



**C S I R**

**ANNUAL  
REPORT  
1990**

**CSIR Annual Report 1990**

*The Annual Report reviews the activities and contains the financial statements of the CSIR for 1989/90.*

**Scientiae: Technology Impact**

*A selection of reports on successful co-operation between the CSIR and South African industry in 1989/90.*

**CSIR Foundation for Research Development 1990**

*A review of the activities and achievements of the CSIR Foundation for Research Development in 1989/90.*

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*Members of the CSIR Board, from left to right: Dr C van der Pol, Mr P J van Rooy, Mr J A Stegmann, Dr L Alberts (Chairman), Dr C F Garbers (President of the CSIR), Dr W P Venter, Dr L B Knoll, Dr H B Dyer, and Prof D R Woods. Messrs R A Plumbridge and E van As were absent when the photograph was taken.*

*Dr Reinhard Arndt, Group Executive: Foundation for Research Development; Mr Albert Michau, Group Executive, Finance and Management Services; Dr Chris Garbers, President of the CSIR; and Dr Brian Clark, Group Executive, Research, Development and Implementation. The fifth member of the CSIR Executive Management Board, Mr Fred Camphor, was absent when the photograph was taken.*



## **CHAIRMAN'S REVIEW**

The dramatic, visionary initiatives of State President F W de Klerk and subsequent events in South Africa have given us an opportunity once again to claim our rightful place among the nations of the world. Numerous studies of economically successful countries have demonstrated that 40 to 90 per cent of economic growth can be attributed to technological advances, increased expertise, manpower training and innovation. This is clear confirmation of the pivotal role which science and technology will play in our future.

Recognising the crucial importance of science and technology, governments world-wide are focusing their attention on two essential preconditions for economic growth: firstly, the training of the necessary high-level manpower which, secondly, can effectively apply scientific and technological innovation. We live in a highly competitive world. In fact, in those fields where a country enjoys a comparative advantage, it must, as a matter of survival, achieve technological mastery in the international market-place. Market forces are forcing many countries to undergo a process of fundamental restructuring. In Africa, too, there is a growing realisation of the need for reform.

South Africa is poised on the brink of enormous change, which will pose great challenges to all political leaders. But a nation can effectively prepare for the technology-driven world of the nineties only if it maintains and extends the capabilities that will ensure its competitiveness. It is imperative that constitutional issues should not be allowed to weaken the commitment to technological progress.

### **THE CSIR AND THE FUTURE**

With the generous support of successive governments, the CSIR, by providing a service to the community and by fostering its select personnel corps, has developed into a major national asset. However, the forces unleashed by world-wide technological change demanded a change of course, and, during the past ten and a half years, Dr Chris Garbers as president was responsible for directing the enormous team effort that was required to steer the CSIR in a new direction.

Since Dr Garbers is retiring on 30 September of this year, I would like to consider briefly some of the high points in the illustrious career of this outstanding scientist.

### **Universities, museums and technikons**

Dr Garbers's vision, which embraces strong research institutions training increasing numbers of high-level manpower, led not only to successful bargaining regarding improved funding, but also resulted in the establishment of the Foundation for Research Development (FRD) as a separate entity within the CSIR. From 1 October 1990, the FRD will be an independent statutory council with an even greater potential for meeting South Africa's requirement for highly trained manpower.

### **Equal opportunity employer**

The CSIR is South Africa's link with the International Council of Scientific Unions, which advocates the free association of scientists, regardless of race, colour, political persuasion or sex. In 1980, Dr Garbers, in the spirit of the Wiehahn and Rieckert reports, initiated a number of investigations that led to the introduction of an Employees' Association for all personnel, the opening of the Scientia terrain to all races, and the erection of accommodation to facilitate its activities locally and abroad.

### **A market-driven CSIR**

Since 1984, Dr Garbers has gradually and in a carefully planned manner transformed the CSIR into a market-driven, future-oriented organisation which has experienced unprecedented growth in contract research during the past few years. Contract income today constitutes approximately half of the total budgeted income of the CSIR, but, more importantly, it is a measure of the organisation's close involvement with industry.

### **Greater autonomy for the CSIR**

With great enthusiasm, Chris Garbers tackled the task of dissociating the remuneration policy of the CSIR from the inflexible approach which was followed in the public service. His success in this regard has benefited not only the CSIR, but also other research councils.

### **New technological capabilities**

In the recent past, the following projects added to the technological capability of the RSA: the upgrading of the Satellite Remote Sensing Station; the construction of a 15 MN testing facility for mine hoisting cables; the building of a medium-speed wind tunnel; the completion of the National Accelerator Centre; and the upgrading of the National Measuring Standards.

### **Rationalisation of scientific activity**

During the process of rationalisation of research in the RSA, he was closely involved in the incorporation of the Fuel Research Institute and the Nuclear Institute for the Southern Universities into the CSIR. He also oversaw the hiving off of certain CSIR activities to other organisations, most notably the transfer of the National Institute for Personnel Research to the Human Sciences Research Council. A number of other activities were also wound down.

### **Research into new fields**

During his term of office, new research fields were explored and promoted, including biotechnology, energy technology, electronics, informatics, materials science, environmental sciences and transport science.

### **International liaison; promoting science**

During a period when many overseas bodies actively tried to isolate South Africa, Dr Garbers spearheaded public and behind-the-scenes efforts to keep open lines of scientific communication and co-operation. In the process, he brought home the importance of science and technology, and the need for co-operation with the CSIR, to a wide audience in the Government, industry and the broader community.

It is impossible to do justice in this limited space to the contribution Chris Garbers has made to science in general and the CSIR in particular. During his term of office, he led the CSIR to new heights – at a time when budgets slowly grew tighter and the country was experiencing considerable political adversity. South Africa will always owe him a debt of gratitude.

