

REGION E:
ECONOMIC DEVELOPMENT STUDY

INTERNAL ENVIRONMENT
THE AGRICULTURAL SECTOR IN REGION E

by

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1. Introduction

The main purpose of this report is to conduct an analysis with a view to determine the potential role and contribution of agriculture in region E. This report emphasises the agricultural impact in determining an economic development strategy for region E. It is therefore the aim of this report to provide a brief situation analysis and an interpretation of existing problems affecting development. The importance of the sector, implications of the spacial distribution, the structure, potential growth and the policy environment will be addressed. From the above, constraints, bottlenecks, the likely future demand, etc will be pointed out. The interpretation of the above and its implications for development is necessary to determine objectives for the aimed strategy. The strategy for region E is necessary in determining policies stressing economic growth and fair distribution of resources to enable the mass of the population to share in increased wealth and economic opportunities.

2. Agricultural overview

2.1 Introduction

Region E is situated on the eastern side of South Africa, bordering Mozambique, Swaziland, Lesotho Transvaal and the Orange Free State. Although the region is the fourth smallest development region it has relative advantages in abundant natural resources (fertile soil, sufficient water, a variability of mineral resources, etc.). The location of Region E is indicated in Map 1.

The region houses the second largest concentration of people in South Africa. The population density of 79.8 persons/km² and relative low urbanisation indicate important implications for policy design, i.e. future pressure on health, housing and education facilities and infrastructure. The relative low economically active population can be ascribed to the relative large proportion of women engaged in subsistence agriculture and not included in the population survey.

Region E covers 8.98% of South Africa's surface area and accounts for about 15% of South Africa's gross domestic product (GDP). The main contributors to region's economy are transport, manufacturing, agriculture and services. Region E does not have an absolute advantage in any of the above sectors, but it has several comparative advantages over adjacent regions.

Socio-economic conditions in the region are in a relatively poor shape due to the ongoing political and ethnic violence and due to the regional economy unable to create adequate employment opportunities.

2.2 Agricultural production

The total agricultural land area in the study area consists of 20% cultivated land of which about 120 000 hectare is irrigated, 12% forests (about 400 000 ha) and the rest of the surface being natural pastures and urban areas. The ratio of cropland relative to natural grazing is high compared to South Africa's national average. Furthermore, the region is situated in the highest rainfall zone, but also experiencing the highest runoff/rainfall ration. About one third of the regions water is used for irrigation. It was estimated that in normal years water will be no constraint until the year 2020. These facts therefore suggest that the Region E is relatively well endowed with agricultural resources and could thus be viewed as an area with comparative medium to high agricultural potential (Cedara Report, 1991).

2.2.1 Commercial agriculture

Table 1 gives a brief overview of some agricultural indicators for 1990 and 1991. Some general trends in the agricultural sector can be derived from the table.

Table 1: Principal agricultural statistics for Region E

Item	RSA		Region E	
	1990	1991	1990	1991
Farming units	62 084	61 900	6 220	6 106
Area ('000 ha)	82 885	82 541	3 958	3 933
Employment:				
Management	68 210	63 283	7 217	6 443
Full time work	728 414	702 323	145 632	141 247
Part time work	456 262	413 239	40 793	43 597
Remuneration: (R'000)				
Full time work	1 657 028	1 917 955	318 390	423 028
Part time work	230 590	249 692	48 853	38 889
Payment in kind: (R'000)				
Full time work	555 986	615 981	104 372	100 258
Part time work	40 336	31 451	14 389	4 141
Gross income: (R'000)				
Field crops	4 859 090	5 171 171	903 407	1 001 059
Horticulture	2 907 383	3 455 473	172 834	178 582
Animals	6 354 694	7 224 863	848 393	1 170 074
Forestry	694 086	419 233	194 237	178 549
Other agric.	34 672	65 720	9 238	16 720
Expenditures: (R'000)				
Current	9 914 797	11 514 713	1 408 309	1 862 723
Capital	2 154 666	1 854 215	292 326	280 763
Market value: (R'000)				
Land & improvements	36 982 460	40 339 643	4 998 177	6 198 501
Vehicles, machinery, etc	7 628 518	8 292 866	849 230	957 041
Animals & poultry	7 700 933	7 695 781	961 520	1 016 584
Farming debt: (R'000)	12 176 332	14 196 920	1 306 680	1 896 747

Source: CSS (1990, 1991)

There are 6 106 (commercial) farming units in Region E (mainly situated in Natal) covering approximately 3.93 million hectares which is equal to 5% of the total surface area of South Africa. Full time employment in agriculture in the region declined by 3% from 1990 to 1991. This reflects to large extent the national trend. However, agriculture in the region experienced an increase in part time employment which was not evident in the rest of South Africa.

In the following discussion, the indicators in Table 1 are analyzed in more detail. Table 2 summarises the statistics of the major farming enterprises in the region. From the table it follows that there was an increase in employment in the field crop enterprises and animal enterprises, while employment decreased in horticulture. From Table 2 it is also clear that field crops and animal enterprises are the major enterprises in Region E. Table 3 provides the gross incomes of the various enterprises in more detail.

