RESOURCES FOR AGRICULTURAL DEVELOPMENT IN SOUTHERN AFRICA

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It is imperative that agricultural output and the development of the potential be increased in the 1980's.

The primary objectives must be:-

- **better utilisation of the available resources, and**
- **the development of entrepreneurship in agriculture.**

The challenges facing agriculture include aspects such as the production of sufficient food of acceptable quality;

- **to maintain increased rates of agricultural production over an indefinite period,**
- **to make certain that the agricultural development process in Southern Africa contributes to the reduction of underemployment and poverty,**
- **to generate an agricultural surplus over and above current consumption needs, and**
- **to establish a set of institutions capable of transferring the surplus to the non-farming sector and using it to form needed capital.**

South Africa is a food exporting country. The independent, the National and neighbouring states, however, are all importers of food. In 1958 Professor Tomlinson projected that the agricultural sector of the Homelands should be able to feed a total population of 30 million. At present production is sufficient for only 2 million. This gap is likely to remain or widen unless well-planned and determined corrective action is taken urgently by all concerned. The long term solution of agricultural development must be sought in improving the productive capacity of the farms of the National States and a change of attitude by the traditional leaders and farmers of these states towards agriculture.

The Condition of Interdependence

A subsistence-type agriculture can stand alone without harm to itself, but a modern, commercial, science-based agriculture cannot. In fact, a modern, commercial, science-based agriculture cannot come into being prior to the forging of certain linkages (Cochrane, 1974).

(i) A modern agriculture is a surplus producing agriculture; this surplus must be sold to buyers in the non-farming sector, domestic (cooperatives), private or foreign markets and at levels which more than cover the cost of production.

(ii) A modern agriculture by definition employs modern technologies that are produced in the non-farming sector and must be acquired from the non-farming sector. This leads also to the creation of new jobs, greater productivity, job training, the learning of new skills, housing development and a vast infrastructure.

(iii) A very important and strong linkage should exist between different states (Common Market concept), different regions and different production areas according to their natural resources and potential to produce different agricultural commodities, in order to make most use of different markets and the linkage with the non-farming sector of each.

A major problem in the Developing Countries is that many farms are small. These small farms employ large numbers of people who have few alternative sources of employment and income. In many cases the modern technology of a science-based agriculture is unsuitable or beyond the reach of such small farms.

The Corporation for Economic Development has largely overcome this problem by establishing core projects with service centres providing the biological, chemical and mechanical technology required for higher production.

The potential for agricultural development

Natural resources

Total area

The present total area of the 10 Black States comprises 15 882 793 ha (Benso, 1979). They are located in the form of an inverted U extending from the Eastern Cape Province through Natal and the Northern Transvaal to the North-Western Cape. About 11 per cent of the entire area of the Black States is taken up by mountains. For the rest 23 per cent is mountainous, 20 per cent hilly and 46 per cent undulating or flat.

Table 1 provides the land use pattern as at 31 March, 1978 (Benso 1979).

TABLE 1: Land use pattern of Black States in Southern Africa

	DRYLAND		IRRIGATION		FORESTRY		GRAZING		NON-AGRIC.		TOTAL
	ha	%	ha	%	ha	%	ha	%	ha	%	ha
Ciskei[1]	76 000	13,9	770	0,1	28 000	2,7	377 700	68,3	70 530	12,8	553 000
Kwazulu[1]	970 000	31,3	2 644	0,1	72 000	2,3	2 055 356[2]	66,3	—	—	3 100 000
QwaQwa[1]	5 335	11,1	—	—	350	0,7	41 278	85,6	1 280	2,6	48 243
Lebowa	340 350	15,1	8 020	0,3	28 656	1,3	1 785 981	79,5	84 543	3,8	2 247 550
Gazankulu	107 864	16,0	1 781	0,3	143	0,0	528 891	77,9	39 321	5,8	675 000
KaNgwane											372 000
South Ndebele											75 000
Transkei	361 000	8,7	11 000	0,3	270 000	6,5	500 000	84,0	20 000	0,5	4 162 000
Bophutha-tswana	400 000	10,0	5 000	0,1	1 500	—	3 550 000	88,8	43 500	1,1	4 000 000
Venda[1]	61 206	9,4	3 774	0,6	8 025	1,2	560 625	86,3	16 400	2,5	650 000
TOTAL[3]	2 321 755	15,0	32 959	0,2	408 674	2,7	12 396 831	80,3	275 574	1,8	15 882 793

[1]Preliminary figures
[2]Excludes agricultural land
[3]The percentage division excludes KaNgwane and South Ndebele

These figures indicate the situation as it was in 1978. The figures given for irrigable land are outdated. At least 40 000 ha irrigable land should be added to Kwazulu to include the irrigable areas along the Pongola River below the Josini Dam on the Makatini Flats.