Dr J B Clark is about to take over at the helm of the CSIR; Dr R R Arndt will lead the FRD, as an independent, statutory body. In my view, these two outstanding scientists are the best men in the country for the job. The future holds the promise of great things to come.



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L ALBERTS  
CHAIRMAN



**COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)**  
**5 October 1945 – 31 March 1988**

"Has grown over the course of 43 years into a world-renowned organisation comprising 31 institutes and operational units which individually focus on activities which are sector-oriented (eg oceanology, coal research, and aeronautics); vocation-oriented (eg mechanical, electrical and chemical engineering); subject-oriented (eg chemistry, physics and mathematics); industry-oriented (eg the leather, sugar and fishery industries); and funding-oriented."



*Restructure*

**CSIR**  
**1 April 1988 – 30 September 1990**

- The restructured CSIR becomes operational. It consists of two operational groups:
  - Group: Research, Development and Implementation (RDI)
  - Group: Foundation for Research Development (FRD)
- In addition to two support groups:
  - Group: Finance and Management Services
  - Group: Human Resources Services
- The central function of the RDI is research and development and the transfer of expertise in fourteen areas of critical importance to South Africa:
  - Advanced Computing and Decision Support; Aeronautics; Building Technology; Earth, Marine and Atmospheric Science; Energy; Food Technology; Forestry Research; Information; Materials; Microelectronics and Communication; Production Technology; Roads and Transport; Textile Technology; and Water Technology.
- The FRD focuses on the training of high-level manpower at universities, technikons and museums.

**With effect from 1 October 1990**



**CSIR**  
**(Independent Council)**



**Foundation for Research  
Development (FRD)**  
**(Independent Council)**



## PRESIDENT'S REVIEW

### INTRODUCTION

Between 1979 and 1983, several reports were published which posed new challenges to a changing South Africa that was, at the same time, also facing increasing international isolation. Three of these reports were of particular significance to the CSIR: the Riekert Report (1979), the Wiehahn Report (1982), and the Kleu Report (1983). In January 1983, the CSIR also commissioned Prof J S de Wet to undertake a study into research funding of the natural and engineering sciences, in particular at South African universities.

These reports, together with a number of budget cuts and, in particular, the White Paper on Industrial Development Strategy in the RSA, identified the CSIR as the organisation that should take the lead in ensuring the more effective transfer of technology to industry. They also constituted great challenges to the CSIR, which was already in the throes of change. The CSIR accepted these challenges, and, in June 1985, the CSIR Board approved a proposed management review, to be carried out in co-operation with outside consultants.

Building on the changes that had taken place from 1980 to 1985, the CSIR in 1986 published the results of an in-depth study in the document *Strategy for the Future*. The year 1987 was devoted to the implementation of the strategy outlined in that document, and, on 1 April 1988, a new, restructured, market-oriented CSIR came into being. This step led to the creation of the two main operational arms of the CSIR, namely the Group: Foundation for Research Development, and the Group: Research, Development and Implementation, in addition to two support groups: the Group: Finance and Management Services and the Group: Human Resources.

In the process the CSIR strengthened its strategic planning capability.

Mission statements were also drawn up which positioned both the operational functions of the CSIR – the training of high-level manpower and the effective development and utilisation of technology – within the broader framework of research practice in the natural sciences and engineering (*Outline, facing page*).

Investigations aimed at finding the most effective way to manage both these functional activities within a single organisation continued, and on 13 October 1988 the CSIR Board resolved to recommend to the Cabinet that the FRD be hived off from the CSIR as soon as possible as an independent statutory council. In December 1989, the Cabinet approved this recommendation, and on 29 June 1990 the Research Development Act, Act 75 of 1990, was approved and the necessary amendments made to the Scientific Research Council Act, Act 46 of 1988.

**MANDATE***(From 1 October 1990):***Objects of the CSIR**

- Undertaking, in the national interest, focused and multidisciplinary research and technological renewal, thereby promoting industrial and scientific development in specific priority areas in co-operation with clients in the public and private sectors.
- Maintaining, in the national interest, primary scientific measuring standards, and managing the National Calibration Service.
- Transferring information, if necessary with added value, from international information sources to South African scientists and industrialists.
- Promoting and improving industrial production; developing existing industries; and establishing new industries. Also managing, in partnership with the IDC, the venture capital firm Technifin.
- Liaising with national and international bodies committed to the advancement and broadening of knowledge through research directed at scientific and technological needs. This responsibility also entails managing overseas science liaison offices.

**MANDATE***(From 1 October 1990):***Objects of the FRD**

- Funding researchers in the natural and engineering sciences, at universities, technikons and museums, who have been selected according to merit by peer evaluation.
- Awarding, on merit, graduate, post graduate and doctoral bursaries, for study here and abroad.
- Administering expensive multi-user facilities for manpower development.
- Liaising with, amongst other organisations, the International Council of Scientific Unions, in order to further South African involvement in international scientific endeavour.
- Enhancing manpower development in new, enabling technologies.
- Facilitating and encouraging the acquisition of knowledge and expertise, through national and international science liaison between individuals and organisations.
- Establishing and utilising a data base of manpower, equipment, research institutions and information connected therewith in the field of the sciences and technology.

In terms of this Act, the current dispensation with regard to the CSIR, which has served the country well for a period of 45 years, will come to an end on 1 October 1990, when the organisation will commence operating as two independent statutory councils – on the one hand the CSIR (now without the FRD) and, on the other, the FRD, each with its own mandate (*Table, facing page*).