Table 2: Statistics according to the major farming enterprises of Region E

Item	Field crops		Horticulture		Animals		Forestry		Mixed		Total	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Farming unit ('000)	2	2	1	1	3	2	0	0	1	1	6	6
Area ('000 ha)	847	841	92	110	248	240	313	313	230	267	3 958	3 933
Employment: ('000)												
Management Workers	2	2	1	1	3	3	0	0	1	0	7	6
92	94	18	16	47	50	20	20	9	6	186	185	
Remuneration: (R million)												
Cash & salary	200	229	31	33	72	133	49	56	15	11	367	462
In kind	64	51	7	8	29	33	15	10	4	2	119	104
Gross income (R million)	903	1 021	139	149	836	1 172	169	169	80	34	2 128	2 545
Expenditure: (R million)												
Current Capital	556	633	106	96	592	951	86	110	67	72	1 408	1 863
123	119	23	19	95	82	37	32	14	30	292	281	
Farming debt (R million)	505	512	122	141	530	1 151	60	63	89	30	1 307	1 897

Source: CSS (1990, 1991)

The field crop and animal enterprises are also the largest employers in the agriculture sector, employing respectively 50% and 27% of the total agricultural labour force in the region. These two enterprises earn also the largest share of total gross farming income (40% and 46% respectively). However, farmers in these enterprises also have the largest share of the farming debt (27% and 60% respectively).

Table 3: Gross income of various farming enterprises

Item	Gross income (1000)	
	1990	1991
Summer cereals	92 862	89 086
Winter cereals	11 150	13 232
Sugar-cane	783 445	878 051
Other crops	16 040	20 690
Deciduous fruit	1 192	1 608
Subtropical fruit	62 100	58 735
Citrus	9 995	24 037
Potatoes & vegetables	77 165	77 484
Other horticulture	22 382	16 718
Livestock sales	417 676	385 088
Other sales	56 537	77 749
Milk & cream	195 982	214 715
Pelts, fur, wool, etc	27 801	21 742
Poultry	140 665	461 602
Game	4 263	6 799
Other livestock	5 470	2 712

Source: CSS (1990, 1991)

The importance of the sugar-cane industry in the region is clear from the information provided in Table 3 and this also explains the large contribution of the field crop enterprises as discussed above. Other important enterprises in Region E are poultry, livestock sales, milk and cream. Poultry enterprises experienced the largest increase in gross income from R 141 million to R 462 million within one year. Enterprises which experienced a decrease in gross income during the 1990-1991 period, were summer cereals, subtropical fruit, other horticultural crops, pelts, fur and wool.

Table 4 provides a summary of total farming expenditures in commercial agriculture in the region. Increases in expenditure are notable with regard to seed and plant material, stock and poultry feed, fertilisers, services, maintenance and repair, electricity and interest payments. Interest payments showed the biggest increase with interest payment by farmers increasing by 82% in one year. The information in the table provides also a good idea of the total expenditure on intermediary goods and capital goods by agriculture in the region. It therefore, shows the important market agriculture provides to products of other economic sectors.

Table 5 provides an analysis of the farming debt in the region according to the credit source. It is evident that 45% of the total farming debt is owed to commercial banks. Farming debt with commercial banks furthermore increased with 73% from 1990 to 1991.

Table 4: Farming expenditure in Region E

Item	Farming expenditures (1000)	
	1990	1991
Current expenditures		
Seed & plant material	33 926	39 071
Stock & poultry feed	238 051	394 182
Fertilisers	183 886	204 770
Packing material	32 447	27 980
Remedies for combating	75 376	92 939
Transport	107 698	102 119
Other services	19 272	63 632
Maintenance & repair	204 447	236 568
Electricity	49 657	65 021
Licence	6 762	7 242
Insurances	37 301	46 038
Taxes	4 794	5 523
Interest	164 714	300 273
Rental	23 944	26 867
Rations	63 113	56 283
Other	161 920	194 215
Capital expenditures		
New equipment, etc	149 399	119 623
Used equipment, etc	33 960	36 287
Buildings	108 967	124 853

Source: CSS (1990, 1991)

Table 5: Farming debt in Region E according to credit source

Creditors	Farming debt (1000)	
	1990	1991
Land Bank	281 367	297 205
Government	33 270	34 131
Co-operatives	132 317	98 622
Commercial Banks	496 479	861 441
Other financial institutions	125 501	291 322
Private	169 110	152 987
Other	68 636	161 040

Source: CSS (1990, 1991)

Table 6 provides an analysis of total agricultural employment in the region. Total agricultural employment decreased by one per cent. Full time employment decreased by 3% while part

time employment increased by 7%. Total remuneration to farm labourers increased by 16.5%.

Table 6: Employment and remuneration in Region E

Item	Employment	
	1990	1991
Full time workers:		
Total	145 632	141 247
Whites	2 676	2 752
Coloureds	206	229
Asians	1 313	1 669
Blacks	141 421	136 616
Part time:		
Total	40 793	43 597
Whites	0	31
Coloureds	25	0
Asians	52	9
Blacks	40 717	43 557
Remuneration (R'000)		
Full time workers:		
Total	422 761	523 286
Whites	69 002	99 138
Coloureds	2 222	2 812
Asians	13 528	19 205
Blacks	338 009	402 131
Part time:		
Total	63 242	43 030
Whites	0	68
Coloureds	54	0
Asians	27	19
Blacks	63 160	42 943

Source: CSS (1990, 1991)

From Table 7 it is clear that the production of sugar-cane is the most important enterprise in the region. Maize production occupies the second largest area in Region E. Most crops are cultivated on dryland, while sugar-cane and cultivated pastures are also produced under irrigation. Approximately 50% of the area under wheat, lucerne, soyabean, dry beans, cotton and bananas are produced under irrigation (Cedara Report, 1991). Bananas and pineapples have the highest gross margins of R14 000 and R8 000 per hectare, respectively. Vegetables, oil seeds and legumes have a gross margin of between R1 000 and R1 500/ha, while cereals have generally gross margins of R300 to R600/ha.

The highest cultivation density was found to be at the coastal regions and the southern midlands as indicated in the Agriquest Report (1981). This is due to the fact that the coastal regions do have the best land quality as confirmed in a study by Van Schalkwyk (1992). These regions consist of the following magistrate districts: Durban, Pinetown, Inanda,

Chatsworth, Lower Tugela, Umzini, Port Shepstone and Alfred.

