



1995

CSIR ANNUAL REPORT & TECHNOLOGY IMPACT



## MISSION STATEMENT

The CSIR's business is to perform research and development to gain technology and thereafter ensure its implementation in order to:

- be the technology partner of South African Industry in both the formal and informal sectors to promote economic growth –

### TECHNOLOGY FOR COMPETITIVENESS

- provide technology solutions that improve the quality of life in urban and rural developing communities –

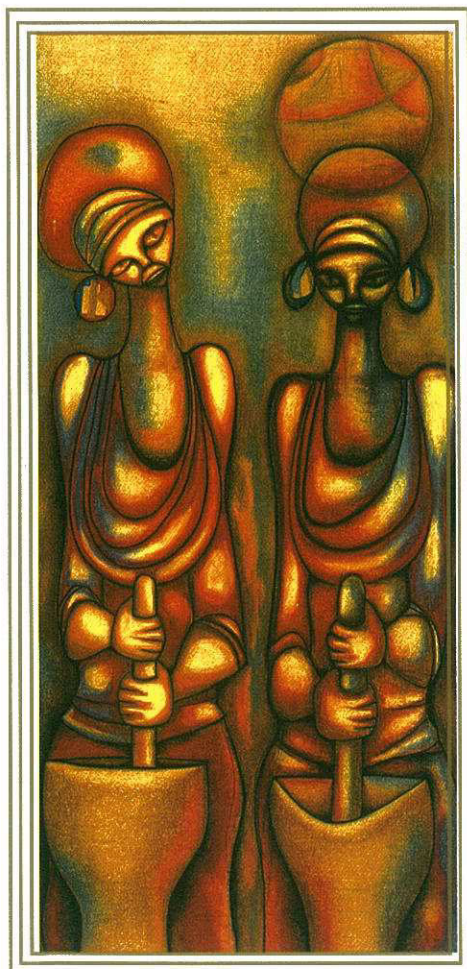
### TECHNOLOGY FOR DEVELOPMENT

- provide scientific and technological support to enhance decision-making in the public and private sectors –

### TECHNOLOGY FOR DECISION-MAKING

For 50 years the CSIR has harnessed the collective imagination of its scientists, engineers and support staff to create innovative products, services and technological solutions aimed at meeting the needs of the local and international markets.

The CSIR has played an integral part in the development of South Africa as a nation and as a technologically advanced society, and looks forward to continuing this tradition as the world advances towards the 21st century.



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This 50th anniversary report includes artwork by various South African artists, as well as from a Childrens' Art Workshop held at the CSIR as part of its anniversary activities.

*Cover artwork:*  
"The Medicine Man"  
Nico Vosloo

*Left:*  
"Amantomazana"  
Simon Dhlamini





## CHAIRMAN'S REVIEW



Mr P du P Kruger  
Chairman

The new democratic South Africa celebrated its first anniversary in the same year that the CSIR celebrates its fiftieth anniversary. The commemoration of this anniversary is not only for the achievements of the past, but also for an organisation that is poised to play a transforming role in the national projects of democratisation, economic growth and socio-economic development.

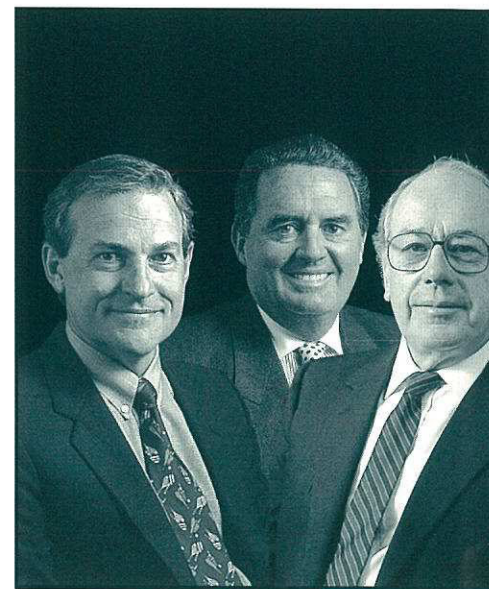
The task ahead is enormous as we move further towards equal opportunities and the upliftment of a previously disadvantaged section of our population, through the introduction of the Reconstruction and Development Programme (RDP) by the Government of National Unity. In its role as the technology partner of all the South African people, the CSIR is well positioned to face this challenge and is fully committed to the priorities of the nation.

Economic growth is essential to give effect to the RDP, and technology has a major role to play as an enabler of general economic growth and socio-economic development. The CSIR has the capability to respond to the challenge of being the technology provider not only to South African organisations in the formal sector but also to small, medium and micro enterprises and the developing communities of South Africa. Additionally, through the provision of structured information to decision-makers, the CSIR can assist in quality decision-making on critical issues such as housing and resource development.

In the past year the CSIR has focused considerable attention on the needs and development of its staff. Training programmes were set up to facilitate the empowerment of the first-line leadership group as key role players, thus ensuring excellence in all aspects of the organisation's operations. To assist in moving the organisational climate towards affirmative action (*regstellende aksie*), a two-day cultural diversity workshop was developed for attendance by all staff. A 99% attendance was achieved and much positive feedback was obtained.

Mechanisms have been created to ensure equal opportunity employment based on the existing potential and capabilities of previously disadvantaged population groups. A special effort will be made in the area of ongoing career development of all staff.

Significant progress has been made in the implementation of a Total Quality Management programme in the CSIR. The embedding of this programme will add value to the products, processes and services it can deliver. Extensive training in quality principles, quality improvement processes and quality planning has been provided, and staff throughout the organisation are currently engaged in a number of quality improvement projects. With South Africa's return to the international community, the climate is particu-



Dr JB Clark  
President

Mr L Boyd    Mr JC Hall

larly favourable for extensive international science and technology cooperation.

The CSIR forged interagency cooperation agreements with relevant foreign research establishments such as the Royal Scientific Society of Jordan, the Commonwealth Scientific and Industrial Research Organisation in Australia and the Industrial Technology Research Institute of the Republic of China. The organisation also actively participated in existing intergovernmental agreements such as those with the Republic of China and France, the latter especially in terms of the Satellite Applications Centre at Hartebeesthoek.

A network has been established with research and development organisations in the southern African region. Through these networks the CSIR can be directly involved in the advancement of many



sectors of the regional economy, particularly in the areas of transport, communications, water resource development, manufacturing and mining.

Since 1986 the CSIR has completed two major strategic reviews and implemented their findings. The first was aimed at becoming more market-focused through contract research and the second at aligning the CSIR with the emerging new national priorities. The culture of transformation that has been created will, I am sure, empower the CSIR to respond to

strategy on the right track. Dr Gordon Sibiyi, a Board member who also served with distinction over a period of four years and from whose wise counsel the CSIR benefited, resigned on 31 March 1995. We thank him for his contributions and wish him well in his future endeavours.

The end of the financial year also saw the resignation of Dr Brian Clark as President of the CSIR after a term of nearly five years.

The Executive and top management team of the CSIR, under the extremely able

C S I R



## THE CSIR BOARD



Dr IF Matsepe-Casaburri

Mr RA Plumbridge

Dr GS Sibiyi

Mr E van As

Mr WC van der Merwe

Dr WP Venter

the challenge of becoming the key technological partner of the South African people. Although the terms of office of all present Board members ended during the past year, we agreed to stay in office until the end of August, in response to a request by the Minister for Trade and Industry, to enable him to complete the process of appointing a new Board. A number of the present Board members have offered their services on the new Board. I would like to thank all Board members for their valuable support and wise counsel over the past years.

At its meeting on 31 November 1994, the Board took leave of the longest-serving CSIR Board member, Dr Leon Knoll, who retired after a term of 21 years. We thank him for his long and loyal service and the valuable contributions he made to keep the CSIR and its

leadership of Dr Clark in the past few years have been responsible for ensuring that the organisation has implemented the necessary changes to meet the needs of the new South Africa. On behalf of the Board, I would like to extend a sincere vote of thanks to Dr Clark and wish him well in his considerable challenges at the helm of Telkom.

**P du P Kruger**  
Chairman





## CSIR HIGHLIGHTS

### PRESENTATION OF CSIR ACTIVITIES

At the invitation of the Select Committee of Trade and Industry, the CSIR had the opportunity on 31 August 1994 to present the CSIR's activities to the Committee. The CSIR's Executive Management Board welcomed the opportunity to broaden the scope of its relations with Parliament.

### STAFF AWARDS

The CSIR Board made awards for outstanding achievement to six staff members, Dr Güner Gürtunca, Piet van der Westhuizen, Patricia Truter, Dr Johan de Beer, Dr Lawrence Hunter and Dr Stewart Hart. More than 30 CSIR staff members received awards and/or gained international recognition for their excellence in scientific and technological research, development and implementation.

### CSIR FELLOWS

The position of CSIR Fellow gives recognition to CSIR staff for excellence in science and/or technology. The four CSIR Fellows (three appointed in 1994) are: Willem Botha, Prof Frank Nabarro, Dr Bob Scholes and Francois Anderson.

### VIPs ON VISIT

The CSIR was visited by a large number of VIPs during 1994/95. Among them were the late Minister of Housing, Joe Slovo, and Billy Cobbett, Director General of the Department of Housing; the Minister of Tourism, Dr Dawie de Villiers with Dr Colin Cameron; and Roger Jardine (at the time from the ANC's Science and Technology Department). A group of five executives from the CSIRO in Australia also paid us a visit.

### PREMIERS VISIT THE CSIR

- Tokyo Sexwale, Premier of Gauteng and the Minister of Sports, Recreation, Arts and Culture of the province, Peter Skosana, paid the CSIR a visit during March 1995.
- Mr Matthews Phosa of Eastern Transvaal Province visited the CSIR during February 1995. It was Premier Phosa's first visit to the organisation.

### OTHER VISITORS TO THE CSIR DURING 94/95

The Reception offices on the main CSIR site in Pretoria handled 144 356 visitors. Among the groups of organised visits to the CSIR were delegations from Japan, the UK, USA, Germany, Australia, the Czech Republic, Republic of China, Holland, France and Uruguay and many African countries. Local visitors included groups from schools, technikons, universities, industry, the Black Scientists Indaba and the Youth Science Olympiad winners.

### 4-STAR NOSA RATING

The CSIR successfully retained its NOSA 4-star Health and Safety Status, thereby achieving one of its corporate objectives.

### RESEARCH AWARDS

During the past financial year, several awards

again came the CSIR's way, such as the Technology Key Products '94 Award (to the Commercial Internet Services of the Division of Information Services); the SAICHE Award (to the Division of Materials Science and Technology); the Sabita Research Award (to the Division of Roads and Transport Technology); and the 1994 SA Chartered Institute of Transport (CIT) award to the Division of Roads and Transport Technology.

### ACCREDITATION

National Calibration Services (NCS) accreditation went to the Division of Earth, Marine and Atmospheric Science and Technology's Atmospheric Impact Management (AIM) laboratory. Accreditation and registration as consultants were awarded by the Board for Regional Industrial Development to a team of the Division of Textile Technology. The Division of Materials Science and Technology at Cottesloe attained the EN 45001 and ISO 9002 quality standards.

### AGREEMENTS AND JOINT VENTURES

- SANCO and the CSIR signed a Memorandum of Understanding in April 1994 to cooperate in improving the lot of urban and rural communities in South Africa.
- The CSIR's Division of Manufacturing and Aeronautical Systems Technology signed a joint venture contract with the Atomic Energy Corporation (AEC) and an industrial group, Pelindaba Technology Products, for the development, design, manufacture, marketing and sales of a new range of helicopter filters (see also *Technology Impact*, p. 11, "Helicopter filter joint venture takes off").