As had been anticipated, the restructuring of the organisation during 1987 and 1988 necessitated an extensive regrouping of its activities. Despite the inconvenience which accompanied the changes and the consolidation process, and the negative effect this had on productivity, the CSIR budgeted for an external income of R160 million in 1988/89. The actual income was R166,1 million.

During the 1989/90 financial year the amount budgeted for under external income was R211,1 million, and 93 per cent of this amount was realised. For the 1990/91 financial year an external income of R235,6 million is being budgeted for, of which approximately R65 million will have to be earned from the private sector.

This growth in income is even more remarkable when one considers the reduction in the staff complement of the CSIR by approximately 647, from 4 780 in 1987, to 4 133 in March of this year. Mentally and physically, everybody has been through a trying period, but there is a firm conviction in the CSIR that the right road has been chosen and that the occasionally traumatic changes that have taken place were justified.

During the year under review, the two operational functions – the FRD and the CSIR (without the FRD) – were independently consolidated in preparation for their separation on 1 October 1990.

## **THE FOUNDATION FOR RESEARCH DEVELOPMENT**

The restructuring of the FRD into an independent council is the culmination of an investigation lasting almost ten years, which was carried out in close co-operation with all the concerned parties in South Africa. It is based on thorough research of similar systems elsewhere in the world, but is still aimed at answering South Africa's unique needs.

The greater independence of the FRD, with its line function responsibility for the development of appropriate manpower under capable leadership, through a process of research development, will make an important contribution to the support and advancement, according to need, of the pool of 164 000 South African professionals who have a scientific and engineering background.

Increasingly, the training of high-level manpower is being undertaken in co-operation with industry, and the FRD is also furthering mathematics and science education in this country.

The turnover of the FRD during the year under review amounted to R108,4 million, reflecting a systematic real increase in the level of support it has provided during the past ten years. Its extended mandate, its new headquarters, and its greater autonomy will allow the FRD to go from strength to strength, to implement further change, and to help shape our future.

Details of the activities of the FRD are provided in the accompanying FRD report for 1990.

### **THE CSIR (WITHOUT THE FRD)**

In the year under review the turnover generated by the line function responsibilities of the CSIR amounted to R339,3 million.

The CSIR currently undertakes approximately 5 000 contracts a year for clients in the private and public sectors. A strong multi-disciplinary approach is adopted with, where appropriate, the contracting in of expertise from other organisations, locally and internationally.

A question with which I have been confronted is whether, in striving towards greater financial self-sufficiency, the CSIR has not sacrificed long-term strategic advantage for the sake of short-term financial gain.

The CSIR has indeed strengthened technological expertise in South African industry, but, at the same time, it has not neglected to build and promote South African technological capabilities, which are essential for economic growth and improved living standards.

The following developments can be cited in support of this view:

- Protracted negotiations led to the combining of the timber research activities of the CSIR with those of the independent South African Forestry Research Institute in a new strategic unit within the CSIR: the Division of Forestry Research and Technology. This amalgamation will help the CSIR provide an improved support service to the forestry and timber products industries and will reinforce the biotechnology capability of the CSIR – a field which has been identified as one of the key research fields of the future.

- The CSIR Board decided to convert its current Programme for Textiles and Fibres into a new strategic unit, the Division of Textile Technology.
- A new 1 500 ton cable testing machine, which cost R8,5 million rand, was commissioned by the CSIR's Laboratory for Mine Hoisting Technology at Cottesloe, Johannesburg.
- A R35 million programme to upgrade the CSIR Satellite Applications Centre at Hartebeesthoek was completed.
- In collaboration with the Advisory Council for Technology and with the support of the Department of Trade and Industry the CSIR inaugurated the South African Technology Information Service (SATIS). Some 2 100 firms have already linked up with this service, which each year handles approximately 6 000 enquiries, arranges 1 500 industrial liaison visits, and lends access to approximately 100 000 technical publications through the distribution of 5 200 SATIS newsletters each month.

The CSIR also directed its corporate energy to help establish new capabilities in the automotive sector and the mining industry, and to solve problems relating to the environment and the Lesotho Highland Water Scheme.

The further advancement of its existing and potential manpower resources is another priority of the CSIR. In 1988 the organisation privatised its own training facilities, when the GROMAN training group was established. During the 1989/90 financial year a total of R6,3 million was spent on the training and re-training of CSIR staff.

In conclusion, reference should be made to Technifin, the R50-million venture capital company founded by the CSIR and the Industrial Development Corporation. In its first year of operation, six projects were approved and new companies set up to continue their further development. Another twelve projects are under consideration.

The Board also approved the promotion of Dr A Paterson to the post of Director of the Division of Materials Science and Technology.

## **CONCLUDING REMARKS**

This will be the last Annual Report in which I report as President of the CSIR, since I shall be retiring on 30 September 1990, after more than ten exciting years as President of the organisation.

It has been a privilege and a fulfilling experience to be at the helm of such an organisation, which is unique in South Africa, in Africa, and the world.

I did not labour alone during this time. I therefore consider it incumbent upon me to express my gratitude and appreciation to everybody who contributed to the huge team effort that was made:

- successive Ministers for their generous support, in particular Ministers D J de Villiers and Eli Louw, who must be singled out for the understanding they showed for the need for greater autonomy on the part of statutory research councils;
- numerous colleagues and organisations in the private and public sector, for their advice, help and support – in particular, Mr S J P du Plessis and Dr S Naudé;
- the members of the CSIR Board, for guidance, encouragement and ready co-operation at all times, who, through their collective wisdom, transformed each Board meeting into a stimulating learning experience;
- the staff of the CSIR – its most important asset; and
- finally, my colleagues on the Executive Board, who, through their creative insights, drive and loyalty, ushered in the dramatic changes of the past ten years. In this regard I would like to mention, in particular, Drs Rein Arndt and Brian Clark. After 1 October 1990, the task of continuing the good work rests on their shoulders. I shall be observing with interest from the sideline. May the future of the CSIR and the FRD be even more splendid than their illustrious past!



