable in monthly instalments at interest rates that vary between 14.5% - 21.62%. The last payment will take place in 2005. The current finance leases are secured over equipment with a net book value of R998 000 (1999: R280 700) (see note 6).				
	<u>13,989</u>	<u>18,788</u>	<u>9,000</u>	<u>14,350</u>

Notes to the Annual Financial Statements

31 March 2000

15. RETIREMENT BENEFITS OF EMPLOYEES

CSIR Pension Fund

The Fund is registered in terms of the Pension Funds Act, 1956, and is a defined contribution plan.

The CSIR's liability to the Fund is limited to paying the employer contributions. Life cover and dependants' pensions are fully secured by a continued income and life insurance policy.

Employer contributions of R24,8 million (1999: R22,9million) and employee contributions of R14,9 million (1999: R13,8 million) were paid over during the year. Employer contributions are charged against income when incurred.

Mine Officials Pension Fund and Chamber of Mines Pension Fund

At the time of the merger with the Chamber of Mines Research Organization in 1993, certain COMRO employees elected to remain members of the Mine Officials Pension Fund and Chamber of Mines Pension Fund. In terms of the agreement with the Chamber of Mines, this election holds no liability for the CSIR other than paying the monthly employee contributions. The Funds are defined benefit plans.

In respect of the employees who have formally converted their secondment to a CSIR appointment, employer contributions of R351 400 (1999: R353 921) and employee contributions of R192 255 (1999: R193 517) were paid over during the year. Employer contributions are charged against income when incurred.

Associated Institutions Pension Fund (AIPF) and Temporary Employees Pension Fund (TEPF)

These Funds are defined benefit plans. The formula used to determine pensions is based on the pensionable earnings of the final year, and the aggregate period of uninterrupted membership.

The CSIR has 9 employees (1999: 18) who are members of the AIPF and 4 employees (1999: 4) who are members of the TEPF. Both Funds are controlled by the State which has assumed responsibility for the unfunded portions of these Funds.

Employer contributions of R159 258 (1999: R316 457) and employee contributions of R60 499 (1999: R115 237) were paid over during the year to the AIPF and TEPF.

Post-retirement medical benefits

The CSIR has its own Medical Aid Scheme, based on managed health care principles, with a strong emphasis on co-responsibility between employer and employee. The objective is to provide sustainable health care and simultaneously limit the cost, present and future, to a level which is affordable.

The CSIR Board approved a cash payment of R190 million in 1997 to the CSIR Medical Aid Scheme, thereby transferring the liability for retirement benefits of members to the scheme. The future proceeds of this payment is expected to substantially cover the actuarial valuation of the liability of R280 million. The actuarial valuation was carried out in 1997.

16. INSURANCE AND RISK MANAGEMENT

The insurance and risk management policies adopted by the CSIR are aimed at obtaining sufficient cover at the minimum cost to protect its asset base, earning capacity and legal obligations against unacceptable losses.

All fixed assets are insured at current replacement value. Risks of a possible catastrophic nature are identified and insured while acceptable risks of a non-catastrophic nature are self-insured. Self-insurance has been instituted where the cost-to-benefit relationship exceeds the risk and the incidence of losses is of a minor and infrequent nature. Self-insured risks are reviewed on an annual basis to ensure that cover is adequate. An amount of R10,75 million (1999: R10 million) is held in a self-insurance fund to cover these risks. This amount is disclosed as part of accumulated funds in the balance sheet. No major losses were experienced during the year under review. Claims of a general nature were adequately covered.

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
17. CONTINGENT LIABILITIES				
There are contingent liabilities in respect of				
- Bank guarantees in respect of third party liabilities	5,194	5,841	5,194	5,841
18. CAPITAL COMMITMENTS				
Authorised but not contracted	6,620	-	6,620	-
This capital expenditure is to be financed from internal sources				
19. TAXATION				
The CSIR and its subsidiary, the South African Inventions Development Corporation (SAIDCOR), are exempt from South African normal taxation. No provision for normal taxation is made as none of the other subsidiaries of the CSIR earned taxable income. These subsidiaries have calculated tax losses to be set off against future taxable income.				
20. FINANCIAL INSTRUMENTS				

20.1 Forward exchange contracts

The Group enters into forward exchange contracts to buy specified amounts of foreign currencies in the future at a predetermined exchange rate.

Forward exchange contracts are entered into mainly to cover import orders. The Group has no policy to enter into forward exchange contracts for anticipated foreign receipts.

The Group does not use derivative financial instruments for speculative purposes.

Accounts receivable and accounts payable at 31 March 2000 include foreign trade receivables of R18 684 000 (1999: R5 657 000) and foreign trade payables of Rnil (1999: R1 583 000). The full amounts of foreign trade payables for 1999 were covered by forward exchange contracts at year end.

The following table summarises by major currency the amounts to be paid under forward contracts:

	GROUP		CSIR	
	2000 R'000	1999 R'000	2000 R'000	1999 R'000
US Dollars				
3 - 6 months at rates averaging \$6.34 (1999: \$6.14)	19,006	18,424	-	18,424
Swiss Francs				
3 - 6 months at rates averaging CHF4.68	-	1,098	-	1,098
6 - 12 months at rates averaging CHF4.95	-	237	-	237
Dutch Guilder				
3 - 6 months at rates averaging NLG3.51	-	42	-	42
	19,006	19,564	-	19,564

20.2 Credit risk

Financial assets that could subject the Group to credit risk consist principally of cash at bank and cash equivalents, deposits and accounts receivable, and loans to joint ventures. The Group's cash equivalents are placed with high-credit-quality financial institutions. Accounts receivable and loans to joint ventures are presented net of the allowance for doubtful receivables or loan write-offs. Credit risk with respect to trade receivables is limited due to the large number of customers comprising the Group's customer base and their dispersion across different industries and geographical areas. Accordingly, the Group does not have significant concentration of credit risk.