Table 7: Agricultural production of major crops in Region E

Item	Area (ha)	Production (ton)
Maize	170 312	505 983
Grain sorghum	2 788	6 856
Wheat	10 446	45 796
Oats	10 136	3 289
Lucerne	3 188	14 079
Teff	3 681	8 368
Groundnuts	1 318	1 279
Soya beans	14 307	12 773
Dry beans	4 886	6 570
Cotton	4 848	4 054
Cabbage	2 743	76 653
Oranges	2 051	25 428
Pineapples	2 466	42 164
Bananas	4 759	42 307
Pecan nuts	706	233
Sugar-cane	532 706	14 316 165
Coffee	188	81

Source: CSS (1988) and Cedara Report (1991)

The chief veterinarian for Natal estimates the livestock numbers in the region as follows:

Cattle :	1 385 946
Sheep :	974 777
Goats :	120 291
Horses :	23 892
Donkeys :	2 397
Pigs :	170 643

Stocking density is the highest in the western midlands.

2.2.2 Subsistence and smallholder agriculture

The agricultural commodities produced in the Transkei and KwaZulu areas of Region E are similar to those of the commercial farmers in the Natal sub-region, but on much smaller scale and much lower output. The lower output could be attributed to a lack of access to infrastructure, markets, credit, training, etc. It was found that the average yield for maize in the Transkei areas is 0.58 ton/ha compared to 3.12 ton/ha of the commercial farmers in Natal. In the case of sorghum the yields were 0.20 ton/ha and 2.46 ton/ha respectively and 0.11 ton/ha and 0.84 ton/ha in the case of dry beans. Similar differences were found to exist in KwaZulu.

In a recent survey of rural households in KwaZulu (Lyne & Ortmann, 1992), it was determined that the average household size consist of 7, of which 4.5 participate in the non-

labour force. The average arable land size per household was found to be 1.3 ha. The average total number of livestock kept by household was 4 cattle, 2.5 goats, 1 sheep and 11 chicken. Less than 4% of the aggregate herd was sold. Average annual income from cattle sales was R85, from small stock R20, while the income from crop sales was R70 per annum. Real farm incomes increased but remained a small part of total income (5%) (Lyne & Ortmann, 1992). Average monthly household income is estimated at R850, with wage earnings being R530, monthly wage remittances R200 and monthly welfare payments R120.

Farming expenditure consisted of the following: fertiliser R120, Seed R20, Tractor contractor R62, draught animals R9, hired labour R10, veterinary medicine R3 and other expenditures of R4/household. Fertilisers accounted for about 50% of the total annual farming expenditure.

It is generally accepted that investment in this sector, mainly through the provision of infrastructure and other agricultural support services, can result in improved food security, increased production and farm income, higher standard of living and increased independence of wage labour as major earner of household income.

2.3 The structure of the agricultural sector

The nature of the settlements in the Natal districts can best be described as consisting of formal towns and individually owned commercial farms. Large scale company owned farm enterprises are involved in forestry, tea, sugar-cane and other development-orientated enterprises. Other companies are involved in the agri-industries e.g. Kanhym, Rainbow Chickens and others.

The nature of the settlements in the KwaZulu and Transkei districts are more complex and dividable in the following categories:

- Subsistence farming areas under the traditional tribal systems are where plots were allocated by the chief and tribal authority. The land or the rights to it are however not transferable, but may be borrowed at no cost, resulting in a no-land market. The sizes of these plots are in general very small.
- The second settlement pattern is the informal dense settlement areas. These areas have generally lost their agricultural nature, even situated on prime soils with access to water. These areas fall under the jurisdiction of the tribal authorities.
- The last type can be described as formal towns in KwaZulu or Transkei with jurisdiction of the Department of Local Government. Land rights may be exchanged in these towns.

HLH, SAPPI, MONDI and CTC are the main companies involved in forestry. A total of 950 plantations and approximately 60 primary processing installations as well as pulp plants at Richardsbay provide work opportunities for about 43 000 workers. It is estimated that a total volume of 6.5 million m³ of roundwood is annually taken off.

Sapekoe is involved in tea production at Ngome and in southern Natal. The company is at presently changing some of its estate pluckers to mini tea farmers responsible for their own section on the estate. In distinguishing between estate pluckers and mini farmers, Van Zyl

& Vink (1992) determined that the total monthly earnings of mini farmers are 12.7 per cent higher (from the farmer's point of view) than those of the pluckers. It was found that not only the financial benefits, but the relative freedom resulted in the becoming of mini farmers. From the viewpoint of Sapekoe, the above (to pay more for the green leaves from the mini farmers than the remuneration of pluckers) is more than compensatable for the company because of higher per hectare yields achieved by the mini farmers.

The sugar-cane industry is mainly situated in the coastal and midland areas of Natal. The sugar-cane industry consists inter-alia of sugar growers and sugar millers, eg. Tongaat-Hulett Sugar and Smith Sugar. At present there are approximately 350 000 ha sugar-cane farmed by large scale quota holder farmers and 120 000 ha farmed by small cane growers. Some of the mills have established units or subsidiary companies to assist small-scale black growers, while others trade directly with black growers (Alcock, 1991). *- no figs given?*

2.4 Agri-industries

Table 8 summarises the agri-industries in Region E in terms of their employment and production contribution to the regional economy. Agri-industries in Region E produce approximately 30.5% of the total output of agri-industries in South Africa.