C F GARBERS

*President*

## **HUMAN RESOURCES SERVICES**

The past year saw the Group: Human Resources Services –

- introduce and implement a number of new management systems;
- define the core values of the CSIR;
- co-ordinate the change process within the CSIR, particularly the interaction between individuals and the organisation; and
- take on a number of new responsibilities.

The staff complement of the CSIR, including bursars, decreased from 4 288 in April 1989 to 4 133 in March 1990. Of these, approximately 1 184 are scientists and engineers, who continue to be the driving force behind the activities of the CSIR.

Measured on an annual moving average, staff turnover at the CSIR, which was initially high at 18,5 per cent, levelled off at 15 per cent during the year under review. South Africa continues to experience a serious shortage of high-level manpower, and this has a definite effect on staff turnover at the CSIR.

The bursary scheme is one of the methods used to ensure a steady flow of high-level manpower to the CSIR. Changes to the scheme to make it more market related have led to an increase of almost 30 per cent in the number of bursars. During the year under review a total of 208 bursars were engaged in graduate studies in the sciences and engineering at various universities, while 24 bursars were studying at technikons.

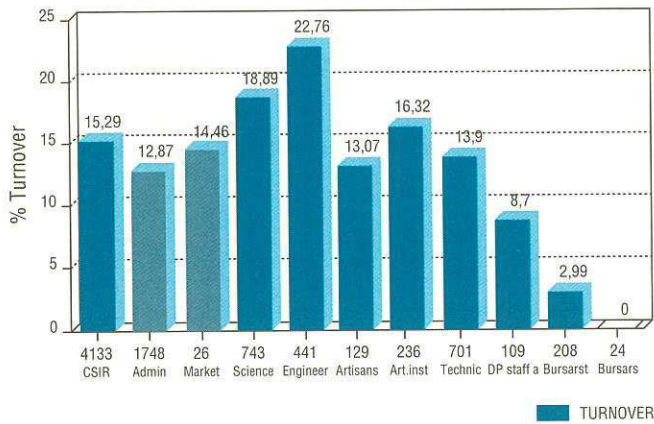
Preventive and progressive employee health care has produced promising results. The prevention of illness and the concomitant reduction in absenteeism have led to a significant decrease in the number of medical consultations.

The Group assumed responsibility for occupational safety during the course of the year. The safety record of the CSIR can still be improved. Some operational units have already undergone safety evaluations and have achieved three-star status. An objective of the Group is to establish safety management as a central component of strategic management and to extend it gradually to incorporate a comprehensive quality and loss prevention management system.



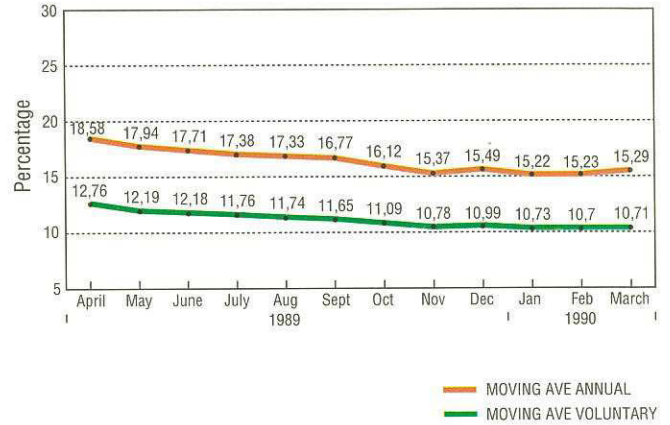
### PERSONNEL TURNOVER PER OCCUPATIONAL GROUP