Recent purchases of 'White' farms were added to Venda to double the given figure of 3 774 ha land under irrigation. Recent surveys show that another 25 000 ha of high fertility land could be brought under irrigation. The potential irrigation land in Gazankulu is ca 12 600 ha; in KaNgwane ca 20 000 ha; Lebowa ca 20 000 ha and Ciskei 7 000 ha. It is also expected that the total area of QwaQwa will more than double through consolidation. These farms have high potential for crop and livestock farming.

A very large area suitable for afforestation has been identified on the Makatini Flats in Kwazulu. This area, 156 000 ha in extent, could become the largest in Africa.

Climate

Large areas of the National States lie within both the warm and high-rainfall areas of Southern Africa. If an annual rainfall of 500 mm is taken as the minimum required for successful dry-land crop production, 76 per cent of the total area of the Black States receives more than 500 mm and compares favourably with the corresponding 35 per cent of Southern Africa as a whole.

Soil Types

The soils of the Black States are a complex assortment of different types and there are few instances of a single uniform type over an extended area. The most important soil types found in South Africa are all represented in the Black States.

Natural Vegetation

The natural vegetation of the Black States is largely savannah, but there are also important grassland areas. The vegetation throughout the National States is suitable for stock grazing — especially cattle.

Agricultural Potential

The Department of *'Bantu Administration and Development'* appointed consultants to carry out a systematic survey of the natural resources of the various *'Homelands'*. The main object of these surveys of resources was to provide a foundation for regional planning and development along sound lines.

It now remains for these surveys to be completed on a regional and more detailed basis. These more intensive surveys are of the greatest importance for land use planning. Only then is proper assessment of potential productivity of each area possible on which rational planning could be based. Present land utilisation is given in Table 2 (Benso, 1979).

TABLE 2: Portion of available agricultural land utilized.

	PART OF AVAILABLE DRY-LAND UTILIZED		PART OF AVAILABLE IRRIGABLE LAND UTILIZED	
	ha	%	ha	%
Ciskei[1]	34 200	45,0	500	64,9
Kwazulu[1]	475 000	49,0	2 644	100,0
QwaQwa	3 935	73,8	—	—
Lebowa	201 725	59,3	5 219	65,1
Gazankulu	107 864	100,0	1 402	78,7
KaNgwane	—	—	—	—
South Ndebele	—	—	—	—
Transkei	300 000	83,0	2 000	18,2
Bophuthatswana	201 650	50,4	3 229	64,6
Venda	39 292	64,2	2 703	72,2
TOTAL	1 363 666	58,7	17,697	53,7

The percentage of dry-land that is at present utilised varies in the respective national states from as little as 45 per cent up to 100 per cent. It is obvious also that there are still large areas to be developed.

Yield Potential

Many people and/or bodies have made statements about the productivity of agricultural land in the Black States. I quote:
"The actual potential in yield per hectare for agronomical crops in the Homelands is substantial." (Benso).
"The Commission for the socio-economic Development of the Bantu Territories came to the conclusion that the agricultural potential of 100 ha of land in Bantu areas (including Transkei) is roughly the same as that of 147 ha in White areas."

However, in most of these areas agriculture is still mainly on a subsistence basis. Table 3 provides information on maize yields for the 1973/74 season in different areas.

The reasons for these low yields are not ones of low production potential. A lack of agricultural inputs including credit facilities, technology, management, personal motivation and the land tenure system are the main factors contributing to inefficient land use.

The yields obtained by the Corporation for Economic Development, other agents and many commercial farmers in the Black States confirm the high production potential of most of the areas.