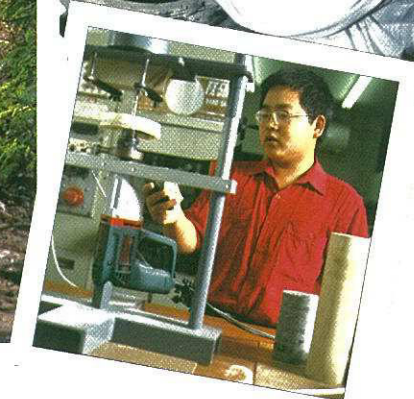
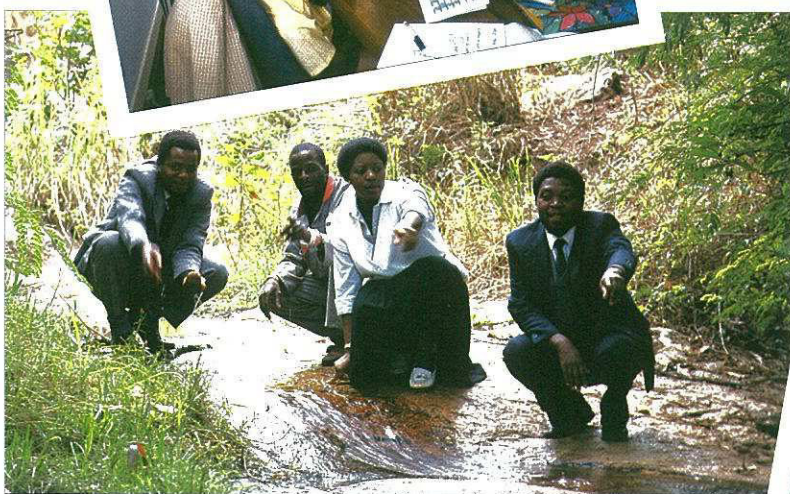
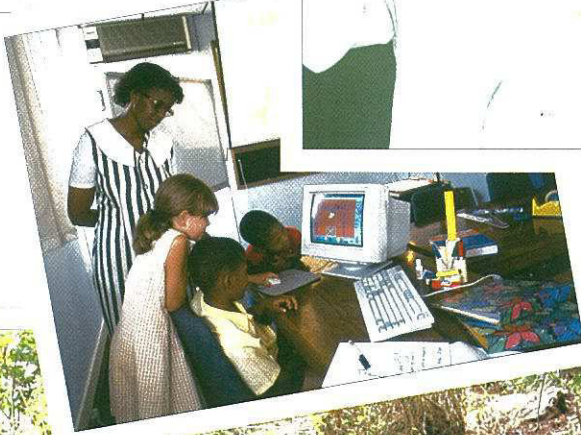
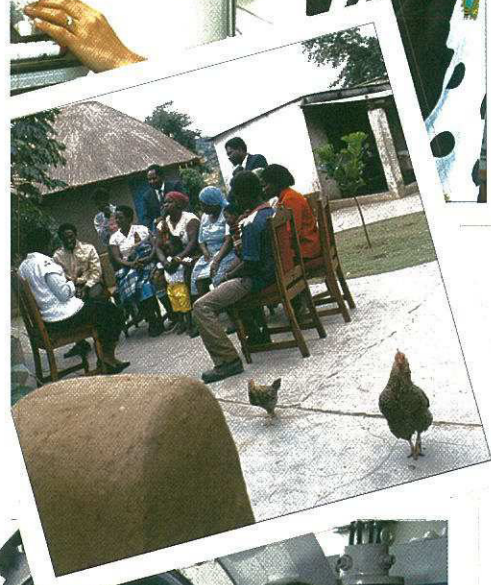
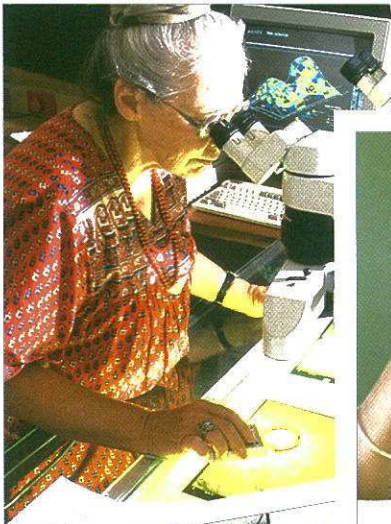
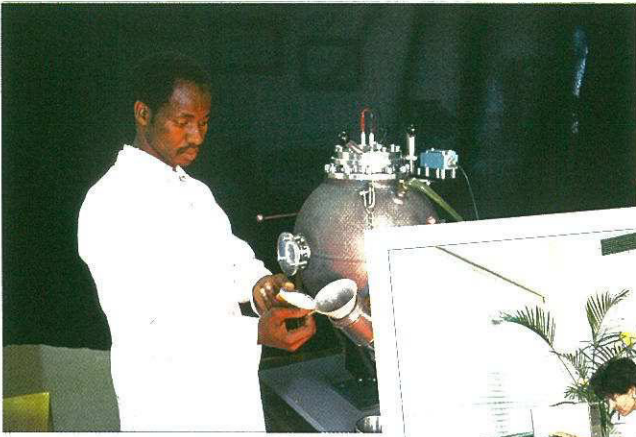
## FINANCIAL HIGHLIGHTS

(R' million)	4 YEAR COMPOUND GROWTH	ANNUAL GROWTH %	1995	ANNUAL GROWTH %	1994	ANNUAL GROWTH %	1993	1992
31 MARCH								
<b>TURNOVER</b>	7	1	497	17	492	2	419	411
<b>PARLIAMENTARY GRANT</b>	4	(3)	233	17	240	(2)	205	210
<b>CONTRACT INCOME</b>	10	4	261	20	251	6	209	197
Private sector	25	11	149	63	134	8	82	76
Public sector	(10)	(11)	49	(10)	55	(9)	61	67
National Safety & Security sector	(3)	(10)	47	(2)	52	2	53	52
Other sectors (including Africa)	100	60	16	(23)	10	550	13	2
<b>ROYALTIES</b>	(9)	200	3	(80)	1	25	5	4
<b>TURNOVER/MANPOWER COST</b>		(2)	1,84	14	1,89	(7)	1,66	1,79



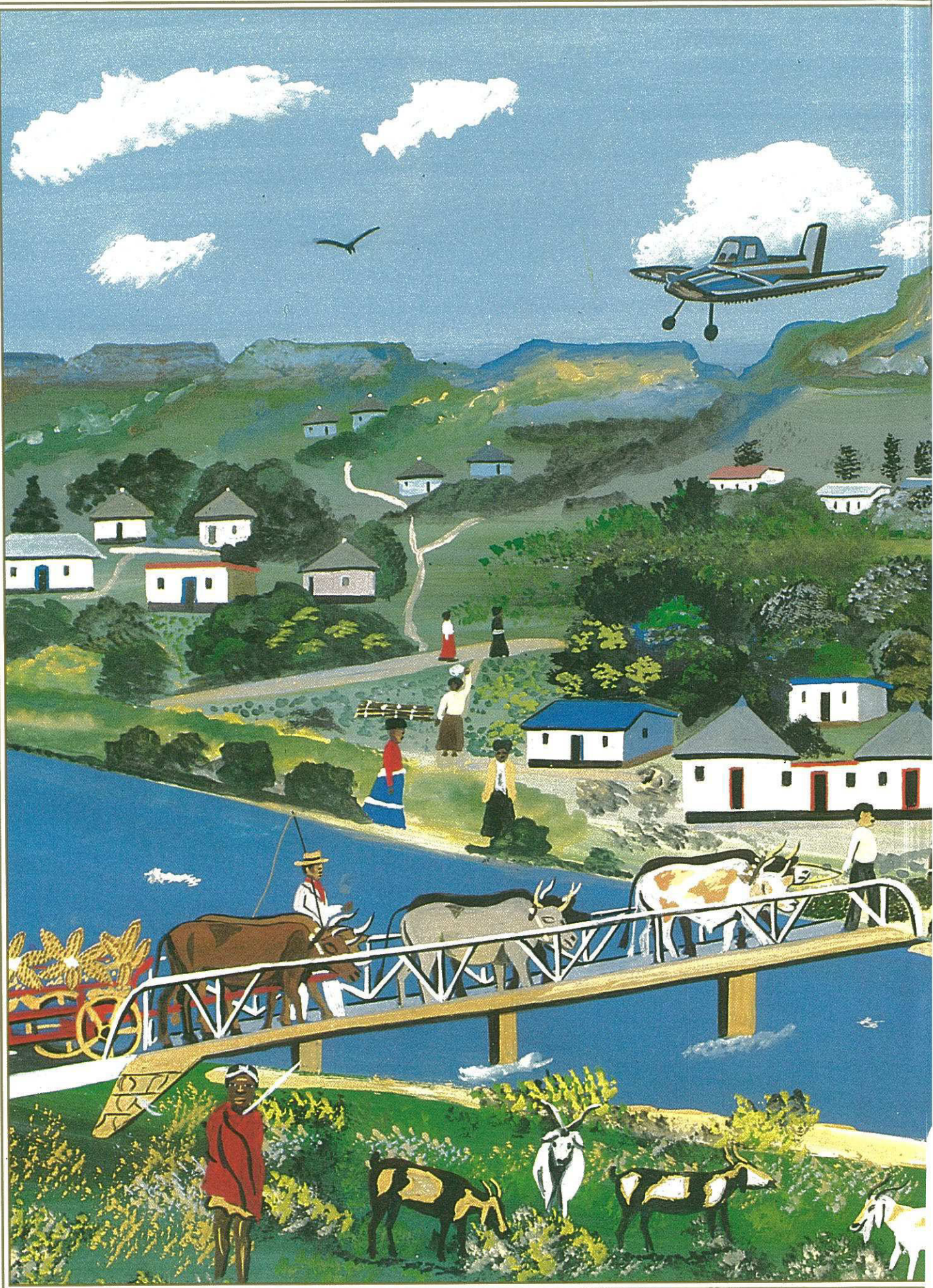


# CSIR HIGHLIGHTS



The CSIR's highly skilled staff operate over a wide spectrum of research and development areas. The CSIR recognises and values the essential contributions of all its staff.









## ANNUAL FINANCIAL STATEMENTS

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*" Fetching Mealies "*  
*Nomandla Xakasa*





## AUDITOR- GENERAL'S REPORT

### Report to Parliament by the Auditor-General on the financial statements of the CSIR for the financial year ended 31 March 1995

#### 1. *Audit assignment*

The group annual financial statements of the CSIR, set out in Statements 1 to 3, the Notes thereto and the Executive Report have been audited in terms of the provisions of section 193(2) of the Constitution of the Republic of South Africa, 1993 (Act No. 200 of 1993), read with section 3 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 annual financial statements and the maintenance of effective control measures are the responsibility of the President of the CSIR. My responsibility is to report on these financial statements, and the matters set out in the Auditor-General Act, 1995 (Act No. 12 of 1995).