MARCH '89 TO MARCH '90



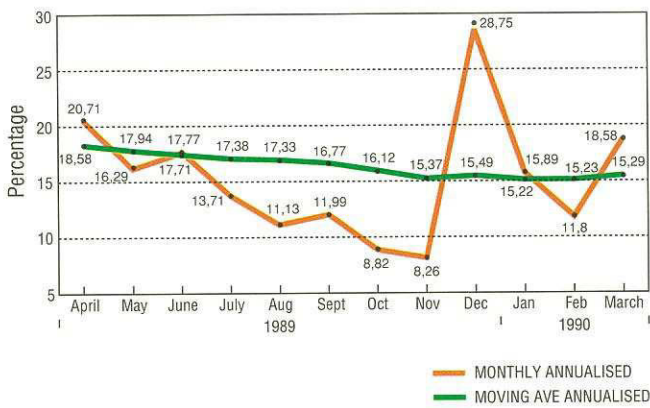
### PERSONNEL TURNOVER

MARCH '89 TO MARCH '90



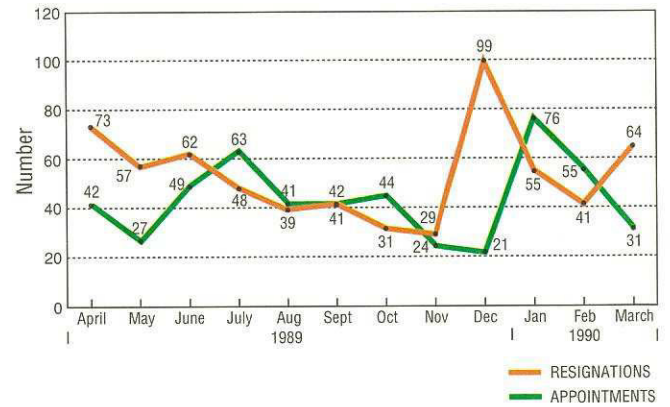
### PERSONNEL TURNOVER

MARCH '89 TO MARCH '90



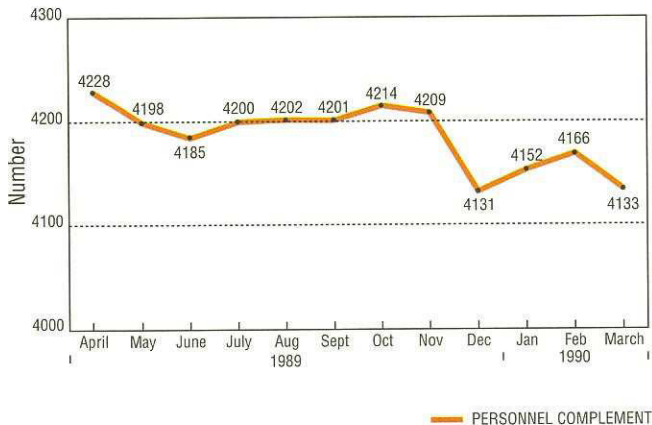
### APPOINTMENTS AND RESIGNATIONS

MARCH '89 TO MARCH '90



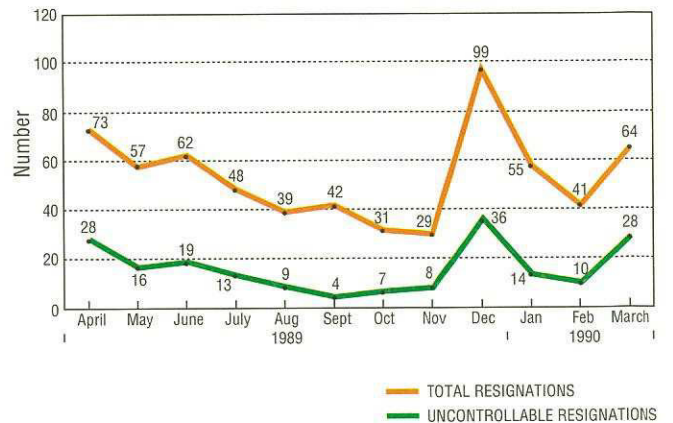
### PERSONNEL COMPLEMENT

MARCH '89 TO MARCH '90



### ANALYSIS OF RESIGNATIONS

MARCH '89 TO MARCH '90



The Employees' Association was disbanded in November 1989, and a new staff organisation was formed subsequently. It is expected that the new organisation will approach its role differently. It is also likely that the changing political climate in the country will play an important role in the relationship between employer and employee, particularly in the light of the increase in the activities of trade unions in government and government-supported institutions.

A new initiative on the part of the CSIR was to foster closer contact with retired CSIR staff. This has been greatly appreciated by the many former employees who continue to remain loyal to the CSIR.

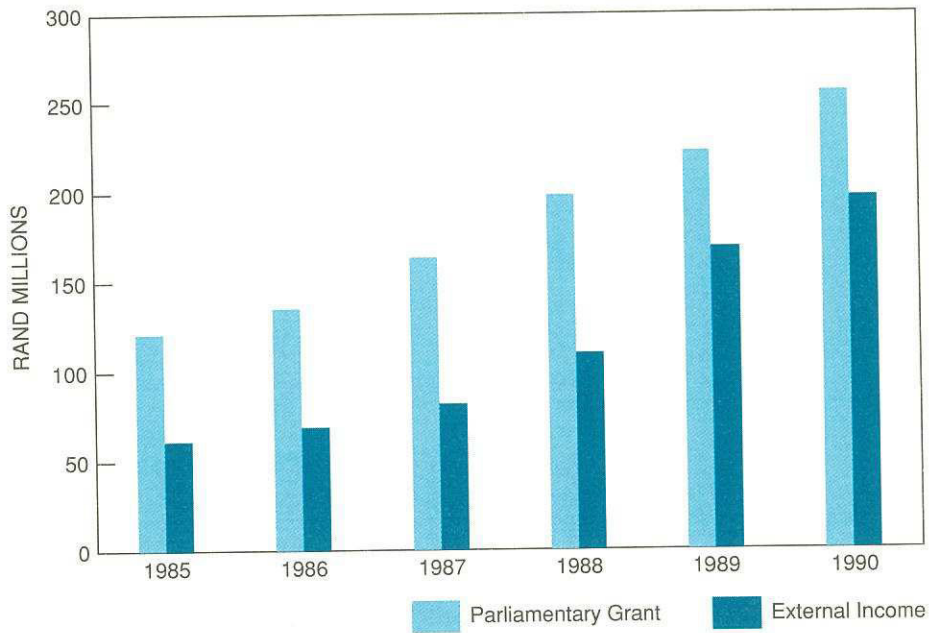
Several national and international conferences were hosted by the CSIR during the year. Approximately 34 600 delegates attended these functions, in the process also getting to know the CSIR and its staff a little better. Some 230 000 meals were prepared for conference goers and staff.

During the year, the new CSIR Club was also constituted as an autonomous legal entity closely associated with the CSIR. Many sub-clubs have already affiliated to the CSIR Club; it now has more than 2 000 members and has already organised a number of very successful events. These activities indicate that the CSIR Club will make an important contribution to fostering a healthy *esprit de corps* amongst staff.