Table 8: Production and employment of major agri-industries, 1985

Sector	Production (R mil.)		Employment (R'000)	
	RSA	Region E	RSA	Region E
Meat processing	4 228	716	29	5
Dairy products	1 090	507	17	3
Canning of vegetables	1 037	62	34	1
Canning of fish	384	207	3	1
Manufacturing of oils and fat	979	181	12	2
Grainmill products	2 318	462	33	8
Bakery	1 268	320	41	11
Sugar factories	1 239	1 239	7	7
Confectionary	482	187	9	5
Other foods	1 204	327	9	3
Animal foods	936	102	14	2
Distilleries and whiners	1 118	91	14	2
Malt liquors	1 152	556	8	2
Soft drinks	803	144	19	3
Tobacco products	514	0	4	0
Wool ginning and drying	362	222	8	4
Tanneries	291	23	4	0
Leather products	98	19	5	1
Footwear	709	410	32	19
Wood products	1 282	327	63	15
Furniture	998	201	40	8
Pulp and paper	1 534	932	17	9
Paper containers	1 149	440	30	7
Total	25 180	7 675	455	120

Source: Van Wyk & Focaccio (1992)

This sector of the regional economy is also a major employer with agri-industries in the region employing 26.4% of the total workforce in the South African agri-industry sector, which is just 2% lower than the employment in this sector in Region H (PWV-region). From the statistics in Table 8 is clear that agri-industries could significantly contribute to economic development and the development of the agricultural sector by providing a market for agricultural produce and through the provision of job opportunities.

2.5 Importance of the agricultural sector

The gross geographic product (GGP) for Region E is estimated at R35 609 million, with an average annual growth of 3.3% during the past twenty years. The nominal GGP/capita is R4 070, while the GGP/worker is R15 296. Table 9 provides the sectorial contribution towards the GGP (at constant 1985 prices) according to economic activity and subregion. Furthermore, selected important economic indicators, i.e. employment numbers, employment multipliers, income multipliers and a compound performance index are presented in the same table.

Agriculture's direct contribution to or share of the GGP in Region E is estimated at 7.47 % which is somewhat lower than 31.42% of manufacturing, the 18.6% of social services and the 12.6% share of the transport sector. Agriculture's total share of the regional economy is, however, much larger due to strong backward and forward linkages (discussed below).

Agriculture employs 12.2% of the total labour force in the region, which is less than the community and social services sector (30.8%) and the manufacturing sector (23.1%). However, agriculture is still regarded as a major employer and thus important to the economy of the region.

In calculating the income and employment multipliers of the regional economy it can be determined that the agricultural sector has the highest employment multiplier but the lowest income multiplier of the economic sectors in the region. This implies that an increase in the demand for agricultural products or investment in agriculture will have a significant impact on employment in the region.

The contribution or importance of the agricultural sector can also be assessed by considering the backward and forward linkages of the sector. The most important direct backward linkages of the agricultural sector are the following (see Table 10):

- processing of cereals and stock feed
- fertilisers and pesticides
- chemical and petroleum products
- wholesale, retail and vehicle trades
- transport and storage
- agricultural machinery and implements
- iron and steel products

Table 9: Percentage contribution towards GGP (at constant 1985 prices), employment, multipliers and compound performance index by type of economic activity and subregion

Sub-region	Agri-culture	Mining	Manufacturing	Electricity	Constructing	Commerce	Transport	Finance	Social services
E1a	51.13	0.00	9.12	0.17	2.26	6.11	1.84	3.93	25.36
E1b	20.93	27.76	7.26	0.11	4.71	6.80	13.23	5.21	13.95
E1c	14.92	4.44	34.06	1.02	5.20	5.82	13.66	5.36	15.53
E2	13.00	8.75	28.34	6.65	1.95	7.50	8.73	9.16	15.92
E3	14.01	0.08	25.50	1.65	2.01	10.91	8.60	12.42	24.82
E4	1.11	0.14	36.37	1.12	3.73	13.07	15.18	12.22	17.06
E5	18.95	1.58	25.86	0.65	4.40	10.21	5.50	11.25	21.60
E6	20.88	0.13	3.95	4.75	3.45	19.29	3.82	4.66	39.03
Total	7.47	2.23	31.42	1.80	3.44	11.48	12.62	10.90	18.63
Natal	67.7	99.8	89.8	92.2	78.0	94.5	94.9	92.4	70.6
KwaZulu	25.5	0.1	9.9	1.1	19.4	1.8	4.6	6.8	24.4
Transkei	4.8	0.1	0.3	6.7	2.6	3.7	0.5	0.8	5.0
Total	100	100	100	100	100	100	100	100	100
Employment ('000)	168	40	319	11	79	181	90	67	426
Employment multiplier	213.4	94.2	67.9	38.8	103.2	83.8	51.3	32.3	73.3
Employment/output ratio	180.2	75.5	25.4	23.1	61.1	63.7	34.7	28.0	43.2
Income multiplier	0.262	0.306	0.368	0.124	0.493	0.495	0.521	0.385	0.470
Income/output ratio	0.133	0.109	0.181	0.152	0.252	0.357	0.427	0.311	0.256
Compound performance index	14.7	7.7	14.2	5.4	11.4	12.1	11.2	9.2	14.0

Source: Adapted from DBSA (1991)

Table 10: Backward linkages of the agricultural sector, 1975-1985 (basic values and constant 1985 prices)