The carrying amounts of financial assets included in the balance sheet represent the Group's exposure to credit risk in relation to these assets.

The group does not have any significant exposure to any individual customer or counter-party.

20.3 Fair values

At 31 March 2000 the carrying amount of cash and cash equivalents, deposits, accounts receivable, accounts payable, contracts in progress, advances received and short-term borrowings approximated their fair values due to the short-term maturities of these assets and liabilities. All long-term loans except for interest-bearing capitalised finance leases are either interest free and/or have no fixed terms of repayment and therefore the fair value of these loans cannot be calculated.

Annexure A: Interest in subsidiaries

31 March 2000

Consolidated subsidiaries	Country of incorporation	Issued capital R'000	INTERESTS OF THE CSIR		Financial year end	Shares at cost	
			Effective holding			2000	1999
			2000 %	1999 %		R'000	R'000
Direct investment							
South African Inventions Development Corporation (SAIDCOR)	South Africa	27 220	100	100	31 March	27,220	27,220
Snowden Mining Industry Consultants (Pty) Ltd*	South Africa	-	-	100	31 March	-	-
Technovent (Pty) Ltd	South Africa	5,000	100	-	31 March	5,000	-
CSIR International Limited**	British Virgin Islands	326	100	100	31 March	326	-
CSIR North America Inc**	United States of America	5	100	100	31 March	5	5
* Issued capital R1 and shares at cost R1							
** No statutory audit was performed							
						32,551	27,225
Indirect Investments							
Included in SAIDCOR							
Technology Finance Corporation (Pty) Ltd (Technifin*)	South Africa	5 200	100	100	31 March	4,400	4,400
Included in Technifin carrying value:							
Quality Electronics Developments (Pty) Ltd	South Africa	1 000	76	76	30 June	-	-
Included in CSIR International							
Snowden Mining Industry Consultants (Pty) Ltd*	South Africa	-	100	-	31 March	-	-
Included in Technovent (Pty) Ltd							
AMP Ceramics (Pty) Ltd*	South Africa	-	100	-	31 March	-	-
Brilliant Security Solutions (Pty) Ltd**	South Africa	-	75	-	31 March	-	-
Plasmatherm (Pty) Ltd*	South Africa	-	100	-	31 March	-	-
Thermaspray (Pty) Ltd*	South Africa	-	100	-	31 March	-	-
* Issued capital R1 and shares at cost R1							
** Issued capital R100 and shares at cost R75							

INTERESTS OF THE CSIR						General nature of business
Net indebtedness to subsidiaries		Net investment				
2000 R'000	1999 R'000	2000 R'000	1999 R'000	2000 R'000	1999 R'000	
13,640	14,842	-	-	13,580	12,378	Investment in research development and implementation of technology.
-	326	-	785	-	459	International mining industry consulting organisation.
-	-	4,403	-	9,403	-	The company sources technologies and entrepreneurs from the CSIR, other S&T institutions, universities or any developer of technologies and develops them into viable businesses with the aim of spinning them off for capital gain.
-	-	6,293	-	6,619	-	The company serves as a holding company for CSIR international activities.
-	-	2,362	2,032	2,367	2,037	Supports and consults to the pipeline industry.
13,640	15,168	13,058	2,817	31,969	14,874	

The acquisition and transfer of technology to industry by licensing new inventions, providing finance to develop technology and venture capital for the exploitation thereof.

Holder of intellectual property in electronic technologies. This subsidiary is not consolidated because the Board of the CSIR is of the opinion that it would be of no real value to the users of the annual financial statements in view of the insignificant amounts involved. The investment was written off during 1997.

International mining industry consulting organisation.

Designs and supplies high-quality ceramic injection-moulded products to a variety of end-users and equipment manufacturers.

Commercialises and exploits a range of intrusion alarm systems.

Provides plasma nitriding surface-hardening services to industry.

Develops and applies ceramic and metal thermal spray coatings and offers customised solutions to industry.

We have been able to grow as an organisation by being responsive and relevant to the needs of clients and stakeholders. We have touched the lives of our fellow South Africans by striving to embed quality in everything we do.

The CSIR. People with vision, partnerships with purpose, technology with impact.

CSIR BOARD

PRESIDENT

EXECUTIVE

BUSINESS DEVELOPMENT	FINANCE AND COMMERCIALISATION	HUMAN RESOURCES	TECHNOLOGY FOR DEVELOPMENT AND POLICY	TECHNOLOGY AND CHIEF INFORMATION OFFICER
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BUSINESS UNITS

BUILDING AND CONSTRUCTION TECHNOLOGY
DEFENCE TECHNOLOGY
FOOD, BIOLOGICAL AND CHEMICAL TECHNOLOGIES
INFORMATION AND COMMUNICATIONS TECHNOLOGY
MANUFACTURING AND MATERIALS TECHNOLOGY
MINING TECHNOLOGY
ROADS AND TRANSPORT TECHNOLOGY
TEXTILE TECHNOLOGY
WATER, ENVIRONMENT AND FORESTRY TECHNOLOGY

To learn more about the CSIR and its activities, please visit our website at
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