OPENING ADDRESS BY THE HONOURABLE THE PRIME MINISTER ON THE OCCASION OF THE XVth CONGRESS OF THE ISSCT AT DURBAN ON 18th JUNE, 1974

INTRODUCTION

The General Chairman, Dignitaries, Delegates, Ladies and Gentlemen—

It is indeed an honour for me to participate in the opening of this the Fifteenth and Golden Jubilee Congress of the International Society of Sugar Cane Technologists. To the participants of whom I believe there are some 1 000 from all over the world, may I extend a hearty welcome on behalf of us all. To mark the occasion, the Postmaster General has issued a special commemorative postage stamp.

Many of our visitors from abroad have already seen parts of the country on tours through Johannesburg, Pretoria and the Eastern Transvaal. I hope that they will enjoy their visits to other parts of our wide and varied country — and return in later years as tourists.

This is the first congress of the International Society of Sugar Cane Technologists to be held since the oil crisis of 1973 - 74 which focused attention on the depletion of the world's non-renewable natural resources. Sugar, as a renewable source of energy, has thus become of increased importance. Even in alleviating other world-wide shortages, such as that of structural materials and paper, sugar and in particular its by-products may come to play an ever-increasing role.

SOUTH AFRICA — THE LAND OF CHALLENGES

In their brief introduction to South Africa, our visitors will have gained some idea of what South Africa has achieved in the field of technology, and especially in the field of sugar technology — in which they are best qualified to judge the level of achievement. We are proud of what our sugar technologists have achieved, and of the place they have won in export markets on a basis of quality and dependability.

Throughout its history South Africa has been a land of challenges. As soon as one challenge has been met, new challenges have arisen which clamoured for solution. These challenges have ranged all the way from survival among wild beasts and unknown diseases to developing sophisticated manufacturing industries in an essentially mining and agricultural community. Our climate, our ecology, our geology, our resources and our people are often very different from those of the European or American environments in which most modern technologies have been developing.

Sugarcane is an excellent example. Only small areas of South Africa are ideally suited for sugarcane cultivation. By means of local research it has been possible to plant large areas with cane and still obtain large yields. In this way South Africa has become the largest producer of sugar in Africa. Although we produced only 4 per cent of the world supply during the difficult years of
1965-70, approximately 50 per cent of production during this period was exported. In 1972-73, the export tonnage once again exceeded 1 million tons.

South Africa is indeed fortunate in having large resources of various very desirable minerals, such as gold and coal. These resources have formed not only the base of our export trade but also the foundation of our industrial expansion.

However, it is the recognition which we have won for political and economic stability and our long record of good financial management that has attracted large foreign investments of capital which have enabled us to develop these resources. In 1971 the total foreign investment in South Africa amounted to R7,033 million which yielded an average total rate of return of 14 per cent for the foreign investor.

One of South Africa's most valuable assets is, however, her people, drawn from many nations, imbued with a pioneering spirit and a desire to develop this country for the benefit of all.

All these assets, in conjunction with imported technologies and foreign capital have enabled South Africa to attain a leading position in Africa — to have the largest Gross Domestic Product (R11,940 million), — the largest trade (R4,459 million), — the largest private consumption market (R8,507 million), — and become the largest consumer of steel and electricity on the African continent. The figures quoted refer to 1971.

THE TECHNOLOGICAL STATUS OF SOUTH AFRICA

South Africa is a bright and sunny land with many attractions for the holiday maker. By contrast, it poses many challenges to the farmer — uncertain rainfall, plant and animal pests and diseases. All these have had to be overcome by research scientists — in collaboration with courageous and enterprising farmers. Much of the expertise which has been developed is equally applicable to other parts of Africa — and we are always only too pleased to make it available to those who ask or wish to exchange knowledge and technical information with our experts.

A great deal of effort was spent on the breeding of suitable plant varieties and stock breeds for local conditions, to determine their nutritional needs and other requirements, to control their pests and diseases and to mechanize their cultivation and harvesting. The Sugar Association's Experiment Station at Mount Edgecombe is a good example of this type of activity and is well known for its contribution to breeding of high yielding, disease resistant cane varieties, the study of cultivation methods, the control of pests such as the Eldana borer and the development of systems for mechanized cultivation and harvesting of cane.

One of the important purchasers of South African sugar is the mining industry which has also excelled in its development of technology suited to local circumstances. Although South Africa's mining industry is a fairly young one and is in fact 20 years younger than our sugar industry — diamonds and gold were only discovered in the 1860's and later — our mining engineers can compete with the best in the world in shaft sinking and tunnelling. By unravelling the intricacies of the African geological history our geologists have been successful in unearthing various mineral riches such as platinum, phosphates, copper, etc.