SECTOR	1985	1981	1978	1975
Agriculture and forestry	823	1 009	714	783
Mining	43	73	57	52
Processing of cereals, and stock feed	797	1 030	833	742
Clothing, spinning, weaving and knitting	45	65	59	76
Wood and wood products	26	34	36	40
Pulp, paper and paper containers	40	58	57	76
Printing and publishing	7	6	6	8
Fertilisers and pesticides	666	1 050	782	1 079
Chemical and petroleum products	508	568	310	285
Medicinal and pharmaceutical products	63	80	35	35
Paint and other chemical products	10	11	12	10
Rubber products	29	41	35	31
Plastic and mineral products	21	27	30	29
Iron and steel products	100	107	128	98
Agricultural machinery and implements	119	166	175	165
Motor vehicle spares	92	130	72	68
Other transport equipment	14	16	16	16
Electricity, gas and water	76	76	69	51
Construction	28	29	51	42
Wholesale, retail and vehicle trades	462	620	601	581
Transport and storage	299	394	276	280
Other services	67	71	70	69
Other inputs	47	52	54	39
Total intermediate inputs	4 382	5 713	4 478	4 655
Remuneration of employees	1 448	1 574	1 691	1 635
Gross trading surplus	4 966	6 581	5 726	6 430
Net indirect taxation	36	188	152	67
Total inputs	10 854	14 082	12 075	12 818

Source: Input-output tables (Central Statistical Service, 1975; 1981; 1985).

The most important sectors with which agriculture has a direct forward linkages are (see Table 11):

- meat slaughtering and processing
- grain mill products
- sugar factories and refineries
- preserving fruit and vegetables
- dairy products
- textiles, clothing and leather

Table 11: Forward linkages of the agricultural sector, 1975-1985 (constant 1985 producer prices)

SECTOR	1985	1981	1978	1975
Agriculture and forestry	1 707	2 005	702	653
Meat slaughtering and processing	2 491	2 472	2 189	1 931
Manufacture of dairy products	252	248	198	257
Preserving fruit and vegetables	397	430	205	152
Manufacture of animal and vegetable oils	138	217	264	124
Grain mill products	1 600	1 595	1 477	1 534
Bakery products	14	12	10	10
Sugar factories and refineries	683	598	653	565
Sweet making	30	31	51	35
Coffee, chicory and tea	153	119	171	61
Malted drinks and malt	129	182	54	53
Soft drinks	56	25	22	85
Manufacture of tobacco products	203	247	147	114
Textiles, clothing and leather	231	134	301	178
Ropework and yarns	3	6	7	10
Tanning and dressing of leather	16	17	37	27
Wood, furniture and wood products	123	142	122	123
Pulp	113	88	76	203
Rubber	49	89	86	51
Manufactured cattle feed	32	43	29	38
Wine making	206	207	213	212
Pharmaceutical	1	1	1	1
Mines	214	193	110	142
Total intermediate inputs	8 841	9 109	7 125	6 459
Private consumption spending	2 225	2 238	1 984	2 132
Government consumption spending	55	45	42	32
Investment	70	86	73	74
Inventory changes	401	556	249	158
Exports	1 125	1 707	1 790	1 642
Imports	-436	-350	-416	-352
Total turnover	12 281	13 401	10 847	10 145

Source: Unpublished data (Directorate of Agricultural Economic Trends, 1975; 1978; 1981; 1985).

Agriculture is therefore an important market for products produced by other sectors and is also the provider of inputs to other sectors mainly the agri-industry and processing industries. Thus, the agriculture sector plays an important role in the regional economy not only through its direct contribution but also through its indirect contribution through intermediate linkages with other sectors of the regional economy. The contribution of agriculture is therefore much higher than is generally assumed.

The agricultural sector can thus make a significant contribution to the overall development of the region. Significant opportunities exist for increasing yields and productivity. Over the past twenty years, the percentage contribution of agriculture towards GDP was relative static at 6.9%. However, within the subregions (as defined in the DBSA Report, 1991), changes

took place. Subregion E1a, E1b, E2 and E3 showed relative growth, while E1c, E5 and E6 indicated a change away from agriculture mainly to transport, finance and services, respectively. From this, it seems as if the northern and western areas could experience some agricultural growth, while the coastal and southern areas are experiencing relative decline in the agricultural sector.

The increase in productivity of the agricultural sector increases employment and income throughout the whole economy by means of linkages and multipliers. The positive impact of the income and employment creation abilities in the developing areas will furthermore boost the demand for agricultural products. Investment in agriculture, especially to benefit the small farmers could increase farm productivity and generate multiplier effects creating demand, entrepreneurial opportunities, employment and income.

2.6 Interaction between agriculture and forestry

Commercial timber plantations cover 1,34 million ha or 1.06% of South Africa's total land area of 126,9 million ha. Indigenous forests cover approximately 330 000 ha (Strategic forestry development plan, 1989). Although the total area of agriculture and forestry tends to decrease, the area under commercial timber plantations has increased by approximately 18 200 ha annually since 1968/69. Nett increases in the total area of agriculture and forestry, normally take place at the expense of natural grazing.

Traditionally, forestry was practised on land with a relatively low agricultural potential. This was also the approach adopted by the RSA's Department of Forestry in its purchases of land for commercial afforestation. From time to time a maximum price per area unit was laid down, which was then accepted as a standard in considering acquisitions of land. This policy no longer applies, considering the growing scarcity of land suitable for afforestation and the fact that it becomes unrealistic to expect that forestry land is to be acquired at prices below current market prices. Although the general guideline should continue to apply, namely that forestry is to be practised on land which is less suitable for agriculture, it has become unavoidable that in the acquisition of land, forestry will have to compete with agriculture on an equal basis. At no time, however, should excessive prices be paid, which would render forestry uneconomical right from the start.

The South African landscape has in the past years been transformed dramatically in those areas where forestry is practised commercially, through extensive conversion of grazing areas and arable land to timber plantations.

Wood is an essential raw material and the experience during two world wars has emphasized the need for South Africa to be independent of overseas timber resources. The need for a healthy forestry and timber industry to meet the country's own requirements cannot be argued.