#### 2. *Regularity audit*

##### (1) *Financial:*

- (a) *Nature and scope:* The audit was carried out in accordance with generally accepted governmental auditing standards. These standards require the audit to be planned and performed so as to obtain reasonable assurance that, in all material respects, fair presentation is achieved in the annual financial statements. An audit includes an evaluation of the appropriateness of the accounting policies, an examination, on a test basis, of evidence supporting the amounts and disclosures included in the annual financial statements, an assessment of the reasonableness of significant provisions and a consideration of the appropriateness of the overall presentation of the annual financial statements. I consider that the audit procedures were appropriate in the circumstances to enable me to express the opinion presented below.
- (b) *Audit opinion:* In my opinion these annual financial statements fairly present the financial position of the CSIR and the group as at 31 March 1995, and the results of their activities and cash flow information for the year then ended in accordance with generally accepted accounting practice.

##### (2) *Compliance:*

Compliance with the appropriate legislation was audited on a test basis.

#### 3. *Audit observations*

##### **Estimated income and expenditure for the 1994/95 financial year**

In accordance with section 15(3)(a)(i) of the Scientific Research Council Act, 1988 (Act No. 46 of 1988), the Board must in each financial year, and at a time determined by the Minister, submit a statement of the CSIR's estimated income and expenditure during the following financial year, to the Minister for his approval granted with the concurrence of the Minister of Finance. The CSIR's statement of estimated income and expenditure for the 1994/95 financial year was, however, only approved by the Minister of Trade and Industry and of Finance on 21 April 1994 with the Minister of State Expenditure concurring on 4 May 1994.

Since the statement of estimated income and expenditure for the 1994/1995 financial year was only approved after the commencement of that financial year, it is doubtful whether the estimation can be regarded as having been approved and the President of the CSIR was requested on 29 June 1995 to seek legal opinion in this regard.

#### 4. *Appreciation*

I should like to express my appreciation for the courtesy extended and assistance rendered by the staff of the CSIR during the audit.

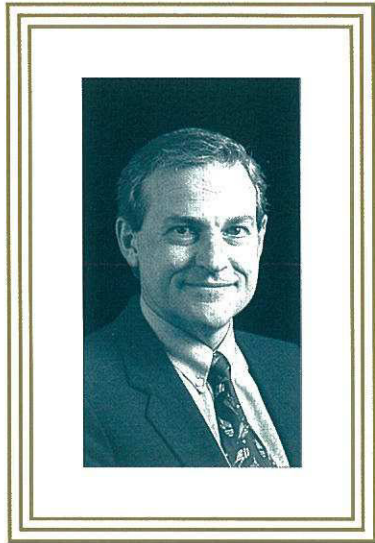
GR Witthöft  
for Auditor-General

Pretoria  
5 July 1995





## EXECUTIVE REPORT



Dr JB Clark  
President

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**CSIR'S VISION**  
**Grow the CSIR's contribution to the new South Africa through technology for development, jobs and wealth creation**

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We have pleasure in presenting, for submission to Parliament, this annual report on the CSIR's activities for the year ended 31 March 1995, as required by the Scientific Research Council Act, 1988, and in terms of the Reporting by Public Entities Act, 1992. In addition to focusing on the status and financial performance of the CSIR, a selection of key outputs is described in *Technology Impact*, the companion document to this report.

### A PERIOD OF TRANSFORMATION

To talk about 1994 as a watershed for South Africa, its people and the CSIR does not begin to do justice to the events that occurred. An historic election led to a decisive change of course for the nation, which is now cited as a model of how different groups can come together to find a peaceful solution to their problems. Virtually every public sector entity and many private sector organisations in South Africa have been or are being assessed in terms of their relevance to this new direction.

The ongoing need for transformation to respond to the national needs expressed in the Reconstruction and Development Programme (RDP) presented new opportunities for the growth and development of a broad spectrum of organisations, including the CSIR, and their impact on the future prosperity of our nation.

Less than a decade ago, the CSIR – representing the largest concentration of scientific and technological capability on the African continent – set out to transform itself into the *Technology Partner* of the people of South Africa. Today, almost a year after the birth of a new South Africa, as the CSIR marks its fiftieth anniversary, we celebrate an organisation that is fundamentally changed and still striving to adapt further in its quest to serve stakeholders and clients.

In the context of constant change in the national and international arenas, the challenge for the CSIR, therefore, has been to continuously adapt capacity and performance to support the positive developments in its environment.

### CORPORATE OVERVIEW

For the CSIR, 1994 was a year which saw

further fundamental change in our operating environment. From being almost completely dependent on government funding before the restructuring of the organisation in 1987, the CSIR has steadily increased its external income over the past eight years and now derives close to 60% of external revenue from the private sector. With a turnover of R497 million (1994: R492 million) and a staff complement of almost 2 700 scientists, technologists, engineers and support staff, we have worked hard at becoming the most relevant scientific and technological resource for South Africa.

As an organisation fully committed to the national priorities of the RDP, our emphasis is on being output-orientated through goal-setting and performance measurement practices. These key elements of a performance-driven culture stood us in good stead during the past year in delivering on our commitments and refocused initiatives. We will continue to strive for the highest levels of competence in our core business and to give effect to our vision of enlarging the CSIR's contribution to the nation through technology for development, jobs and wealth creation.

### STRUCTURE AND CHANGES

The CSIR's mission, goals, basic research policies and priorities are set by the CSIR Board, whose members are appointed by the Minister responsible for administering the Scientific Research Council Act, 1988. The term of office of the current Board, which expired on 31 March 1995, was extended by the Minister, Mr Trevor Manuel, until the end of August 1995. The Board members for the 1994/95 financial year were Mr P du P Kruger (Chairman), Drs JB Clark, LB Knoll, IF Matsepe-Casaburri, GS Sibiyi, WP Venter and Messrs L Boyd, JC Hall, RA Plumbridge, E van As and WC van der Merwe.

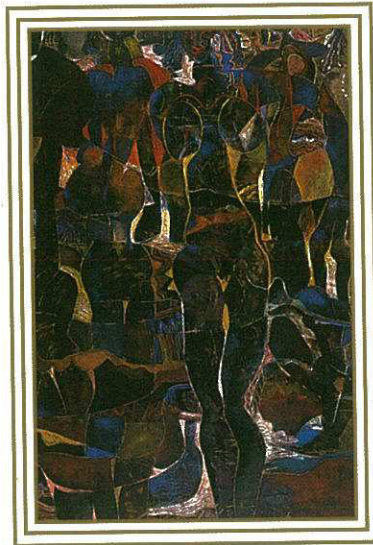
The Board took leave of Dr Leon Knoll at its meeting on 31 November 1994. At the time of his retirement at the end of 1994, Dr Knoll had been the longest-serving CSIR Board member, with a term of 21 years. On 31 March 1995, the Board also received the resignation of Dr Gordon Sibiyi, after having served for a





## EXECUTIVE REPORT

(CONTINUED)



"Celebrating Life"  
Isaac Nkoanà

period of four years. We thank them both for their valuable contributions to the CSIR.

Executive responsibility for the organisation rests with the Executive Management Board, which consisted of Dr JB Clark as President and five Executive Vice Presidents: Drs GG Garrett and DF Toerien (Operations); and Messrs RF Camphor (Human Resources and Services), MD Groch (Technology for Development) and AJ Jordaan (Finance and Marketing Services). In November 1994 Mr Neo Moikangoa was appointed as an associate member of the Executive Management Board.

### CHANGES IN THE EXECUTIVE MANAGEMENT BOARD

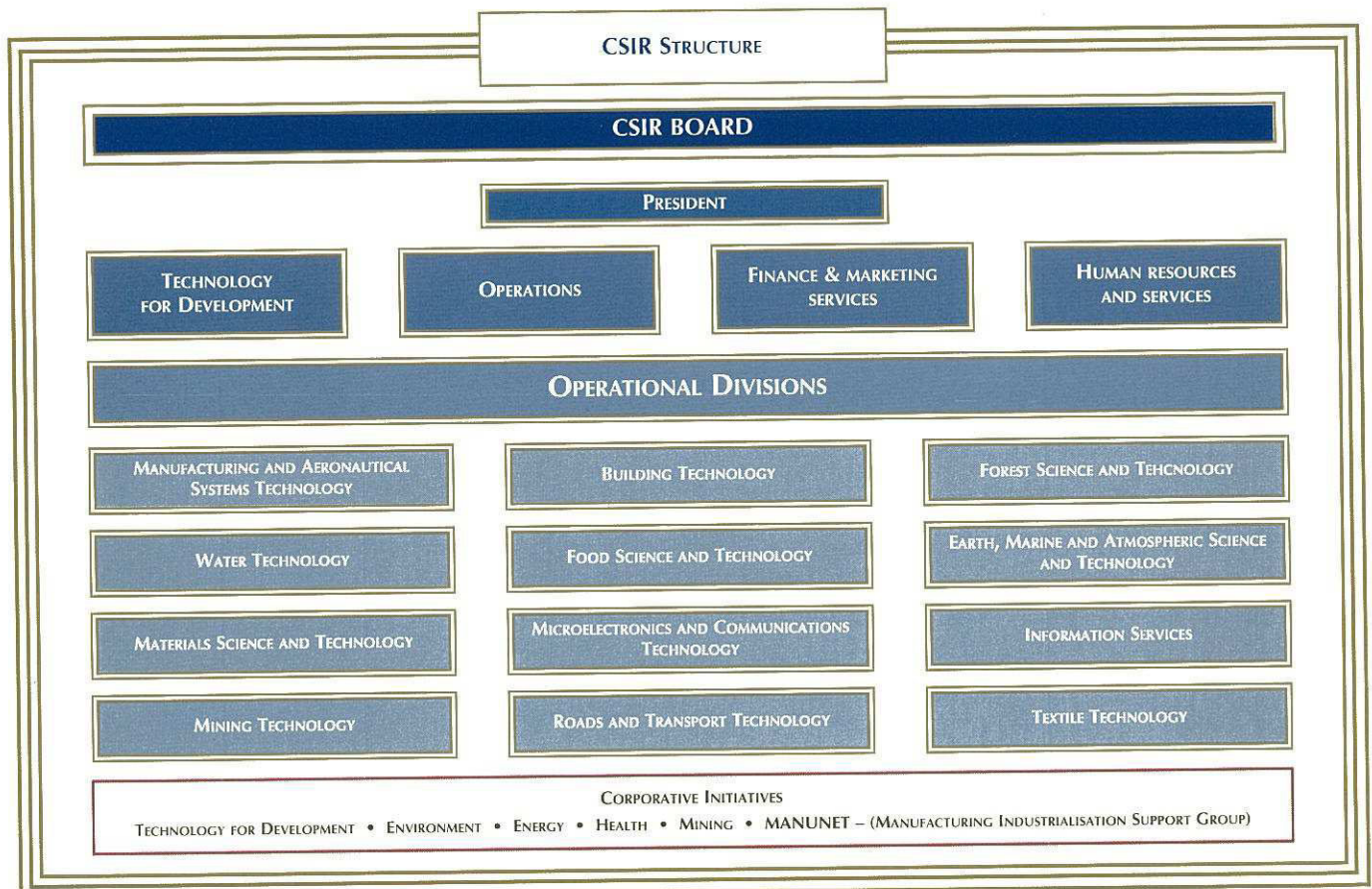
- Dr Brian Clark, President of the CSIR, resigned with effect from 31 March 1995, after a term of nearly five years as President. In his thirty years of service with the organisation, his responsibilities broadened from research to programme and division management in materials technology, appointment to the Executive and finally, in 1990, as President. On behalf of the Executive Management

team and the staff of the CSIR, we pay tribute to his contribution to and his leadership in the successful transformation of the organisation. We wish him every success as Managing Director and Chief Executive Officer of Telkom.