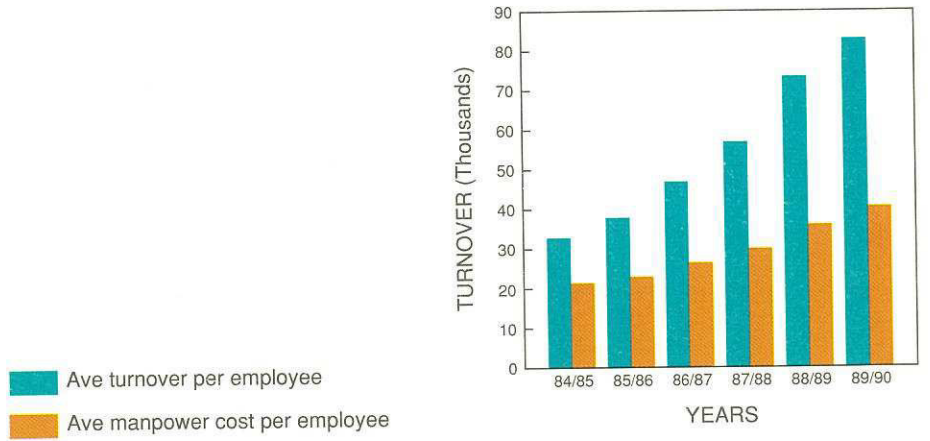


FRED CAMPHOR  
*Group Executive: Human Resources Services*

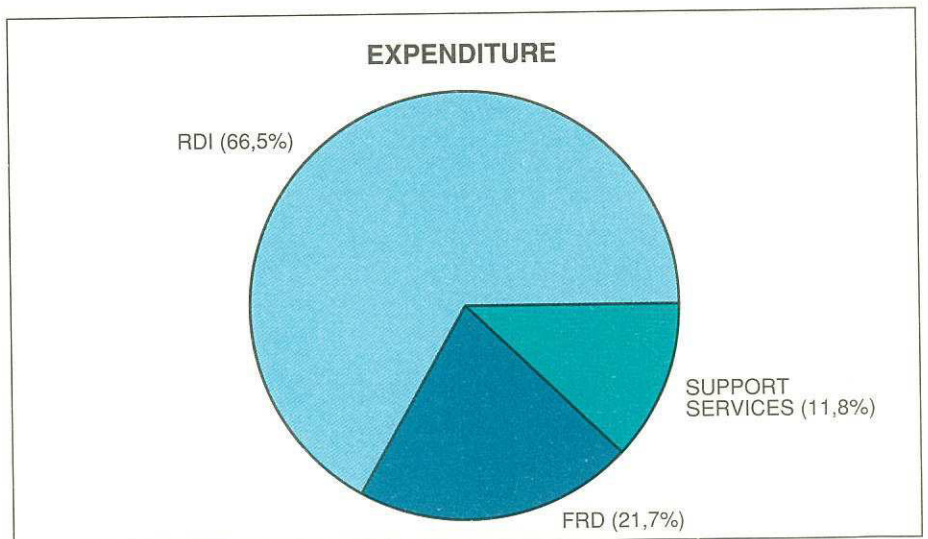
### CSIR INCOME



### CSIR AVERAGE TURNOVER PER EMPLOYEE



### EXPENDITURE



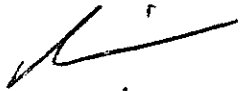
## FINANCE AND MANAGEMENT SERVICES

With the surplus for the year showing an increase of 34,2 %, from R24,36 million in 1989 to R32,68 million this year, the new CSIR's financial results once again demonstrate its strength.

Figure 1 shows the swing away from Parliamentary funding towards income derived from the private sector. This trend will grow more pronounced, as pressures mount on the operational units of the CSIR to reduce their dependence on Parliamentary funding.

Figure 2 shows the significant gains achieved in turnover per employee over the past few years, while Figure 3 illustrates the allocation of total expenditure in the year under review.

With regard to the Group's own activities, the progress made with the integrated management information system is the highlight of the year. It has been described as one of the most advanced information system developments in South Africa. The system is based on the consideration of the strategic needs of its users and the prevailing business culture, right down to the lowest operational level.



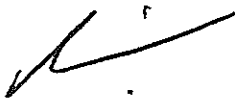
ALBERT MICHAU

*Group Executive: Finance and Management Services*

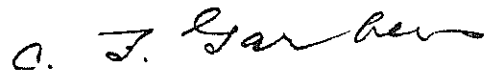
# BALANCE SHEET

31 MARCH 1990

	Notes	1989/90 R'000	1988/89 R'000
<b>Capital employed</b>	2	588 760	532 336
Accumulated funds		4 248	4 248
Contract reserve		593 008	536 584
<hr/>			
<b>Employment of capital</b>	3	419 230	397 500
Fixed assets	4	27 225	27 225
Investments		146 553	111 859
Net current assets		220 351	190 011
Current assets		65 107	50 865
Debtors and advances		155 244	139 146
Cash and money on call		73 798	78 152
Current liabilities		35 839	39 033
Advances received		37 959	39 119
Creditors and accrued expenses			
		593 008	536 584



A L MICHAU  
Group Executive



C F GARBERS  
President

The accounts of the CSIR, excluding the Cash Flow Statement and the Added Value Statement, have been audited in terms of sections 5 and 18 (2) of the Auditor General Act, No 52 of 1989, read with section 14 (1) of the Scientific Research Council Act, No 46 of 1988, by external auditors under the supervision of the Auditor-General. Subject to final review by the Auditor-General, the annual financial statements are a fair representation of the financial position of the CSIR as at 31 March 1990 and the results of its operations for the year then ended.