The use of land for forestry is not irrevocable and such land can at any time again revert to food production, or to any other purpose in the national interest, if the need therefor arises. Such reversal will naturally affect the wood-using industries dependent on these timber resources.

The choice of land-usage rests with the land owner and is dictated mainly by economics. Commercial afforestation with short-rotation crops by private undertakings is an agricultural practice which differs little from general farming, because economic considerations are the underlying principles in both cases. The continual switching-over of forestry to agriculture, and *vice versa*, is a natural practice in a free economy. As land becomes more scarce, however, the need for the rational use of land will tend to increase.

3. AGRICULTURAL DEMAND AND SUPPLY

This section is based on findings of the existing reports of Region E, sub-regions thereof and relevant findings of section 2 in order to focus on relevant supply and demand factors influencing Region E.

3.1 Agricultural demand factors

The purpose of this section is to analyse the future demand for agricultural products by means of consumption and demand patterns and the income elasticity of demand. The existing and potential markets and marketing structures are also discussed. Since Region E forms an integral part of the South African agricultural economy, extensive use is made of national information and statistics in this section.

From a marketing point of view, South African agricultural products may be divided into the following groups:

- products produced exclusively, or almost exclusively, for local markets, eg wheat, milk, beef, tobacco, vegetables and cotton;
- products produced mainly for exports, eg apples, mangoes, citrus fruit, avocados, wool and mohair;
- products of which the majority are consumed locally but fairly large surpluses are normally exported, eg maize, wine and eggs; and
- products where the local and export markets tend to be equally important, eg sugar, hides and skins.

In view of the importance of products such as maize, wool, fruit and sugar in South Africa, the export markets - and hence, the global agricultural scene - are of major importance. One feature in today's agriculture - and indeed in the whole economic scene - is the increasing importance of interrelationships that exist between agricultural products, between agricultural and other commodities, between markets and between political and economic considerations.

The analysis of the factors influencing the market demand for agricultural products, is undertaken in this section according to the international and domestic markets.

3.1.1 International market

i) Present situation

Recent developments on the international markets such as on the capital market, floating exchange rates and production increases, have a serious depressing effect on international markets for agricultural products. The prospects for international agricultural production is

that worldwide production will grow faster than demand and overproduction will continue. The real potential of a trade war between the USA and EC can be catastrophic for countries such as South Africa in which agriculture and mining still yield the majority of exports.

The important international forces that have an influence on agricultural demand are the following:

- * The impact of economic sanctions and boycotts against South Africa are in many cases still a reality, although the threat thereof is rapidly diminishing.
- * The perishable nature of agricultural products reduces the flexibility of the sector to divert products between markets. This is of special relevance to the study area since it has a comparative advantage in the production of high value perishable food types.
- * Seasonal factors favour the South African production season with regard to that of the northern hemisphere. This advantage is, however, being reduced due to an expansion of the growing season in the northern hemisphere and the growth in export production of other southern hemisphere countries.
- * The overall growth rate of the world population, with the exception of Africa, has started to decline. This causes import demand for food to drop. Japan is the only remaining large food importing country in the non-communist world.
- * The overall per capita income of countries are increasing except in Africa. The demand for agricultural products in high income societies tend to turn from staple foods such as grains towards exotic foods such as subtropical fruits.
- * Africa will have an increasing need for food due to the high population growth and low agricultural productivity. The low per capita disposable income of Africa will, however, limit effective demand.
- * The Near and Far East Asia are potential future markets for agricultural products due to the combined growth of the population and income.

ii) Future developments

Since the seventies government intervention in the agricultural sector has been pervasive in almost every country in the world. This intervention included policy measures, such as price and income supports, supply controls, and barriers to trade or export incentives. These distortionary measures and technological improvements increased the imbalances with respect to international trade so that prices were distorted and various commodities piled up on the international agricultural markets. These distortions were worsened with the indifference of government policies with respect to their agricultural trade.

However, in September 1986 a meeting of the General Agreement on Tariffs and Trade (GATT) held in Punta del Este, Uruguay, resulted in an agreement to give agriculture the highest priority in the next round of multilateral trade negotiations. This resulted in the so-called **Uruguay Round** emphasising the *urgent need to bring more discipline and predictability to world agricultural trade by correcting and preventing restrictions and distortions ... so as to reduce the uncertainty, imbalances, and instability in world agricultural markets.* Broadly, the declaration drew up four objectives:

- Improvement of market access through the reduction of import barriers;
- Increased disciplines on the use of all subsidies and other measures affecting agricultural trade;

- Compensate trading partners for any damage incurred as a result of changes in trade barriers; and
- Settle trade disputes through negotiations using GATT codes of conduct as guidelines.

Generally, GATT principles had proven to be less successful in liberalizing trade and resolving disputes in agriculture than they have in manufactures. These poor performances can be traced to its explicit allowances for certain trade practices, including the use of quantitative import restrictions and export subsidies and deficiencies of GATT rules and dispute settlement mechanisms on agriculture which had been increasingly a source of dissatisfaction. However, after more than four decades of experience with GATT rules written and interpreted to fit domestic policies, a growing consensus was that domestic programmes should be adjusted to fit a common set of rules regarding trade in agricultural products. The latter underlies the negotiations in the Uruguay Round. However, negotiations in agriculture are difficult and acrimonious, which make the implementation of the major policy reforms difficult.

These proposed changes lead to various studies indicating and quantifying the effects of trade imbalances of past and of future international agricultural trade. Of these studies, the model developed by Roningen & Dixit (1989) of the USDA is of importance in evaluating the effect of trade liberalization as proposed by GATT.