In terms of the Scientific Research Council Act, 1988, it is the duty and responsibility of the CSIR Board to appoint the President of the CSIR. At its meeting on 16 March 1995, the Board confirmed their commencement of the process of appointment, and that the appointment will be made by the CSIR's newly appointed Board.

- Dr Daan Toerien, previously Executive Vice President: Operations and Acting Director of the Division of Manufacturing and Aeronautical Systems Technology since May 1994, has been appointed full-time Director of the Division with effect from March 1995. The appointment was based on the need to have a permanent director to drive the implementation processes associated with new strategies and thrusts for the Division.

- Following Mr Neo Moikangoa's





appointment as an associate member of the Executive, the Board in March 1995 confirmed his appointment as Executive Vice President: Technology for Development. The transfer of responsibilities from Mr Mike Groch, who was on a special assignment in this portfolio, to Mr Moikangoa took effect in April 1995.

- The executive portfolio of Mr Mike Groch, previously Executive Vice President: Marketing and Business Development, changed to Technology for Development when he was assigned by the Board early in 1994 to give impetus to CSIR strategy in deploying technology for social reconstruction in urban and rural communities and the economic development of small, medium and micro enterprises (SMMEs). In March 1995 he was assigned responsibility for the commercial activities of the organisation (which include contracting, intellectual property management, commercial policy, industrialisation and commercialisation) and for the CSIR's linkage to the SMME initiatives of the Department of Trade and Industry (DTI).

- Dr Geoff Garrett, Executive Vice President: Operations, assumed full executive operational responsibility for the CSIR's divisions and its corporate programmes, as well as retaining responsibility for the CSIR's Quality Initiatives.

#### OTHER CHANGES

- Mr Roy Page-Shipp, previously Director: Special Projects at the CSIR, has been appointed to the key position of RDP National Programme Manager on secondment to the RDP office for 12 months in a full-time capacity. In this capacity he will set up the management and monitoring systems for the Presidential Lead Projects and other additional RDP projects.

- The merger of the CSIR's Division of Food Science and Technology and the Fishing Industries Research Institute (FIRI) was announced during March 1995, with effect from 1 April 1995. FIRI was established in 1946 and received support from the CSIR until March 1989, when the fishing industry took over the funding. Approximately 25 FIRI staff members joined the organisation as a result of the merger.

#### STRATEGIC CONTEXT

The objectives of the CSIR are spelled out in its Act, which determines that in the national interest, the CSIR, through directed and particularly by multi-disciplinary research and technological innovation, should foster industrial and scientific development. This is to be accomplished either by the CSIR itself or in cooperation with principals from the private or public sectors, to contribute to the improvement of the quality of life of the people of South Africa.

The challenges brought about by the need for national transformation often demand unique responses. The CSIR has decided, with important inputs from its Board and as a result of internal discussions, to use the term "*regstellende aksie*" to express the undergirding philosophy of our initiatives in this arena. For us, the words *regstellende aksie*, expressing as they do the putting right of a situation or context, capture a positive and creative view of human resource transformation which is supported by the vast majority of our staff.

To be fully responsive to the demands of South Africa, the implementation of the CSIR's five-year strategy (currently in its second year of implementation) is linked to key elements of the RDP and focused in five areas. The five Strategic Focus Areas are:

- **competitiveness** in our core operating business as a contract research organisation, to provide technology support for the growth of the South African economy;
- product and service offerings in technology for **development** to address basic needs, improve the quality of life in communities and empower owners and managers of SMMEs;
- the provision of extensive and relevant **decision support** capabilities to authorities within government structures at central, provincial and local levels to deal with tensions created by the need for reconstruction in the face of limited resources;
- embedding the principles and practice of Total Quality Management (TQM) to create a **quality** organisation for the benefit of the nation; and



## EXECUTIVE REPORT

(CONTINUED)



Dr DF Toerien  
Executive Vice President:  
Operations

#### THE CSIR'S MISSION

The CSIR performs research and development to gain technology and ensure its implementation to:

- promote the growth of the formal and informal sectors of industry as a technology partner –

##### TECHNOLOGY FOR COMPETITIVENESS

- provide technology solutions to improve the quality of life in urban and rural communities –

##### TECHNOLOGY FOR DEVELOPMENT

- provide scientific and technological support for decision-making in the private and public sectors –

##### TECHNOLOGY FOR DECISION-MAKING





## EXECUTIVE REPORT

(CONTINUED)



Mr MD Groch  
Executive Vice President:  
Technology for Development

- implementing active and comprehensive *regstellende aksie*, which includes **staff empowerment**, to:

- redress the imbalances of the past;
- leverage the organisation and key education stakeholders in providing science and technology human resources from previously disadvantaged communities; and
- manage diversity as a competitive advantage for the future.

### INTERNATIONAL CONTEXT

The major aim of the CSIR's international strategy is to position itself among the world's best sources of technology. Our ability to gain technologies through international research and development collaboration and to "bridge" these technologies into South Africa and the region enables us to be the leading technology procurement agency for South Africa and neighbouring countries.

During the past year cooperation agreements were signed, among others, with the Royal Scientific Society of Jordan, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia and the Industrial Technology Research Institute (ITRI) of the Republic of China.

Our Africa strategy, which forms an integral part of our international strategy, seeks to harness the full scope of our Africa-specific expertise, built up through more than forty years of dealing with technology-related problems in Africa. Many sectors of the regional economy – energy, transport, communications, water resources, manufacturing, mining – will be directly advanced by the effective application of science and technology. We have established a network with research and development organisations in the region to assist with future economic development, science and technology policy formulation, the deployment of technology and with meaningful support to economic cooperation activities.

The CSIR is a registered consultant with the World Bank, the Africa Development Bank, the Deutsche Gesellschaft für Zusammenarbeit, the United Nations Development Programme and the United Nations

Industrial Development Organisation. We have the capacity and the experience to grow into a regional asset through the support of regional governments, academic institutions and industry.

### ACTIVITIES ACROSS A BROAD SPECTRUM

The CSIR's activities are structured around twelve operating divisions and corporate initiatives across organisational boundaries. These cover a wide range of market needs and technological endeavour, in fields as diverse as low-cost housing, aeronautical systems and microelectronics.

The emphasis on output orientation, goal-setting and performance measurement practices is central to our operating record of success. As the organisation transforms itself in line with new priorities, the entrenchment of a performance-driven culture will undoubtedly enable the CSIR to deliver on its commitments and initiatives.

This is particularly the case in terms of the management of the CSIR's baseline funding, the Parliamentary Grant. During the 1994/95 financial year this amounted to R233 million or 44% (1993/94: R240 million or 45%) of total income. To counter the reduction in real terms of this investment by the nation since the 1988/89 financial year, processes and systems have been established to ensure that the utilisation of this resource is effective and nationally beneficial.

*Technology Impact*, the companion document to this Annual Report, describes a selection of key outputs and achievements during the past year across the broad range of the CSIR's activities. These products and services, which range from building and information technology to mining, forestry, textile and water technology, relate to both the industrial and development sectors of the economy.

### PLANNING FRAMEWORK

Planning occurs at different levels in the organisation. The 1993 five-year corporate strategy provides the overall framework within which the strategic and business plans and budgets of our divisions and corporate support and service functions are formulated and approved.



This planning approach enables our operating units to develop plans that reflect their unique circumstances and challenges, within the context of the corporate strategy of the organisation.

## IMPLEMENTATION AND PERFORMANCE MEASUREMENT

Assessment of performance against predetermined measures and targets is a core value in the CSIR. It ranges from short and longer-term Board evaluation to performance-linked evaluation at all staff levels.

The approach over the past few years by the CSIR Board and the Executive Management Board to develop focused short-term goals (including financial goals) to monitor organisational performance at macro level has proved to be very effective.

### GOAL 1:

#### SALES AND FINANCIAL PERFORMANCE

- An external contract income target of R270 million was set, and **R261 million was realised**.
- A surplus before non-operational income and provisions of 2,5% of total turnover was targeted, and **2,6% was achieved**.

### GOAL 2:

#### INNOVATION

The goal was to generate at least 15% of external income in 1994/95 from new products, processes and services launched during the 1992/93, 1993/94 and 1994/95 financial years.

**This objective was exceeded and a level of 16,9% was achieved.**

### GOAL 3:

#### INTEGRATION

The goal was to analyse existing levels of integrative activity, identify drivers of and barriers to integration, review existing integrative mechanisms and processes and establish a new protocol for implementing integrative strategies. External income and growth targets, assignment of responsibility and accountability, and measurement and control systems should be incorporated into the strategy.

**A comprehensive study was undertaken and a set of new initiatives has been developed, which include:**

**strategic integrative business planning in areas such as health care, tourism, environmental management and rural energy; targeting and monitoring enhanced cross-boundary investments of our Parliamentary Grant; a cross-staffing and staff rotation initiative, including the launch of an Advanced Leadership Programme; and a review of our current recognition and reward process in the context of providing better support for stimulating cross-CSIR integrative activities.**

### GOAL 4:

#### STRATEGY IMPLEMENTATION

The goal was the development of detailed plans and the securement and deployment of the necessary resources and controls to ensure significant advances in implementing policies in the five Strategic Focus Areas.

#### ACHIEVEMENTS TOWARDS

##### THIS GOAL WERE:

- **GREATER EMPHASIS ON TECHNOLOGY FOR DEVELOPMENT (TFD)**

The CSIR's operating business units have implemented a variety of technology-based solutions aimed at addressing basic needs in rural areas. These include access to water, improved sanitation, facilitating infrastructure improvement, upgrading health services and ensuring that value for money is received in the provision of physical structures such as houses, clinics, education facilities and community centres.

In addition, the CSIR has for some time been assessing international experience in the provision of technology for development. International best practice has been surveyed and combined with organisational experience in order to accelerate the implementation of the technology for development strategy. Highlights of the strategy include:

- The formation of a corporate Technology for Development group, staffed by key individuals with the necessary experience and skills to provide leadership to the operational business units.
- Involvement in wide-ranging piloting in urban and rural settings. The focus has been on structures arising from



## EXECUTIVE REPORT

(CONTINUED)



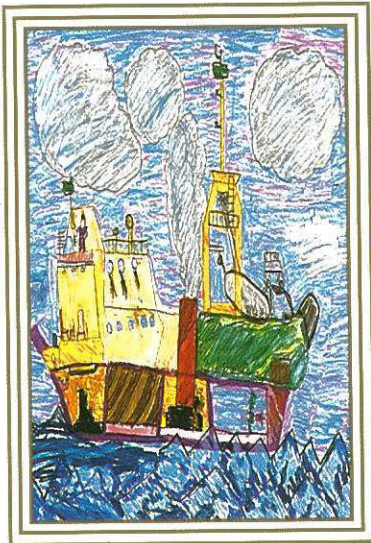
Mr N. Moikango  
Executive Vice President:  
Technology for Development