## INCOME STATEMENT

31 MARCH 1990

	Notes	1989/90 R'000	1988/89 R'000
<b>Income</b>			
Parliamentary grant		255 006	220 865
Contract income		164 364	150 189
Interest		24 942	13 710
Sundry income		5 299	3 304
		449 611	388 068
<b>Expenses</b>			
Salaries		208 267	190 795
Depreciation		19 849	18 418
Running expenses		188 815	154 495
		416 931	363 708
Surplus for the year		32 680	24 360
Adjustment for previous years	5	—	( 67 737)
Surplus/(Deficit) transferred to/(from) accumulated funds		32 680	( 43 377)

## CASH FLOW STATEMENT

31 MARCH 1990

	Notes	1989/90 R'000	1988/89 R'000
Cash used in operations	6	227 419	196 045
Cash available from interest received		24 942	13 710
Cash used in operational activities		202 477	182 335
Cash used in/(generated by) the continuation of operational activities		72 372	41 324
Increase/(Decrease) in working capital	7	18 596	( 6 115)
Acquisition of fixed assets	8	53 776	47 439
Cash utilised in investment activities	9	—	5
Increase in funding needs		274 849	223 664
Cash generated from external sources of funding	10	290 947	301 877
Cash generated by operations		16 098	78 213
Cash effects of financing activities			
Increase in cash and short-term deposits		16 098	78 213
Cash utilised		16 098	78 213

## ADDED VALUE STATEMENT

31 MARCH 1990

	Notes	1990 R'000	%	1989 R'000	%
TURNOVER	11	460 610		455 370	
Paid to suppliers for goods and services		188 815		154 495	
VALUE ADDED		271 795		300 875	
Interest earned		24 942		13 710	
TOTAL VALUE CREATED AND RECEIVED		296 737	100	314 585	100
APPORTIONED AS FOLLOWS:					
EMPLOYEES					
• Salaries, wages and other manpower costs		208 267	70	190 795	61
REINVESTED IN ACTIVITIES					
• Maintenance of fixed assets		73 625	25	133 594	42
Depreciation		19 849	7	86 155	27
Acquisition of fixed assets		53 776	18	47 439	15
• Transferred to accumulated funds/ (Financing of deficit)		32 680	11	(43 377)	( 14)
• Capital surplus/(Deficit)	12	(17 835)	( 6)	33 573	11
TOTAL VALUE APPORTIONED		296 737	100	314 585	100

## NOTES TO THE FINANCIAL STATEMENTS

### 1. ACCOUNTING POLICIES

The financial statements are prepared on the historical cost basis and incorporate the following principal accounting policies:

#### Foreign currencies

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

#### Fixed assets

All assets costing R1 000 or less are written off when purchased.

Land and buildings are stated at cost. No depreciation is provided on buildings.



Equipment and vehicles are stated at cost less accumulated depreciation. These assets are depreciated at rates considered appropriate to reduce book values to one rand over the estimated useful life of the assets. In the case of the National Facilities, this policy is deviated from in as far as equipment is stated at cost and no provision is made for depreciation.

### Stock

Raw materials and contracts in progress are stated at the lower of cost or estimated net realisable value. Cost is determined on the average method. Cost includes direct costs and an appropriate portion of overhead expenditure. Net realisable value of work and contracts in progress is calculated as a percentage of the sales value of work completed since the previous milestone has been reached.

### Investments

Investments are stated at cost.

### Income

Capital income is not reflected in the income statement, but is accounted for directly in the relevant fund.

## 2. ACCUMULATED FUNDS

	Building Fund R'000	Equipment Fund R'000	General Fund R'000	Total R'000
Balance as previously reported	147 926	369 117	12 965	530 008
*Adjustment for previous years	—	—	2 328	2 328
Restated balance	147 926	369 117	15 293	532 336
Plus: Surplus transferred from income statement	—	—	32 680	32 680
Capital income	2 500	34 578	—	37 078
• Revenue	2 500	33 441	—	35 941
• Proceeds from sale of fixed assets	—	1 137	—	1 137
	150 426	403 695	47 973	602 094
Less: Assets relinquished	—	146	—	146
Assets written off	—	13 188	—	13 188
• Cost	—	21 785	—	21 785
• Accumulated depreciation	—	8 597	—	8 597
	150 426	390 361	47 973	588 760

### \*Adjustment for previous years

In previous years, interest was provided for on certain advances received from clients. Since these advances are not interest-bearing, the provision for interest can be written back. The adjustment is composed as follows:

	R'000
Interest provided to 1988	1 175
Interest provided for 1989	1 153
	2 328

The 1988/89 results have been recompiled.

### 3. FIXED ASSETS

	Cost 89.04.01 R'000	Additions R'000	Written off/ Adjustments R'000	Relinquished R'000	Cost 90.04.01 R'000	Accumulated depreciation R'000	Book value R'000
Land and buildings	139 833	4 983	( 13)	—	144 829	—	144 829
Books and journals	195	—	195	—	—	—	—
Prefabricated structures	58	—	58	—	—	—	—
Equipment	341 661	49 759	21 329	146	369 945	97 109	272 836
Vehicles	1 908	171	216	—	1 863	298	1 565
1990	483 655	54 913	21 785	146	516 637	97 407	419 230
1989	469 527	54 249	38 002	2 119	483 655	86 155	397 500

### 4. INVESTMENTS

	% Holding	Value	
		1990 R'000	1989 R'000
South African Inventions Development Corporation	100	27 220	27 220
Woodchem (Pty) Ltd	50	5	5
		27 225	27 225

### 5. ADJUSTMENT FOR PREVIOUS YEARS

	1990 R'000	1989 R'000
Depreciation in respect of previous years calculated in accordance with the stated accounting policy	—	67 737