The information bulletin of Agricor, *Kgodisano,* reports that the annual maize production of Bophuthatswana has rocketed by more that 1 000 per cent over the past four years to 80 000 tons, (1977 - 1980). At Mooifontein (CED managed scheme) the total production has shot up from 4,7 million kg to 32,3 million kg. The farmers at Akanyang in their first year (1980) produced an average of 2,34 tons per ha. The star performer project is Sheila/Verdwaal with an average of 3,25 tons per ha. Here 197 Tswana farmers cultivate 3 426 ha of land. They are being assisted by Noord-Wes Agricultural Cooperative.

This increase in production has led to the erection of silo complexes at Vryhof (50 000 tons) and Kraaipan (70 000 tons) bringing Bophuthatswana's total maize

TABLE 3: Maize yields 1973/74

	DRY-LAND			IRRIGATION		
	Area ha	Yield (ton)	kg/ha	Area ha	Yield (ton)	kg/ha
Bophuthatswana	13 935	6 731	483	628	311	495
Gazankulu	37 400	14 361	384	670	548	818
Kwazulu	232 113	67 312	290	1 199	1 307	1 090
Lebowa	49 265	8 818	179	2 632	2 844	1 081
South Ndebele	879	398	453	29	20	690
Swazi	6 850	2 036	297	345	198	574
QwaQwa	6 340	1 268	200	—	—	—
Venda	21 000	10 000	476	700	600	857

TABLE 4: Classification norms of seven sample areas (Grobler, 1969)

REGIONS	ARABLE kg/ha			GRAZING ha/MLU		
	HP	MP	LP	HCC	MCC	LCC
I Nkandla	5400	3240	2160	1,77	2,5	—
II Hluhluwe	—	2160	1080	2,5	3,38	4,2
III Nqutshana	2700	2160	—	—	—	—
IV Sekurati	5400	2160	—	3,38	—	4,18
V Makonde	5400	3240	2160	1,77	—	—
VI Saulspoort	3240	—	1080	2,5	—	4,2
VII Gamodimola	2160	1620	1080	—		4,2

storage capacity up to 120000 tons.

These figures substantiate the projections made by Grobler in 1969. Grobler took seven different areas as sample areas from Kwazulu, the Northern Black States and Bophuthatswana. He classified the sample areas according to their production potential into high-, medium-, and low potential arable land and also high-, medium-, and low carrying capacity grazing land. Production potential of arable land was expressed in terms of kg maize/ha and carrying capacities in terms of MLU.

Grobler concluded that with the rough estimates of the agricultural potential and the capacity for food production as basis, self-supporting minimum populations could be calculated as follows:-

Natal: 2995 million ha at 2,5 persons per ha = 7,5 million people

Northern areas: 3631 million ha at 3 persons per ha = 10,9 million people

Western areas: 2992 million ha at 2,4 persons per ha = 7,2 million people.

Moreover, the agricultural potential is such that, apart from the provision of food for the people, there is adequate scope for the diversification needed as a basis of healthy secondary industrial development.

Financial Resources

Financial Implications of Development

A subsistence type of agriculture has little or no need for production credit. Most inputs employed are produced on the farm and there is little or no need to purchase inputs produced off the farm.

However, with modern commercial farming a need arises for production credit to enable farmers to acquire inputs produced off the farm (fertilizer, chemicals, mechanisation). Credit is a key element in the modernisation of agriculture. Not only does it remove a financial constraint, but it can accelerate the adoption of new technologies.

TABLE 5: Yields of different agricultural crops on CED projects and schemesL Year 1979/80

CROP	PROJECT	STATE	YIELD
Maize (D)	Mooifontein	Bophuthatswana	2,75 tons/ha (Average) 4,50 tons/ha (Maximum)
Wheat (I)	Tswelopele	Lebowa	4,2 tons/ha
	Tuang	Bophuthatswana	5,6 tons/ha
Potatoes (I)	Mariveni	Gazankulu	1800 x 15 kg/ha
	Blouberg	Lebowa	1750 x 15 kg/ha
Cotton (I)	Mariveni	Gazankulu	2800 kg/ha
	Taung	Bophuthatswana	3600 kg/ha
	Mjindi	Kwazulu	2900 kg/ha
	Fig Tree	Kangwane	2500 kg/ha
Tobacco (I)	Mhinga	Gazankulu	1500 kg/ha
(Air cured) (I)			
(Flue cured)	Mariveni	Gazankulu	1500 kg/ha
Citrus (I)	Nondweni	Gazankulu	5 x 15 kg export fruit/tree
	Lisbon	Gazankulu	7 x 15 kg export fruit/tree
	Zebediela	Gazankulu	8 x 15 kg export fruit/trees
Ground nuts (I)	Taung	Bophuthatswana	3,5 tons per ha
Sugar (D)	Sukumani	Kwazulu	60-70 tons/ha
	Eshowe	Kwazulu	80 tons/ha
Tomatoes (I)	Lorna Dawn	Lebowa	6000 x 6 kg/ha