# EXECUTIVE REPORT

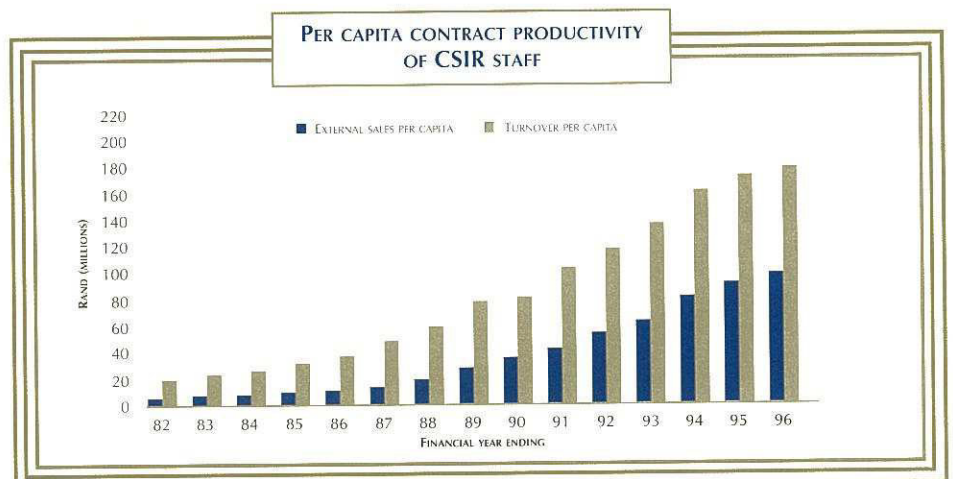
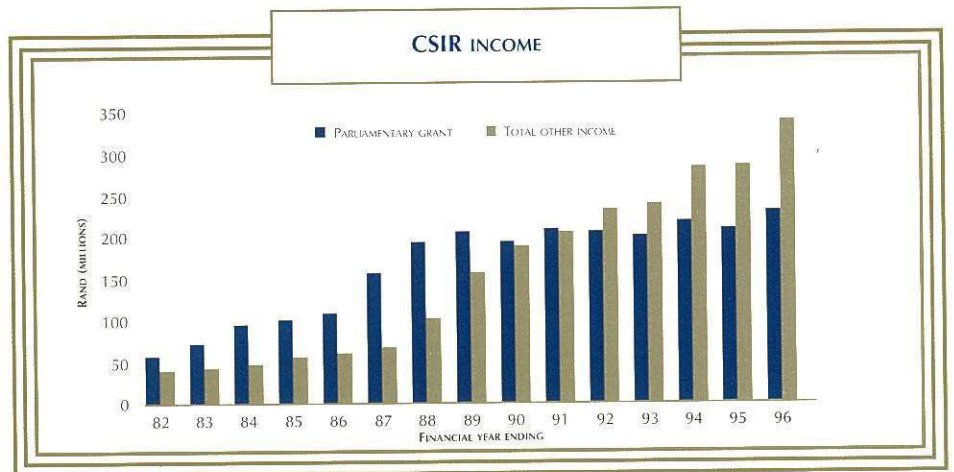
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CSIR Childrens' Art Workshop  
Richard Strauss (10)

civil society (e.g. community-based organisations, development forums, etc.) in the absence of elected local government.

- Implementation of projects requiring scientific and technological inputs with more than 40 forums at district and subregional levels. These initiatives are aimed at identifying basic needs and economic improvement priorities within the communities represented by these structures. Contact is maintained with the recipients of the outputs to ensure that their needs have been met.
- Involvement with the Department of Trade and Industry in formulating an over-arching national policy relating to the national SMME initiative. Through participation in the pilot projects to establish Local Service and Sectoral Manufacturing Technology Centres across all nine provinces we will ensure that entrepreneurs in small, medium and micro enterprises will have greater access to the capacities and capabilities of the CSIR. A number of SMME-specific pilot projects have already been launched by the CSIR to develop best practice and align capacities to the needs of the national initiative.
- A suite of high-impact integrated projects have been investigated and are being prepared for implementation. Their aim is to locate working technology demonstrators in community settings. An example is the remote or rural energy project in the Lubisi community of the Eastern Cape. Component energy technologies (e.g. wind; photovoltaics; mini-hydros, etc.) are being harmonised into an efficient hybrid energy supply system. Downstream, reticulation will provide electricity and enable improved quality of life and the opportunity for establishing agricultural and other job and wealth creation enterprises.
- The appointment of Regional Development Managers in the capitals of the provinces who will interact with the various strata and components of government, to understand their needs and identify areas where the CSIR could provide solutions.







## EXECUTIVE REPORT

(CONTINUED)

Our operating divisions have increased substantially their investment of the Parliamentary Grant to 14%, compared to 8% in the previous year, in creating technological capacity and products to serve the TFD arena. Consequently technology deployed into and income earned from this investment is growing rapidly.

• **CREATING A QUALITY ORGANISATION**

We implemented pilot programmes in three of our divisions; customised and implemented a framework for organising for quality, utilising the Juran methodologies as the basis for our Total Quality Management (TQM) approach; trained more than 150 of our employees in quality principles, improvement and planning; conducted the first formal "cost of poor quality" study; initiated more than 20 quality improvement projects; and established an international network to enhance organisational learning.

• **EMPOWERMENT OF FIRST-LINE LEADERSHIP**

A needs assessment was completed, training courses developed and 434 employees from the CSIR's leadership

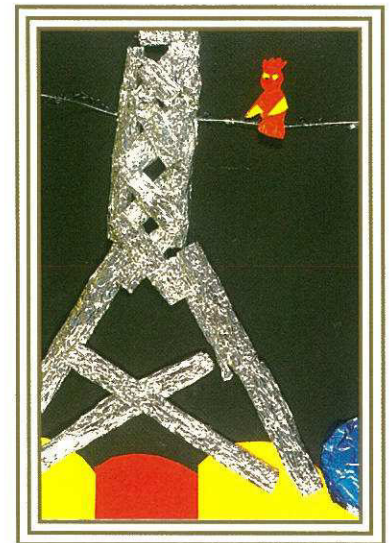
group received training.

• **REGSTELLEDE AKSIE**

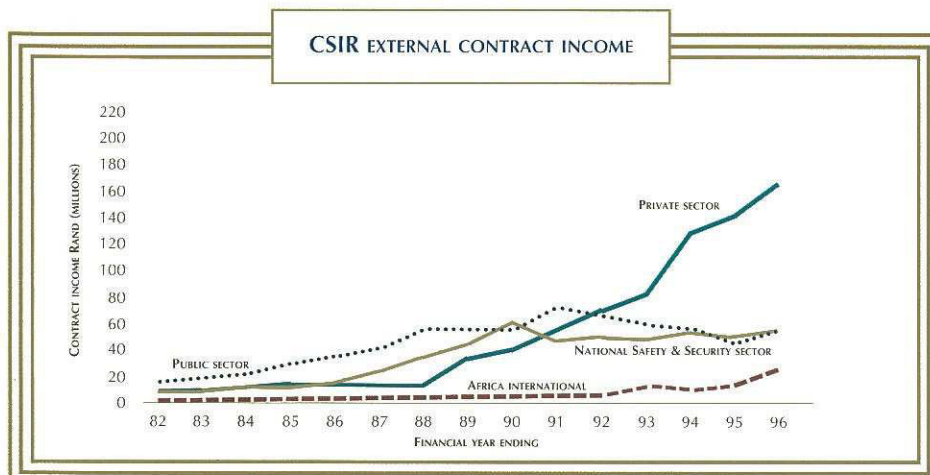
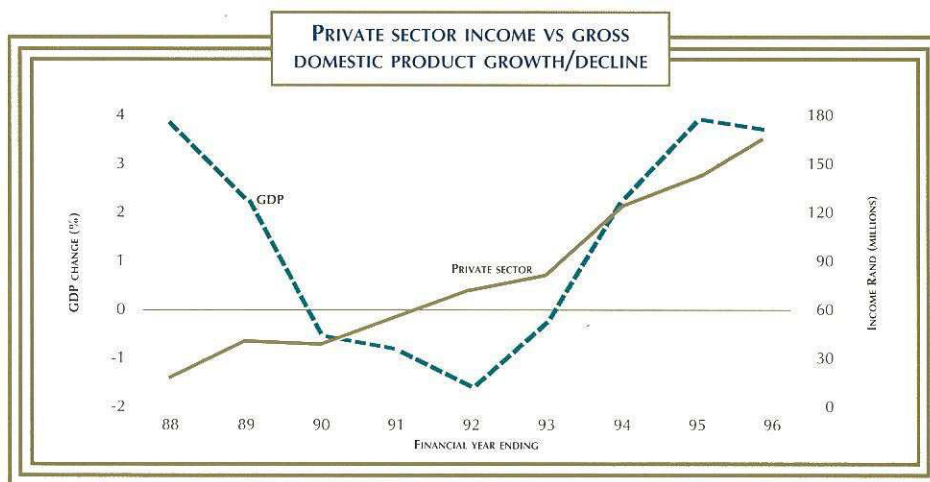
A two-day workshop entitled *Sekunjalo* ("now is the time") was developed to communicate the value of cultural diversity and to assist in moving the organisational climate towards *regstellende aksie*. This was attended by 2 652 staff members and was followed by a review of staff perceptions regarding the implementation of *regstellende aksie* in the organisation. *Regstellende aksie* appointments increased to approximately 40% of all appointments, while 81% of undergraduate bursaries were awarded to persons from previously disadvantaged groups and 38% were awarded to women. Currently 51% of bursars are black students and 30% are women. A small in-house adult education centre was created, with courses ranging from literacy training to the completion of matric. Fifty-four employees were enrolled for the 1994 calendar year.

• **COMPETITIVENESS**

The CSIR was involved in projects in 18 African countries and was a signatory to a number of international and institutional



CSIR Childrens' Art Workshop  
Alla Boguslavsky (10)







## EXECUTIVE REPORT

(CONTINUED)



Dr GG Garrett  
Executive Vice President:  
Operations

agreements. Organisational processes such as project management, technology management, customer satisfaction monitoring and portfolio management were implemented and entrenched across the organisation.

### FINANCIAL GOALS, THE PARLIAMEN- TARY GRANT AND PERFORMANCE

Income and investment are macro indicators of the performance of a contract research organisation over time. From the time of the first strategic change process in 1986 the CSIR has demonstrated its ability to develop external income as a contract research organisation. This has been maintained since the 1993 strategic review and new corporate strategy and is a sound base for extended Parliamentary Grant investment in future.

During the 1994/95 financial year, the CSIR received R233,3 million from the State in the form of a Parliamentary Grant allocation (1993/94: R240,1 million).

In line with the growth in external income, per capita external income has shown positive growth. This measure incorporates organisational staff levels and indicates the productivity and utilisation of the staff complement. It clearly illustrates ongoing positive development.

We have also increased our technology contribution to the nation by growing our private sector sales. The rapid growth in these sales, from 1988 to the present, has offset declining public and National Safety and Security sector contracting.

The increase in private sector sales as measured against the national GDP performance is evidence of strategic focus in the organisation. The benefits are twofold:

- Sound external sales performance preserves technology capacity and human resources and reduces the maintenance required from government investment (approximately 800 of our technology jobs can be directly attributable to this growth in sales).
- Average company returns on private sector contracts with the CSIR since its restructuring in 1988 are estimated to have provided the fiscus with more than R1 billion in company margin income, derived from benefits through working with the CSIR. These include cost reduction in operations, new product introductions, product/process efficiencies, improved services and decision support.

### CONTRIBUTIONS TO NATIONAL POLICIES

#### SCIENCE AND TECHNOLOGY POLICY

The establishment of a Department of Arts, Culture, Science and Technology is welcomed by the CSIR. We look forward to the strengthening of the science and technology infrastructure in South Africa through our close cooperation with this Department.