Just as sugar processing and refining followed from sugarcane planting,
the agricultural and mineral riches of South Africa led to the development of our industries. Already industry is contributing more than 25 per cent to our Gross Domestic Product.

Although production processes and equipment are to a large extent similar to those used overseas, South Africans have developed or adapted the technology, where necessary, to suit our local requirements. As South Africa has, however, no sources of crude oil of its own, we have become the only country in the world to produce petroleum-products from coal, on a commercial scale, and in the energy-crisis we have been in a position to advise others on this technology. Other extraction industries, such as the energy source uranium, have benefited from South African applications of technology. The South African sugar industry in general and exports in particular have for instance benefited very considerably from the development of suitable methods for hydrolysis of starch in raw sugar and of a high capacity raw sugar/molasses blending plant. The sugar industry has also recently adopted the direct testing of the sucrose content of cane as the official method.

The African environment poses many problems in the field of human health. In this respect we have also developed expertise on tropical diseases, nutritional diseases and eye diseases which are amongst our most severe health problems. The first heart-transplant operation performed by a South African, Chris Barnard, would not have been possible if there had not been a sound system of medical training, research, hospital and other health services in South Africa.

A basic requirement for the development of our agricultural, mining and manufacturing industries is an adequate infrastructure of roads, transport, construction and power and water supplies.

Many problems peculiar to South Africa had to be solved in establishing this infrastructure. We have, therefore, built up a considerable body of know-how on construction methods, road building and power generation.

The scarcity of water in some areas of South Africa offers challenges requiring unique solutions. We have accordingly adapted and are developing technologies for water supply, water desalination, water conservation, waste water treatment and pollution control. Several plants for the reclamation of waste water for immediate re-use have already been built in South Africa, and the plant in Windhoek is as yet the only one in the world which reclaims waste water to supplement a city's water supply. The Sugar Milling Research Institute has also done excellent work on the prevention of river pollution by sugar mills.

The State has provided the lubrication for all the gears of this technological development by establishing various research organizations such as the Council for Scientific and Industrial Research, the Atomic Energy Board, the National Institute for Metallurgy and the National Productivity Institute, on the one hand, and a standards body, the South African Bureau of Standards, on the other hand. These bodies have already made their mark in developing new technologies, and promoting South Africa's economy.

All the standards and industrial research organisations were only established after 1945. Today every industrial sector is catered for by one or more research organisations devoted to their particular interests. In addition to research undertaken by industrial organisations themselves, the Government and various
industries have also formed co-operative industrial research institutes where necessary.

South Africa's contribution to sugar technology in Southern Africa and, indeed, much further afield is well known to you. Its agricultural research station at Mount Edgecombe will celebrate its Golden Jubilee next year, and the Sugar Milling Research Institute at the University of Natal is 25 years old this year. These research establishments financed largely by the industry itself have been of inestimable value, not only to the South African sugar industry, but to all the sugar industries in Southern Africa.

While a considerable part of our research effort (18 per cent) is devoted to basic research, the expenditure on applied research and development has already exceeded R48 million per year. Twenty-nine per cent of this is utilised for agricultural research, nearly 20 per cent goes to mining research, 5 per cent is spent on research for infra-structural development, and 31 per cent is expended on research for manufacturing and processing industries. The total expenditure on scientific services for all sectors has exceeded R49 million in 1969-70. The expenditure on research and scientific services specifically directed to the sugar industry amounted to R1,1 million for the same period.

The availability of top quality financial and management services in South Africa is responsible for South Africa's fortunate position in being able both to develop and apply newly developed technologies. In the few instances where private capital could not undertake new developments the State has injected capital into ventures such as our first steel plant (ISCOR), SASOL (the oil from coal plant) and FOSKOR (the phosphate mine and plant at Phalaborwa). Even now the State is providing capital for decentralised development throughout South Africa, which is essential in order to reduce the pressure on our over-crowded cities and to develop our Bantu Homelands, which pose special development problems of their own.

All our agricultural, mining, industrial, developmental or financial activities and assets would be impossible to utilise without an adequately trained population.

One of the main concerns of the Government and of all sections of the community (including the sugar industry) is to provide adequate educational opportunities for all the children, to train them for a variety of occupations and to provide them with suitable and adequate employment.