Money is also the key in providing infrastructure ie, those inputs which provide economic services to the economic functioning of the individual farm but which are external to the farm. The point I wish to make is that a modern farm cannot operate efficiently unless it has access to those services that are basic to a modern operation. These services include the following facilities:

(i) Storage and handling services (silos) to protect and maintain the condition of the surplus product following harvest and to operate a timely delivery system for non-farm produced inputs (Lesedi and Ditsobotla cooperatives).
(ii) Transport system (rail, truck,etc.) to move surplus products out and non-farm produced inputs in.
(iii) Water - storage and distribution for irrigation, industry and human use.
(iv) Power - electricity.
(v) Mechanisation - service centres.

Infrastructure must come early in the development process. Most developing countries lag badly in both physical and social infrastructure for agriculture due to the absence of forward planning and an agency to erect the required infrastructure.

Provision of Credit

In most developing countries there are different institutions providing credit for agricultural development (medium to long term) and agricultural production (short term). In most countries the institution is in the form of an agricultural development bank, while in some countries cooperative credit societies render financial services (World Bank, 1975).

In the case of Southern Africa there is a great need for financing infrastructure and production credit.

The Case of the Republic of Bophuthatswana

In 1979 Mr D Beuster, Managing Director of Agricor, submitted a memorandum to the cabinet of Bophuthatswana, describing the major identified agricultural schemes and outlining the financial needs. I wish to quote only two items from the memorandum.-

(i) Total capital requirements for primary agricultural production	R221 350 000
(ii) Secondary capital requirements	R 87 100 000
	R308 450 000

The development was scheduled to be carried over a number of years, with an annual requirement of R18 400 000.

The Case of Gazankulu

The Secretary for Agriculture, Gazankulu Government, estimates the immediate needs for short term financing in Gazankulu to be R63 million. Taken at 50 per cent of optimum production the gross margin of this investment could be R10,3 million per annum.

The following statement of Mr D Beuster is true and applicable to most developing countries. *"The two most prominent lacking ingredients necessary for the development of a country's agricultural potential, is finance and management."*

As management can, to a certain extent, be regarded as a commodity which can be bought, financing seems to be the one single problem which must be resolved if any meaningful progress is to be made.

Agricultural Credit Markets

In idealised form, a modern, production-orientated credit programme is organised by the Government lending its own funds, together with those obtained from other sources (eg an international agency) to an agricultural bank. The bank, in turn, re-lends the funds to farmers either directly or indirectly through cooperatives. The farmers use the funds to purchase agricultural inputs to produce an additional output which is sold. The proceeds being sufficient to pay off the loan and for private income. (World Bank, 1975).

Agricultural Credit Institutions in Southern Africa

Within the Southern African context the following institutions exist to financially assist agricultural development in the developing countries.

(i) The main financier of agricultural development in Southern Africa is the RSA Government. The RSA Government finances an apex body, namely, the South African Development Trust. The SADT provides funds through its own network of branches or through independent intermediaries (development corporations) to the ultimate receivers.

(ii) The Corporation for Economic Development and the National State Development Corporations are institutions providing finance, planning, expertise and management to the people and governments of the national states.

The RSA Government has announced its intension to establish a development bank for Southern Africa and it is believed that this institution will be on a par with the World Bank, International Development Association and similar credit institutions in many other developing countries.

(iii) *Commercial banks.* The commercial banks render a very important service to the farming community in various ways and degrees. Commercial banks primarily serve as a rediscount facility but are also involved in developing and enforcing lending policies. A problem is that banks normally require security for loans. Very few farmers in the Black States can furnish the required security. Communal land tenure is a major stumbling block in acquiring credit as land cannot be offered as security to obtain credit.