Following the work done by the Science and Technology Initiative (STI) – co-chaired by Dr Brian Clark and Mr Jayendra Naidoo – over the past eighteen months, the Minister of Arts, Culture, Science and Technology, Dr Ben Ngubane, formally requested the STI to be reconstituted as a National Science and Technology Forum (NSTF) for the purposes of consultation

#### CSIR SCIENTIFIC AND TECHNOLOGICAL POSITIONING (STEP) INVESTMENT BY MISSION THEME, 1993 - 96 (R'000)

	1993/94	1994/95	1995/96
TECHNOLOGY FOR COMPETITIVENESS	71 012 31,5%	76 678 34,6%	70 688 30,1%
TECHNOLOGY FOR DEVELOPMENT	17 883 7,9%	30 653 13,8%	53 679 22,9%
TECHNOLOGY FOR DECISION-MAKING	62 581 27,8%	56 353 25,4%	50 553 21,5%
REGSTELLEDE AKSIE	4 084 1,8%	7 338 3,3%	9 464 4,0%
STRATEGIC IMPLEMENTATION*	66 234 29,4%	44 116 19,9%	48 124 20,5%
SEED**	3 148 1,3%	6 382 2,8%	1 732 0,7%
<b>TOTAL</b>	<b>224 942</b>	<b>221 520</b>	<b>234 240</b>

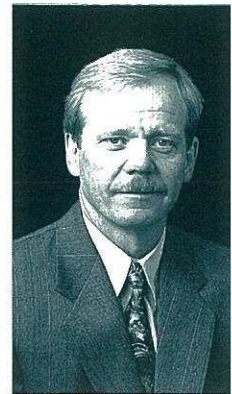
\* Includes, for example, quality, empowerment of staff, and core corporate and organisational shared resources \*\* SEED = exploratory concept evaluation





## EXECUTIVE REPORT

(CONTINUED)



Mr AJ Jordaan  
Executive Vice President:  
Finance and Marketing Services

on science and technology issues between the Ministry and the broad science and technology community.

On 24 October 1994, the STI unanimously decided to disband to allow for the establishment of an inclusive and representative NSTF. Future NSTF role players will be science and technology practitioners, funders, policy-makers, interest groups, beneficiaries and representatives of science disciplines.

### SMALL, MEDIUM AND MICRO ENTERPRISES (SMMEs)

The CSIR has cooperated closely with the Special Advisor to the Minister of Trade and Industry, Dr Alistair Ruiters; other agencies with an interest in the field; and central and provincial government structures in the formulation of a national policy and supporting structures and systems pertaining to the establishment, maintenance and growth of small, medium and micro enterprises (SMMEs) in South Africa. This has led to the publication of a White Paper entitled: National Strategy for the Development and Promotion of Small Business in South Africa. In the process the CSIR has clarified its role in relation to this important sector in the economy. Utilising the proposed Local Service Centres and Sectoral Manufacturing Technology Centres as decentralised delivery mechanisms, it will potentially provide support to entrepreneurs encompassing:

- Technology procurement and transfer.
- Technical support and training.
- Competitiveness improvement through the implementation of quality, produc-

tivity and cost reduction programmes.

- Technical extension services.
- The management of information systems, and networking the Local Service Centres and Sectoral Manufacturing Technology Centres to centralised structures (the Small Business Development Agency) being put in place by the Department of Trade and Industry.

CSIR employees on full or part-time secondment basis have participated in task forces, reference and counterpart groups in the process of describing the national SMME support system.

### STAKEHOLDER SATISFACTION

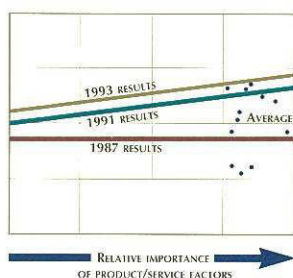
Since 1987 the CSIR has undertaken regular and comprehensive research to monitor stakeholder satisfaction and changes in stakeholder and staff perceptions about the organisation. Customer satisfaction indices are monitored every six months. The results provide key input to management performance evaluation. From a rating in 1987 of below the average expectations of customers in all aspects of customer service, we progressively improved our performance by 1993. There was considerable improvement in those criteria regarded as important to customers (such as delivery of what is promised, maintenance of high standard of research, development and implementation, commitment to customers' projects, meeting of deadlines).

### INVESTMENT PORTFOLIO

The CSIR utilises its baseline funding (Parliamentary Grant) to give effect to the organisation's mandate through strategic

#### CUSTOMER SATISFACTION SURVEYS (1987 - 1993)

↑  
PERFORMANCE



#### FACTORS OF PRODUCT/SERVICE RESEARCHED IN ORDER OF IMPORTANCE AS SEEN BY THE MARKET: 1987 & 91 1993

- |   |   |  |
|---|---|--|
| 1 | 1 | Delivery of what is promised   |
| 4 | 2 | Maintenance of high standard of research, development & implementation   |
| 2 | 3 | Commitment to the client's project                                       |
| 5 | 4 | Meeting of deadlines   |
| 7 | 5 | Keeping up to date with world technologies/information                   |
| 3 | 6 | Insight into and understanding of client needs/problems                  |
| 7 | 7 | Effective transfer of information and deliverables on project completion |
| 6 | 6 | Confidentiality/security of service                                      |

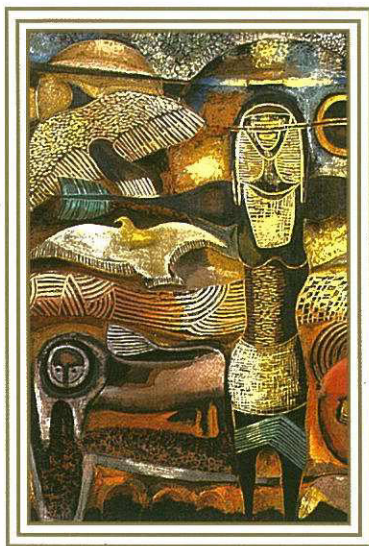
Below average in all aspects of customer service in 1987, the CSIR has progressively improved its performance, particularly in those areas considered by clients to be of most importance (as listed).





## EXECUTIVE REPORT

(CONTINUED)



"Woman of Peace"  
Lucky Sibiyá

(long-term) development at a corporate level and the development and support of key resources at an operational level.

The bulk of the Parliamentary Grant allocations is deployed in the twelve operating divisions and four integrative activities undertaken on the basis of portfolio, technology and project planning to create new capacity in line with our mission and relevant to the short- and long-term needs of our clients and stakeholders. We apply the client/contractor principle to all funding processes, with the CSIR's Executive Board acting as the surrogate client for projects funded from the Parliamentary Grant. Costs, timing and deliverables are closely monitored in a single system applied across the organisation.

Using 1993/94 as the base year, some trends in the macro allocation of resources are notable:

- Direct expenditure on *regstellende aksie* initiatives more than doubled in nominal terms since the base year.
- Technology for development investment has increased from R17,9 million to R30,6 million in 1994/95 and is forecast to increase to R53,7 million, which represents a strong real growth.
- Investment in technology for competitiveness has been maintained (although it has declined in real terms), in line with the RDP focus on economic empowerment and the development of export potential.

### AUDIT COMMITTEE

Since 1990, the CSIR Board has annually appointed members to serve on an audit committee. This audit committee meets the requirements of section 14(1) of the Reporting by Public Entities Act, 1992 and meets twice during the financial year to deal with matters prescribed by the Act. It met on 2 June 1994 and 3 November 1994 during the 1994/95 financial year. The committee consisted of the following members, as at 31 March 1995:

Mr P du P Kruger (non-Executive), Mr L Boyd (non-Executive), Mr E van As (non-Executive), Mr C van der Merwe (non-Executive), Dr JB Clark (ex officio).

Dr Knoll, who was the Chairman, retired on 30 November 1994 and the new Chairman of the committee will be appointed in the new financial year.

### COMMUNICATION

The communication challenge for the CSIR is the ongoing creation of an awareness, understanding and acceptance within the broader South African community of science and technology in general and the role of the CSIR specifically. As an important first step, the CSIR identified the need for a community outreach initiative to underpin this awareness-creating process and to support the national campaign for scientific and technological education and training. The CSIR's Outreach Project, which will commence in the 1995/96 financial year, will aim at communicating and demonstrating the relevance and value of science and technology to all communities to advance their understanding and acceptance of this important resource for the development of all sectors of society.

The CSIR's monthly external newsletter, *Technobrief*, provided information on products, processes and services on a regular monthly basis to over 11 000 clients and stakeholders, while the internal newsletter, *Sciendaba*, kept employees, bursars and pensioners informed about organisational developments.

### HUMAN RESOURCES

The permanent staff complement of the CSIR was 2 678 at the end of March 1995, compared to 2 714 at the end of the previous financial year. These figures include the staff formerly employed by the Chamber of Mines who joined the CSIR during the 1994/95 financial year in terms of the merger agreement between the Chamber of Mines Research Organisation and the CSIR.

The personnel turnover of 17,6% was lower than that of the previous year. This was largely due to a reduction in retrenchments and retirements.

### REGSTELLEDE AKSIE

The development of human resources in science, engineering and technology is acknowledged as a strategic issue for South Africa and as an important contribution to sustainable economic development. For the CSIR this extends beyond job creation and employment equity, and serves to increase our human





## EXECUTIVE REPORT

(CONTINUED)



Mr RF Camphor  
Executive Vice President:  
Human Resources and Services

resources contribution to the broader South African community.

Over the past year, our efforts were focused on ensuring fair and equitable employment opportunities and creating an organisational climate of effective communication to gain clear understanding of objectives through open and inclusive processes. The *regstellende aksie* process for the organisation was developed, and we managed a participative process in which employees at all levels in the organisation were involved in the review process of a *regstellende aksie* policy. The policy was formalised in a document in March 1995. The principles include capacity building, equity, inclusiveness, security, accountability, proportionality and flexibility, and they all underpin the values of the organisation.

Special attention will be given to the retention of new employees, ongoing career development for current staff and increasing staff participation in the implementation of *regstellende aksie*. Building on our *Sekunjalo* workshops, we will also focus on clearly communicating policy, practices and procedures relating to our *regstellende aksie* thrust. This will be achieved through continued transparent and inclusive processes to ensure that all our employees acquire a clear understanding of the objectives.

### OCCUPATIONAL SAFETY

The CSIR retained its 4-star NOSA status based on the implementation of our Environmental, Health and Safety (EHS) management system at all our major sites, consecutively over the past three years. The EHS policy, which formalises the EHS process in use in the organisation since 1990, was approved in October 1994. The disabling injury frequency rate was well within the corporate objective of less than 5 (based on the NOSA star rating), standing at 3,8 at the end of March 1995.

### CSIR PENSION FUND

In December 1994, three employees were elected and four were nominated to the Board of Trustees of the CSIR's Pension Fund: Mr AJ Jordaan, Mr RF Camphor, Dr AW Paterson (as elected members) and Mrs S Harmse, Mr R Khonoti, Ms M Ramphomane and Mr P Masemola (as nomi-

nated members). The trustees will serve for a period of three years.

### TRAINING AND DEVELOPMENT

#### ADVANCED LEADERSHIP PROGRAMME

The first in-house one-year Advanced Leadership Programme was introduced to strengthen the core capability needed to sustain ongoing transformation in the organisation.

The programme consists of a formal development phase for a period of six months and an action learning phase for a further six months, during which the participants are seconded out of their current positions to positions elsewhere in the CSIR and/or to organisations outside the CSIR.

Thirteen employees were selected to attend, and the group mix is representative of the gender and cultural diversity which is being developed in the organisation.

#### EMPOWERMENT OF FIRST-LINE SUPERVISORS

As previously stated under Goal 4, to date over 434 Programme Managers/Project Leaders have completed a three-day development programme aimed at facilitating higher levels of staff empowerment, which is one of the CSIR's strategic business objectives.