Liberalizing agricultural policies in all industrial economies would, on average, increase the world agricultural prices by 22 percent. The rise in world prices would be the greatest for dairy products (65 percent), followed by sugar prices (53 percent). These large price increases would occur because levels of assistance to both dairy products and sugar in industrial market economies are relatively high, and industrial market economy trade is a major part of world trade. World prices for wheat (37 percent), rice (26 percent), coarse grains (26 percent), and ruminant meat (21 percent) would also increase noticeably for the same reasons. By contrast, world prices for oilseeds and products (6 percent) would increase only slightly, indicating that agricultural policies pursued by industrial market economies have only modestly depressed prices for those commodities.

The results also show that the European countries (EC) and the United States (USA) contribute the most to the world price changes. Unilateral liberalization of EC agricultural policies would raise world agricultural prices an average of 11 percent. This is nearly half of the increase that would result if all industrial market economies simultaneously eliminated their support to agriculture. The price effects of EC policies are most visible in dairy products, sugar, ruminant meat, and the wheat market. The results indicate that if the EC unilaterally removed all assistance to agriculture, world prices for dairy products and wheat would rise by 32 and 19 percent and would influence the world coarse grain prices by 12 percent, which is mainly by eliminating the export refunds to barley and variable levies on corn imports.

Unilateral elimination of U.S. agricultural support policies would raise the world sugar and coarse grain prices by 23 and 12 percent, equivalent to nearly half the increases in world prices from multilateral liberalization. Nearly a third of the increase in world wheat prices from multilateral liberalization could be achieved if the U.S. unilaterally liberalized its policies. By contrast, even though support to rice producers is the highest among U.S. grains support, unilateral U.S. liberalization would have very little effect on the world rice

price (3 percent) because U.S. shares of world rice production and consumption.

Despite similar rates of producer support, U.S. policies have had far less price-depressing effects in world grain markets than have EC policies. One reason for this is that U.S. consumer prices are not very distorted. Consequently, the removal of support does not lead to increased quantity demanded. Another reason is that the distortionary implications of U.S. grain policies are moderated somewhat by set-aside programs, which have restricted acreage expansion that would have occurred with high domestic producer prices.

Even though assistance to agriculture is high in Japan and other Western European countries, policies in these countries do not have very much influence on international prices because these countries are not major participants in the world agricultural market. Japan in the rice market is the only exception. Japan's policies affect world rice prices more than the combined effects of all other developed countries' policies. Policies of Canada, Australia, and New Zealand do not affect international prices very much because of their small size in world markets.

3.1.2 Domestic market

The domestic agricultural product markets are going through a period of rapid change. This section will focus on the nature of the different markets, expendable income changes, urbanisation trends, rural markets, income elasticity of demand and marketing margins.

i) The nature of the domestic markets

Animal products

The last two decades have witnessed considerable change in the domestic consumption of animal products. Over the period 1968/69 to 1990/91, the following growth rates were observed in total local consumption:

Item	% pa
Poultry	12,4
Eggs	4,5
Pork	4,0
Milk	3,1
Mutton	1,7
Beef	1,4

During the 1980's, consumption of all six products flattened out, and even declined in cases. This was in accordance with the weak performance of the South African economy as a whole. The consumption of poultry and eggs showed the largest increases. Expansion of the market for beef depend largely on improved efficiency in the marketing thereof. The same pertains to mutton and pork. At this stage it is clear that improved marketing has become even more important than improved efficiency in production.

Substitution among animal products is important. The effect of beef price on mutton consumption was found to be significant. Poultry consumption appears to be negatively

associated with revenue and positively with mutton prices. Both mutton and poultry are important substitutes for beef.

South Africa is traditionally an importer of red meat while there is an over supply on the world markets. According to the SWOPSIM model by Roningen (1986), it is postulated that especially Australia, New Zealand, USA and Canada will expand output in ruminant meat production.

Interrelationships between field crops and animal products

Research has shown that rising living standards are associated with increasing utilization of field crops for animal production. The potential for this is a function for the demand for the various animal products and the share of feeds in production thereof. In cattle feedlots, approximately 6,2kg of feed is used to produce 1 kg of beef. In broiler production, approximately 2,3 kg of feed is needed to produce 1 kg of meat. The potential effect of a big demand for animal products on demand for field crops appears to be considerable. To the extent that expansion of demand for animal products is achieved, the domestic market for feed crops will be increased.

The intermediate and long-term prospects of the field crop industries are thus inseparable from the market for livestock products, which is related to the general wealth of the population. At the market place field crops and livestock products can therefore hardly be regarded as substitutes since field crops serve as intermediate inputs.

Interrelationships between field crops

The markets for various field crops are intertwined with one another and with the market for animal products. The effective local demand in the short term is a function of general economic conditions rather than that of agriculture itself. Economic recovery and growth are prerequisites for future welfare in commercial and potentially commercial agriculture. Local markets can in such an event be a cornerstone of agricultural development, and can reduce agriculture's vulnerability to foreign developments.

Trade liberalisation is likely to benefit South Africa in the long term in coarse grain production. The total volume of coarse grain produced in the world is unlikely to change substantially, but relative positions will change. South Africa will become more important in terms of wheat and coarse grain, which will affect the domestic market in interrelationships between field crops. It was found that the major yellow maize consumption areas for South Africa exist in the coastal areas. With respect to Region E, maize production (4% of RSA) remains as major field crop on 170 312 ha. Even with its food deficit of about 350 000 tons, mainly for feed, it seems as if production is unlikely to change. However, trade liberalisation will result in different regional maize prices in South Africa. Producer prices for coastal regions such as Region E could in future be determined by the world price. It is expected that maize producers in the region will to increasingly be subjected to international competition and it will therefore be necessary for producers to increase productivity to ensure their comparative advantages.