The more than three million school children in South Africa receive their primary and secondary education through the medium of at least twelve languages. Vocational training is undertaken in the various universities, colleges for advanced technical education, technical and vocational schools, and by employers either through co-operative training facilities or in their own establishments. This provides a back up of well trained personnel for the development, adaptation and application of technology. The South African Sugar Association has for instance established both agricultural training centres and an engineering apprentice training centre while the Natal College for Advanced Technical Education offers a three year course in sugar technology.

In the past 30 years South Africa has therefore shifted away from a primary-product based economy. It is now more and more attaining a science- and technology-based economic structure which should allow it to retain its position as a trading partner.
SOUTH AFRICA AS A DONOR OF TECHNOLOGY

South Africa is, therefore, both well-placed and well-qualified to be a donor of technology to its neighbours and the rest of Africa.

Large parts of Africa are dependent upon South Africa for vaccines to safeguard stock.

Varieties of sugarcane selected and bred by the South African Sugar Association Experiment Station, Mount Edgecombe, are almost exclusively grown throughout Africa, and are continuously made available to the sugar industries in Mozambique, Rhodesia, Malawi, Kenya and Swaziland. The variety NC0310, released by Mount Edgecombe in 1948, has, in fact, been grown in more countries throughout the world than any other variety.

Mines in many parts of Africa have been developed by South African engineers, in many instances, with South African capital. Medical and health service advice has been freely supplied to various of our neighbours. South Africans have advised on and assisted in road building, power generation, water systems and transport systems for various countries. South Africa's financial resources have been the spearpoint of large developments such as mines and sugar estates and mills in neighbouring countries.

Particularly close links have been established between Mount Edgecombe and the sugar industries in Swaziland and Malawi entailing regular visits by senior specialist staff who are always available to give particular attention to specific problems as and when they arise. These associations, which are entrenched in formal agreements, are greatly valued by the sugar industries and governments concerned. The Sugar Milling Research Institute has factories affiliated to it in all the countries mentioned above, which receive services, reports, advice and results of analytical data and regular visits.

Individual South Africans have also perceived the need and contributed their share to the development of neighbouring countries. Many South African professional men have donated time to help various of our smaller neighbours. Individual South Africans have acted through the South African Nature Foundation, and through private development banks such as EDESA, to develop the resources of various neighbouring countries.

Through a body such as the Southern African Regional Commission for the Conservation and Utilisation of the Soil (SARCCUS) the South African government is actively participating in interterritorial technical co-operation in Southern Africa. South African agreements with Mozambique and Angola have led to the Cabora Bassa and Cunene hydro-electric projects, and we also have made formal provision for technical co-operation with Lesotho and Malawi.

The facilities and expertise of South African scientific and research organizations, such as the Meteorological Service, or the CSIR, and all the information, contained in our excellent library system are available for use of all our neighbours, and have rendered valuable assistance in the past.

Conferences such as this Jubilee Congress provide means by which new developments in technology can be brought to the attention of experts everywhere and by which the experts from various countries can exchange knowledge and information on a person-to-person basis.

We recognize that South Africa, therefore, has a role to play in the technological development of its neighbours in particular, but also elsewhere in
Africa. If this is not as large as it could be, I venture to say that the fault is not entirely ours.

In many cases, the countries which are in urgent need of suitable technology cannot afford the cost of new plants and installations required, even if the know-how is available free of charge. This can be a particular problem where such developments would use up foreign exchange required for other purposes. Countries which could benefit from technological expertise available from South Africa, are often not aware that we may have the answer to their problem, and unfortunately many South African technologists are unaware of the opportunities for the application of their technologies in neighbouring countries.

CONCLUSION

To summarise therefore — South Africa, which has been a recipient of technology for a long time, but has taken the bit between her teeth and developed and adapted its own technology, has become an actual and potential donor of technology suited to the requirements of our neighbours. We have this technology available, and we are using it for our own development, but we are also in a position to and, what is more important, have the desire to assist our neighbours in their development through the use of this technology.

In the broader international sphere, it is our practice to participate fully in conferences and symposia, and to share fully our knowledge and experience with others. As in this instance, we are pleased to play host to recognised international bodies, without restriction on grounds of the country of origin of the participants.

The sugar industry subscribes completely to the philosophy of the free exchange of technological information. In spite of the fact that the South African sugar industry has so much to offer, and has given so much, the exchange of this information is never one-sided, and therefore has a real value for us also. It is in this context that we welcome the holding of this Golden Jubilee Congress of the International Society of Sugar Cane Technologists in South Africa.

I now declare this Congress officially opened and express the hope that your deliberations will be fruitful and that you will reap the fruits of the very essential personal contact between technologists from all countries.