The empowerment process is being driven as a line responsibility and has contributed significantly to improved performance, integration and staff morale. The cornerstone of the process is to afford all staff maximum opportunity to participate in key decision-making whilst accepting full responsibility for their role and contribution in the organisation.

#### HUMAN COMPETENCE

It is recognised today that human resource management systems should be integrated and focused to develop, recognise and reward the value added by employees rather than the sizes or complexities of their jobs. The notion of human competence, which describes the observable behaviour patterns that result in exemplary job performance, provides the means to achieve this objective.

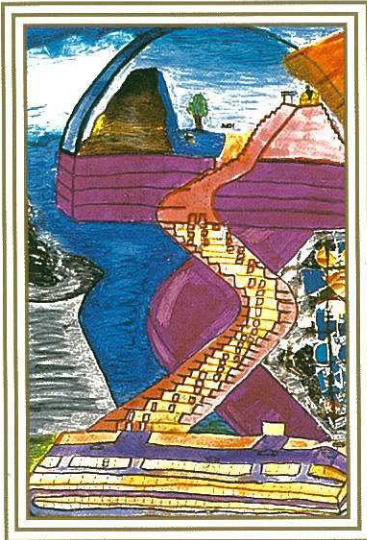
A study was commissioned by the CSIR in 1992 to effect integration of the





## EXECUTIVE REPORT

(CONTINUED)



CSIR Childrens' Art Workshop  
Marlese Lenhoff (12)

human resource functions of the organisation on the basis of human competence. An extensive literature review then revealed that in-house development was necessary, given the absence of credible models for R&D environments. This work started early in 1993 and in that year produced generic models of human competence for the primary line positions.

During the past year the project progressed to a stage where implementation of certain key aspects will commence in earnest during 1995/96. The early models have now been expanded to reflect the competencies required in Technology for Development and in the primary support functions (i.e. financial, business development and human resources). Guidelines have also been developed for use of the competence model in recruitment, placement, induction, career development and performance management. Pilot implementation will begin in at least two divisions, and the first efforts will centre around recruitment/placement and assessment of training and development needs.

### LABOUR RELATIONS

There has been no disruption to the CSIR's labour force during the past five years. This has been largely on account of a negotiations framework of cooperation rather than conflict between management and the union (NEHAWU), with a focus on participative problem-solving processes. Efforts to foster cooperation will continue against the background of the proposed relevant new legislation.

### PERSONNEL COMMITTEE

The personnel committee of the CSIR Board is appointed by the Board on an annual basis to address staff-related issues such as Human Resources Policy, remuneration and Executive appointments. Members were Dr Leon Knoll (Chairman until his retirement in December 1994), Mr P du P Kruger, Mr John Hall and Mr Robin Plumbridge.

### CONCLUSION

If track record is a viable indicator of future performance, the CSIR has in recent times clearly demonstrated its ability to adapt to a rapidly changing environment. In line with local forces and

international best practice, it has been increasingly successful in financing itself through the provision of market-related products and services. It has also demonstrated the ability to develop and implement a suite of tools and organisational processes in support of its baseline funding.

The last quarter of the 1994/95 financial year also launched the CSIR's commemoration of its 50th anniversary. While we are proud of where the organisation is positioned today and of the significant strides made since the first major change in course eight years ago, we recognise that the challenges of implementing our current corporate strategy in support of the national priorities of the RDP are as profound now as they were then. The difference is that current and future requirements for transformation can now be overlaid onto an increasingly responsive organisation.

We would like to thank all of those who have made 1994/95 a successful year: the CSIR Board members; management and staff; our trade union; and especially our clients and stakeholders. The continued scientific and technological excellence and achievements of our staff and the ongoing commitment and support of our clients and stakeholders underscore our confidence in the CSIR's continued ability to realise its mission as a principal technology provider to our nation and a major link to world technology.

### BOARD APPROVAL

The Board of the CSIR approved the annual financial statements and the group annual financial statements as shown on pages 9 to 32 of this report, at a meeting held on 15 June 1995. These statements are signed on behalf of the Board by:

**GG Garrett**  
Acting President

**P du P Kruger**  
Chairman





## INCOME STATEMENT

FOR THE YEAR ENDED  
31 MARCH 1995

	Notes	GROUP		CSIR	
		1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>INCOME</b>					
Turnover	2	497 584	492 427	497 584	492 427
Other income		3 805	4 579	3 805	4 562
Proceeds on disposal of fixed assets		324	3 296	324	3 296
<b>Total operating income</b>		<b>501 713</b>	<b>500 302</b>	<b>501 713</b>	<b>500 285</b>
<b>EXPENDITURE</b>					
Employees' remuneration		269 856	260 614	269 856	260 614
Depreciation	5	25 018	23 050	25 018	23 050
Operating expenses		234 938	216 719	234 934	216 715
<b>Total expenditure</b>		<b>529 812</b>	<b>500 383</b>	<b>529 808</b>	<b>500 379</b>
<b>Net operating deficit for the year before investment income</b>	3	<b>(28 099)</b>	<b>(81)</b>	<b>(28 095)</b>	<b>(94)</b>
Income from investments	6	29 099	27 256	31 706	28 075
<b>Net surplus for the year</b>		<b>1 000</b>	<b>27 175</b>	<b>3 611</b>	<b>27 981</b>
<b>Accumulated funds at the beginning of the year</b>		<b>430 661</b>	<b>403 486</b>	<b>413 578</b>	<b>385 597</b>
<b>Accumulated funds at the end of the year</b>		<b>431 661</b>	<b>430 661</b>	<b>417 189</b>	<b>413 578</b>





## BALANCE SHEET

31 MARCH 1995

	Notes	GROUP		CSIR	
		1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>CAPITAL EMPLOYED</b>					
Accumulated funds		431 661	430 661	417 189	413 578
<b>Total capital employed</b>		<b>431 661</b>	<b>430 661</b>	<b>417 189</b>	<b>413 578</b>
<b>EMPLOYMENT OF CAPITAL</b>					
Fixed assets	5	188 332	184 712	188 332	184 712
Investments	7	35 252	27 853	35 000	24 978
Interest in subsidiary	4	—	—	27 220	27 220
Net current assets		208 077	218 096	166 637	176 668
Current assets		346 634	338 458	304 696	296 258
Debtors and advances	8	72 530	75 995	72 528	80 845
Stock and contracts in progress	9	48 172	30 851	48 172	30 851
Cash and short-term deposits		225 932	231 612	183 996	184 562
Current liabilities		138 557	120 362	138 059	119 590
Advances received	10	37 259	31 879	36 770	31 116
Creditors and provisions	11	101 298	88 483	101 289	88 474
<b>Total employment of capital</b>		<b>431 661</b>	<b>430 661</b>	<b>417 189</b>	<b>413 578</b>





## CASH FLOW STATEMENT

FOR THE YEAR ENDED  
31 MARCH 1995

	Notes	GROUP		CSIR	
		1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>Cash (utilised in) generated from operating activities</b>		<b>6 280</b>	1 881	<b>8 787</b>	(3 465)
Cash generated by operations	A	1 941	25 378	(678)	24 559
Cash generated (utilised) by a decrease (increase) in working capital	B	4 339	(23 497)	9 465	(28 024)
<b>Cash (utilised in) generated from investment activities</b>		<b>(1 643)</b>	7 997	<b>964</b>	8 816
Income from investments (note 6)		29 099	27 256	31 706	28 075
Proceeds on disposal of associate company		-	103	-	103
Fixed assets acquired	C	(31 066)	(22 658)	(31 066)	(22 658)
Proceeds on disposal of fixed assets	D	324	3 296	324	3 296
<b>Cash generated</b>		<b>4 637</b>	9 878	<b>9 751</b>	5 351
Increase in loans to associate companies		317	1 583	317	-
Increase in cash and cash equivalents		4 320	8 295	9 434	5351
Increase in fixed deposits		10 000	20 000	10 000	20 000
Decrease in cash and short-term deposits		(5 680)	(11 705)	(566)	(14 649)
<b>Cash utilised</b>		<b>4 637</b>	9 878	<b>9 751</b>	5 351





## NOTES TO THE CASH FLOW STATEMENT

FOR THE YEAR ENDED  
31 MARCH 1995

	GROUP		CSIR	
	1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>A. Cash generated by operations</b>				
Net operating (deficit) surplus before investment income	(28 099)	(81)	(28 095)	(94)
Adjusted for:				
Depreciation	25 018	23 050	25 018	23 050
Loss on disposal of fixed assets	2 104	1 581	2 104	1 581
Share of associate companies' losses	2 918	828	295	22
	<b>1 941</b>	<b>25 378</b>	<b>(678)</b>	<b>24 559</b>
<b>B. Cash generated (utilised) by a decrease (increase) in working capital</b>				
Debtors and advances	3 465	(25 233)	8 317	(30 083)
Stock and contracts in progress	(17 321)	(1 251)	(17 321)	(1 251)
Advances received	5 380	(1 533)	5 654	(1 268)
Creditors and provisions	12 815	4 520	12 815	4 578
	<b>4 339</b>	<b>(23 497)</b>	<b>9 465</b>	<b>(28 024)</b>
<b>C. Fixed assets acquired</b>				
Land and buildings	4 721	1 630	4 721	1 630
Development expenditure and intellectual property	–	101	–	101
Equipment	26 137	20 579	26 137	20 579
Vehicles	208	348	208	348
	<b>31 066</b>	<b>22 658</b>	<b>31 066</b>	<b>22 658</b>
<b>D. Proceeds on disposal of fixed assets</b>				
Book value of assets disposed of	2 428	4 877	2 428	4 877
Cost	18 247	25 196	18 247	25 196
Accumulated depreciation	15 819	20 319	15 819	20 319
Loss on disposal	2 104	1 581	2 104	1 581
	<b>324</b>	<b>3 296</b>	<b>324</b>	<b>3 296</b>





## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

31 MARCH 1995

### 1. PRINCIPAL ACCOUNTING POLICIES

The annual financial statements are prepared on the historical cost basis and in accordance with generally accepted accounting practice. The underlying accounting policies have been consistently applied in all material aspects.

#### 1.1 BASIS OF CONSOLIDATION

The consolidated financial statements include the financial statements of the CSIR and its subsidiary. The operating results of the subsidiary are included from the effective date of acquisition.

#### 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 by the equity method from their most recently audited financial statements or unaudited management information as at 31 March 1995, where this is considered necessary.

#### 1.3 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 has been proven to the satisfaction of the Board, are capitalised (refer note 1.5.3). The extent of capitalisation is limited to an amount equal to the expected discounted net future income.

#### 1.4 FOREIGN CURRENCIES

Assets and liabilities in foreign currencies are converted to South African Rand at the rate of exchange ruling at the year-end date or rates stipulated in forward exchange contracts. Conversion differences are dealt with in the income statement. Transactions during the year are converted to South African Rand at the rate of exchange ruling at date of payment, unless forward exchange contracts have been secured. Forward exchange contracts are secured for all material foreign liabilities.

#### 1.5 FIXED ASSETS AND DEPRECIATION

##### 1.5.1 LAND AND BUILDINGS

Land and buildings are stated at cost. Buildings are regarded as investment properties and are not depreciated. Provision for maintenance is charged against income.

##### 1.5.2 PLANT, EQUIPMENT AND VEHICLES

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

##### 1.5.3 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 expected discounted net future income (refer note 1.3).





# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

(CONTINUED)

## 1.5.4 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 fixed assets are as follows:

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

## 1.6 INVESTMENTS

Investments are stated at cost less amounts written off. Investments are written down where, in the opinion of the Board, a permanent diminution in value has occurred.

## 1.7 TURNOVER

Turnover comprises:

- The net invoiced value of research, development and implementation contracts excluding value added tax.
- Contracts in progress as calculated per note 1.8.
- The annual Parliamentary Grant.
- Royalties.

## 1.8 STOCK AND CONTRACTS IN PROGRESS

Raw materials and finished goods are stated at the lower of cost or net realisable value. Cost of stock is determined on the average method. Contracts in progress are stated at the lower of cost or 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.





## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

(CONTINUED)

	GROUP				CSIR			
	1995		1994		1995		1994	
	R'000	%	R'000	%	R'000	%	R'000	%
<b>2. TURNOVER</b>								
<b>Parliamentary Grant</b>	<b>233 314</b>	47	240 120	49	<b>233 314</b>	47	240 120	49
<b>Contract income</b>	<b>261 747</b>	52	251 342	51	<b>261 747</b>	52	251 342	51
Private sector	<b>149 166</b>	30	133 950	27	<b>149 166</b>	30	133 950	27
Public sector	<b>49 446</b>	10	55 216	11	<b>49 446</b>	10	55 216	11
National Safety & Security sector	<b>47 465</b>	9	52 124	11	<b>47 465</b>	9	52 124	11
Other sectors (including Africa)	<b>15 670</b>	3	10 052	2	<b>15 670</b>	3	10 052	2
<b>Royalties</b>	<b>2 523</b>	1	965	0	<b>2 523</b>	1	965	0
<b>Total turnover</b>	<b>497 584</b>	100	492 427	100	<b>497 584</b>	100	492 427	100

### 3. Net operating deficit for the year before investment income

The net operating deficit for the year before investment income is arrived at after taking the following items into account:

<b>Auditors' remuneration</b>	<b>813</b>	874	<b>809</b>	870
Audit fees	<b>763</b>	824	<b>759</b>	820
Expenses	<b>50</b>	50	<b>50</b>	50
<b>Net loss on disposal of fixed assets</b>	<b>2 104</b>	1 581	<b>2 104</b>	1 581
<b>Movement in provisions</b>	<b>(9 829)</b>	11 810	<b>(9 829)</b>	11 810
Provision for accumulated leave	<b>1 593</b>	3 299	<b>1 593</b>	3 299
Provision for property maintenance	<b>(1 736)</b>	4 995	<b>(1 736)</b>	4 995
Provision for redundancy payments	<b>(549)</b>	(5 621)	<b>(549)</b>	(5 621)
Provision for pension fund contributions	<b>(9 137)</b>	9 137	<b>(9 137)</b>	9 137
<b>Interest paid</b>	<b>3</b>	9	<b>3</b>	9
<b>Fees paid for services</b>	<b>39 185</b>	38 170	<b>39 185</b>	38 170
Patent costs	<b>1 818</b>	947	<b>1 818</b>	947
Legal costs	<b>4 529</b>	516	<b>4 529</b>	516
Consultants	<b>32 838</b>	36 707	<b>32 838</b>	36 707
<b>Board members' emoluments</b>				
For services on the Board	<b>143</b>	134	<b>143</b>	134
<b>Abnormal item</b>	<b>25 000</b>	–	<b>25 000</b>	–
Payment to CSIR Pension Fund to offset AIPF underfunding (note 12)				





# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

(CONTINUED)

## 4. Interest in subsidiary and investments in associate companies

Consolidated subsidiary	Issued capital R'000	Effective holding		Financial year-end
		1995 %	1994 %	
South African Inventions Development Corporation (SAIDCOR)	27 220	100	100	31 March

Associate companies	Issued capital Rand	Effective interest		Financial year-end
		1995 %	1994 %	
<b>Unlisted:</b>				
Impulse Deflection Measurement (Pty) Ltd	1 000	25,0	25,0	28 February
Rockradar (Pty) Ltd	100	25,0	25,0	31 March

<b>Group associate companies</b>				
Technology Finance Corporation (Pty) Ltd (Technifin)	5 200 000	50,0	50,0	30 June

<b>Included in Technifin carrying value:</b>				
Quality Electronics Developments (Pty) Ltd	1 000	38,0	38,0	30 June
Megalux Luminaires (Pty) Ltd	1 000	25,5	25,5	28 February

**Carrying amount – note 7**





## Interests of the CSIR

Shares at cost		Net indebtedness		Net investment		General nature of business
1995	1994	1995	1994	1995	1994	
R'000	R'000	R'000	R'000	R'000	R'000	
7 220	27 220	-	-	27 220	27 220	Investment in and development of research and implementation of technology.

GROUP		CSIR		Indebtedness		Provision for losses		General nature of business
Carrying amount	1994	Cost or valuation	1994	1995	1994	1995	1994	
1995	R'000	1995	R'000	R'000	R'000	R'000	R'000	
-	-	-	-	126	109	(126)	(109)	Impulse deflection measurements.
0	(22)	-	-	300	-	(300)	(22)	Exploitation of intellectual property rights.
0	(22)	0	0	426	109	(426)	(131)	
252	2 875							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.
								Manufacture and marketing of flameproof lights.
252	2 853	0	0	426	109	(426)	(131)	





## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

(CONTINUED)

### 5. Fixed assets

	Depreciation for the year R'000	1995			1994		
		Cost R'000	Accumulated depreciation R'000	Net book value R'000	Cost R'000	Accumulated depreciation R'000	Net book value R'000
<b>GROUP</b>							
Land and buildings	-	111 854	-	111 854	107 132	-	107 132
Development expenditure and intellectual property	705	5 254	2 115	3 139	23 852	20 008	3 844
Equipment	24 029	356 138	283 532	72 606	347 380	274 550	72 830
Vehicles	284	2 199	1 466	733	2 293	1 387	906
	25 018	475 445	287 113	188 332	480 657	295 945	184 712
<b>CSIR</b>							
Land and buildings	-	111 854	-	111 854	107 132	-	107 132
Development expenditure and intellectual property	705	5 254	2 115	3 139	5 254	1 410	3 844
Equipment	24 029	356 138	283 532	72 606	347 380	274 550	72 830
Vehicles	284	2 199	1 466	733	2 293	1 387	906
	25 018	475 445	287 113	188 332	462 059	277 347	184 712

Land and buildings are unencumbered and full details of the titles are available at the registered office of the CSIR.

	GROUP		CSIR	
	1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>6. Income from investments</b>				
Interest earned	32 017	28 099	27 001	23 262
Dividend from subsidiary	-	-	5 000	4 850
Share of associate companies' losses	(2 918)	(828)	(295)	(22)
Loans to associate companies written off	-	(15)	-	(15)
	29 099	27 256	31 706	28 075





## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

(CONTINUED)

	GROUP		CSIR	
	1995 R'000	1994 R'000	1995 R'000	1994 R'000
<b>7. Investments</b>				
<b>Group book value of shares</b>				
Technology Finance Corporation (Pty) Ltd	2 600	2 600	-	-
<b>Loans to associate companies</b>	7 251	6 934	426	109
Technology Finance Corporation (Pty) Ltd	6 825	6 825	-	-
Impulse Deflection Measurement (Pty) Ltd	126	109	126	109
Rockradar (Pty) Ltd	300	-	300	-
<b>Provision for losses</b>	(9 599)	(6 681)	(426)	(131)
Technology Finance Corporation (Pty) Ltd	(9 173)	(6 550)	-	-
Impulse Deflection Measurement (Pty) Ltd	(126)	(109)	(126)	(109)
Rockradar (Pty) Ltd	(300)	(22)	(300)	(22)
<b>Carrying amount (note 4)</b>	252	2 853	-	(22)
<b>Investment in trade agreement</b>	5 000	5 000	5 000	5 000
<b>Fixed deposits</b>	30 000	20 000	30 000	20 000
	35 252	27 853	35 000	24 978
<b>8. Debtors and advances</b>				
Trade debtors	57 272	63 243	57 270	63 243
Subsidiary for dividend	-	-	-	4 850
Prepaid expenses	1 966	1 174	1 966	1 174
Other	13 292	11 578	13 292	11 578
	72 530	75 995	72 528	80 845
<b>9. Stock and contracts in progress</b>				
Stock	135	1 980	135	1 980
Contracts in progress	48 037	28 871	48 037	28 871
	48 172	30 851	48 172	30 851
<b>10. Advances received</b>				
Advances on contracts received from clients	37 259	31 879	36 770	31 116
<b>11. Creditors and provisions</b>				
Trade creditors	39 543	17 561	39 543	17 561
VAT payable	3 708	3 994	3 708	3 994
Provision for self-insurance	7 000	7 000	7 000	7 000
Provision for accumulated leave	17 633	16 040	17 633	16 040
Provision for property maintenance	6 666	8 402	6 666	8 402
Provision for redundancy payments	4 930	5 479	4 930	5 479
Provision for pension fund contributions	-	9 137	-	9 137
Other	21 818	20 870	21 809	20 861
	101 298	88 483	101 289	88 474





**NOTES TO THE  
ANNUAL  
FINANCIAL  
STATEMENTS**  
(CONTINUED)

**12. RETIREMENT BENEFITS OF EMPLOYEES**

**ASSOCIATED INSTITUTIONS PENSION FUND (AIPF) AND  
TEMPORARY EMPLOYEES PENSION FUND (TEPF)**

All employees who joined the CSIR before 1 January 1993 were required to join the AIPF or TEPF, which are managed and controlled by Government and are not governed by the Pension Funds Act. It is expected that the State will assume responsibility for the unfunded portion of the Funds.

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.

CSIR employees who were members of the AIPF and TEPF were given the option of withdrawing from these Funds effective from September 1994 and transferring their interest in these Funds to the CSIR Pension Fund. 2010 employees availed themselves of this option with 108 employees remaining with the AIPF and 12 employees remaining with the TEPF. Members who transferred but retained their investments to date in the AIPF and TEPF number 43 and 2 respectively.

The CSIR Board approved a contribution to the CSIR Pension Fund of R25 million in respect of persons transferring from the AIPF and TEPF. The purpose of this contribution was to off-set, to an extent, the underfunding in the AIPF and TEPF and the reduced members' interest upon transfer to the CSIR Pension Fund. This contribution was made on 31 March 1995.

Employer contributions of R11,7 million (1994: R23,9 million) and employee contributions of R4,2 million (1994: R8,6 million) were paid over during the year to the Associated Institutions Pension Fund and Temporary Employees Pension Fund. Employer contributions are charged against income.

**CSIR PENSION FUND**

The CSIR Pension Fund was founded on 1 January 1993. All employees engaged after that date will become members of this fund, which is managed independently by an insurance company. The CSIR liability to the Fund is limited to paying the monthly employer contributions.

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

Employer contributions of R10,7 million (1994: R890 845) and employee contributions of R5,2 million (1994: R534 507) were paid over during the year. Employer contributions are charged against income.

**MINE OFFICIALS PENSION FUND AND CHAMBER OF MINES PENSION FUND**

At the time of the merger with the Chamber of Commerce Research Organisation (COMRO) 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.

In respect of the employees who have formally converted their secondment to a CSIR appointment, employer contributions of R207 196 and employee contributions of R82 136 were paid over during the year.

**13. 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 R7 million is held in a self-insurance fund to cover these risks. This amount is included in Creditors and provisions in the balance sheet. No major losses were experienced during the year under review. Claims of a general nature were adequately covered.