### 6. CASH USED IN/(GENERATED BY) OPERATIONS

	1990 R'000	1989 R'000
Surplus for the year before interest	( 7 738)	( 10 650)
Adjusted for		
• Parliamentary grant	255 006	220 865
• Depreciation	( 19 849)	( 18 418)
• Contract reserves	—	4 248
	227 419	196 045

### 7. CASH UTILISED TO INCREASE WORKING CAPITAL/ (CASH GENERATED BY DECREASE IN WORKING CAPITAL)

	1990 R'000	1989 R'000
Debtors and advances	14 242	17 876
Advances received	3 194	( 1 722)
Creditors	1 160	(22 269)
	18 596	( 6 115)

**8. CASH UTILISED FOR ACQUIRING FIXED ASSETS**

	1990 R'000	1989 R'000
Acquired	54 913	51 777
Less: Proceeds from the sale of fixed assets	1 137	4 338
	53 776	47 439

**9. CASH UTILISED IN INVESTMENT ACTIVITIES**

	1990 R'000	1989 R'000
Shares purchased or received	—	22 225
Less: Value of paid-up share capital in SAIDCOR received	—	22 220
	—	5

**10. CASH GENERATED FROM EXTERNAL SOURCES OF FUNDING**

	1990 R'000	1989 R'000
For funding of fixed assets	35 941	81 012
• Parliamentary grant	34 776	73 583
• Other sources	1 165	7 429
For funding of operational activities		
• Parliamentary grant	255 006	220 865
	290 947	301 877

**11. TURNOVER**

	1990 R'000	1989 R'000
Contract income	164 364	150 189
Sundry income	5 299	3 304
Parliamentary grant	255 006	220 865
Capital income	35 941	81 012
	460 610	455 370

**12. CAPITAL SURPLUS/(DEFICIT)**

	1990 R'000	1989 R'000
Capital income received	35 941	81 012
Proceeds from sale of fixed assets	1 137	4 338
Less: Fixed assets purchased	54 913	51 777
	(17 835)	33 573

## **S U M M A R Y I N G E R M A N**

### **CHRIS GARBERS: ARCHITEKT DES WANDELS**

Herr Dr. Louw Alberts, der Aufsichtsratsvorsitzende des CSIR, würdigt Herrn Dr. Chris Garbers, den Präsidenten des CSIR, der am 30. September 1990 aus diesem Amt scheidet. Aus diesem Anlaß schreibt Herr Dr. Louw:

Mutige politische Initiativen von Staatspräsident F W de Klerk haben den Weg für die Rückkehr Südafrikas in die internationale Gemeinschaft geebnet. In der von Technologie bestimmten Welt der Zukunft wird das wirtschaftliche Überleben eines Landes entscheidend von seiner Fähigkeit abhängen, genügend Menschen auszubilden, die wissenschaftliche und technologische Innovationsprozesse nutzen können. Südafrika steht an der Schwelle zu einem tiefgreifenden Wandel; wenn es jedoch auf dem Weltmarkt der neunziger Jahre konkurrenzfähig sein möchte, kann es sich es nicht leisten, nur seine verfassungsmäßigen Angelegenheiten zuregulieren und seine Verpflichtung zu technologischem Fortschritt zu vernachlässigen.

Während der letzten zehneinhalb Jahre leitete Herr Dr Chris Garbers die Neustrukturierung des CSIR. Von den Höhepunkten seiner Karriere sollten die folgenden genannt werden: sein starkes Engagement für der Gründung der Stiftung für Forschungsförderung, die am 1. Oktober 1990 ein unabhängiger satzungsgemäßer Rat werden wird; sein Beitrag zur Errichtung einer gemischtrassischen Arbeitnehmervereinigung; die Eingliederung der "Fuel Research Institute" und des "Nuclear Institute for the Southern Universities" in den CSIR; und die Anstöße, die er der Forschung des CSIR auf modernen Fachgebieten wie der Biotechnologie, Energietechnologie und Elektronik gab.

### **DAS ENDE EINER ÄRA**

Der scheidende Präsident des CSIR, Herr Dr. Chris Garbers, beginnt seinen Rückblick auf die Tätigkeiten des Jahres mit einer Beschreibung der Zeit des Wandels, die der dramatischen Neustrukturierung des CSIR im Jahre 1987 vorausging – ein Vorgang, der in der Trennung von CSIR und der Stiftung für Forschungsförderung am 1. Oktober 1990 seinen Höhepunkt finden wird.

Am 1. April 1988 war ein neuer, marktorientierter CSIR Wirklichkeit geworden. Er bestand aus zwei Hauptgruppen: der Gruppe: Forschung, Entwicklung und Anwendung sowie der Gruppe: Stiftung für Forschungsentwicklung, dazu kamen zwei Unterstützungsgruppen. Im Jahre 1988 beschloß der Aufsichtsrat des CSIR, daß den beiden Hauptaufgaben des CSIR – der Ausbildung eines hochqualifizierten wissenschaftlichen Nachwuchses und der effizienten Entwicklung und Nutzung von Technologie – am besten entsprochen werden könnte, wenn der FRD ein unabhängiger satzungsgemäßer Rat des CSIR würde. Dies wird am 1. Oktober 1990 realisiert werden.

Der CSIR kann seit 1987 ein bemerkenswertes Ansteigen seiner Einnahmen verzeichnen. Während des Finanzjahres 1989/90 konnten 93 Prozent der 211,1 Millionen Rand, die im Etat als externes Einkommen veranschlagt worden waren, verwirklicht werden (1988/89 waren es 160 Millionen Rand). Der entsprechende Betrag für 1990/92 liegt bei 235,6 Millionen Rand. Während der gleichen Zeit sank die Zahl der Arbeitnehmer von 4 780 im Jahre 1987 auf 4 133 im März 1990.