(iv) *Production cooperatives.* Cooperatives provide agricultural inputs against a session on the crop. Cooperatives are funded by the SADT or national state corporations.

(v) *Private Enterprise.* There is considerable interest and support from large corporations, companies, mining houses and foundations to promote agricultural development in the national states. These bodies not only provide finance but also expertise, mechanisation and management. Their

participation is very welcome and highly appreciated.

(vi) *Own Generation of funds.* Where there is initiative there is also progress. This is the experience of the CED. A substantial number of farmers are saving a part of their annual profits in order to finance the inputs for following crops.

(vii) *Family Advances.* Apart from financing capital improvements and annual crop inputs there is a need for family advances. This is especially the case in tree crops and livestock undertakings where the entrepreneur has to wait a number of years before establishing an income to maintain his family. The development corporations provide credit in such cases.

Management and Entrepreneurs

To change from subsistence farming to a cash economy, four things are needed: money, inputs such as fertilizer, good seed and appropriate machinery, and technology and management.

An area of critical importance is the transmission of modern technology to farmers in ways which they understand and accept. I believe that there are certain prerequisites, including:

(a) Farmers must be willing and able to accept new technology.
(b) Fertilizers, crop protection chemicals, vaccines and dipping material must be available and farmers must be trained how to apply them.
(c) There must be an accessible and expanding market.
(d) Farmers must have access to reasonable credit facilities.
(e) Farmers must have reasonable security of tenure.
(f) An efficient service system to support the science-based technology must be available.
(g) Adequate rural infrastructure must be in existence or created.

Availability of Agricultural Technology in Southern Africa

I am very confident in stating that within the southern African context there is a abundance of the most modern technology to be found anywhere. The RSA possesses an internationally acknowledged Department of Agricultural Technical Services; five universities for training graduates in agricultural science and an agricultural advisory service with intimate knowledge of agricultural development in developing countries. There are also other bodies such as the CED, several consultancy groups; the Fertilizer Society and Agricultural Cooperatives, rendering planning and management services to these areas. Agricultural technology is one resource of which there is no shortage.

Farming Entrepreneurs

There is an abundance of labour available for agriculture. There is also no shortage of efficient agricultural workers. But at present there seems to be a lack of farmers with the necessary training, skills and enthusiasm to become entrepreneurs.

The CED envisages the creation and establishment of a strong middle class farmer. We also believe that with the removal of the technological, economic institutional and certain social barriers, the entrepreneurs are already there. On some large schemes, they identify themselves through performance. We believe there are young people without land but with the ability to be trained to become entrepreneurs. Opportunities must be created to accommodate these people on State schemes in order to train them before settling them on their own land. The need for training farmers in modern agricultural technology in Bophuthatswana was pointed out by Van Zyl (1980).

If middle class farmers are to be settled on 100 000 ha of land suited for wheat production, 160 000 ha for maize production and 2,6 million ha of grazing in Bophuthatswana, then:

(i) a total of 6 439 farmers can be settled on maize-and wheat farms;
(ii) 625 farmers on irrigation units of 9,7 ha each;
(iii) 2 541 cattle farmers on units to carry 169 mature livestock units;
(iv) a total of 9 605 farmers earning a nett income of R2 500 each annually can be settled.

The total production would be 416 000 tons of maize and 125 000 tons wheat, leaving a substantial volume for export. The gross production value would be R92 641 000.

Excluding the farmers another 27 578 persons would be fully employed as labourers on these middle class farming units. The CED has developed schemes in the national states where farmers were settled on maize, cotton, citrus, coffee, poultry, pig, dairy, wheat and other types of farms.

I am confident that the developing black states in southern africa have at their disposal the necessary natural resources, entrepreneurs and labour. Funds to finance development and production inputs would be available through the SA Development Bank and other sources. Modern technology is available through different agencies. There is no fear that these states would not be able to face the challenges on the agricultural front.

However, the rational use of resources is of utmost importance. The message is clear and simple: **do not waste resources.** Developing countries cannot afford the luxury of grandiose window-dressing projects with little or no chance of earning a reasonable return on investment.

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