Horticultural products

South African horticultural products are produced for a variety of markets. Some, such as most vegetables, are produced almost exclusively for local markets. Others, for example citrus fruits, are mainly marketed overseas. Less research has been done on market factors affecting horticultural products than certain sectors of the livestock and field crop sectors. Here, as with other products, income, price and cross elasticities of demand will have important effects on future market possibilities. Future market and production strategies should also be based on these factors.

Bananas constitute the most important subtropical fruit in South Africa (as measured by gross value of production) and are produced almost exclusively for the local market. The elasticity of demand varies between seasons and between markets; in the Witwatersrand-Pretoria market it was found to vary between -1,04 and -1,48 (according to season), and it was much higher in the Cape market. Apples, pears and oranges were found to be substitutes of bananas while mangos, pineapples and papaws, are substitutes for the use of land. The income elasticity of demand is approximately 0,5; thus indicating a potential for market expansion for bananas and its complements.

It appears that local market development can to some extent compensate for the possible or probable loss of some export markets. This will necessitate some substitution, thereby also meaning a change in the composition of South African fruit production. In the planning of further expansion, also within areas currently dominated by subsistence agriculture, the market prospects will always have to be a point of departure for all action. It is generally accepted that Region E has a comparative advantage in the production of most sub-tropical fruit.

Forestry products

It was estimated that the roundwood demand will grow at an annual average rate of approximately 2.5%, which will decrease to 2.2% after 2000. Growth in the demand of softwoods (S/w) is projected at 3.5%, while demand for hardwoods (H/w) will grow at 1.5% per annum. This will result in softwood obtaining an increasing share of the total roundwood market from the current share of 45% to 54% in 2010. The demand for roundwood by geographic area is presented in Table 12. From this forecast it is clear that the relative shares of the total demand between the three geographic areas will remain fairly stable over the projection period, with Transvaal accounting for 44%, Natal 50% and the Cape 6%.

Table 12: Regional demand for all roundwood ('000 m³)

	1987			1995			2010		
	S/w	H/w	Total	S/w	H/w	Total	S/w	H/w	Total
Tvl	3 108	4 333	7 441	4 620	4 831	9 091	7 012	5 920	12 932
Natal	3 219	5 339	8 558	4 313	6 352	10 665	7 350	7 406	14 756
Cape	811	123	934	959	146	1 105	1 476	190	1 666
RSA	7 138	9 795	16 933	9 532	11 329	20 861	15 838	13 516	29 354

ii) Expendable income

Expendable income is of crucial importance with regard to identifying possible trends on which to base strategic planning for the future. This applies to both individual farmers and agriculture as a whole. Expendable income has an important effect on the consumption of goods and services, and therefore also on agricultural products.

Blacks are experiencing the highest mean annual growth rate in average salaries. Blacks also have a high population growth rate. These two factors together caused the relative share of blacks in the total expendable income in the RSA to have increased substantially over time and to increase even further in the foreseeable future. The share of whites in the total expendable income decreased since 1970 from about 66,7 per cent to 46,8 per cent in 1990.

These non-uniform changes in per capita income will result in structural changes in the domestic demand for agricultural products and food in general. The faster increasing per capita income of blacks relative to that of the other population groups will probably be responsible for an increase in demand for agricultural products.

iii) Urbanisation

The urbanised population in Region E in 1990 was estimated at 52%, one of the lowest of the developing regions in South Africa. Of the urbanised population, 70.8% were in Natal, 23.5% in KwaZulu and 1.7% in Transkei. It is estimated that the urban black population of South Africa will increase by more than 50 per cent from less than 13 million at present to more than 20 million people in the year 2000 (Urban Foundation, 1990). The effects that are associated with urbanisation will increasingly become available to a larger part of the black population. These effects include a greater exposure to the city life style, electrical appliances (stoves, refrigerators, TVs, etc), higher incomes, larger selections of goods and services (especially consumer goods). More and better education and training will probably go hand in hand with the whole process of urbanisation. The demonstration effect of financial prosperity, and a city life style and consumer patterns, will necessarily have a large influence on the urban black consumer and on the demand for agricultural products.

iv) Rural markets

The increase of rural purchasing power, especially through income and employment strategies, is expected to have a major impact on the demand for food and consumable commodities, most of which can be produced locally.

The changes through which this market segment is going will have an influence on the agricultural demand in the study area. It has already been indicated that the majority of the population live in the rural areas of KwaZulu. The growth of the population in the rural areas are reduced due increased urbanisation. The expendable income of the rural population is mainly dependent on the overall economic performance of South Africa.

v) Income elasticities of demand

The income elasticity of demand of a commodity indicates how much the consumption of that product will be influenced by a change in income. Table 13 gives the income elasticity of

demand for selected agricultural commodities (food) for the various population groups in urban areas.

Table 13: Income elasticities of demand for selected food groups by population group in urban areas

Item	Total	Whites	Blacks	Coloureds	Asians
Total expenditure on food	0,59	0,47	0,83	0,58	0,62
Grain and grain products	0,33	0,25	0,51	0,21	0,69
Meat and meat products	0,73	0,48	1,19	0,76	0,52
Fish and fish products	0,65	0,72	0,90	0,28	0,73
Milk, milk products and eggs	0,50	0,36	0,81	0,78	0,29
Fats and oils	0,32	0,17	0,76	0,38	1,29
Vegetables and products	0,95	0,65	1,51	1,46	1,51
Sugar and related products	0,39	0,39	0,56	0,51	0,55
Non-alcoholic beverages	0,61	0,55	0,77	0,63	0,70
Other food items	0,62	0,31	1,13	0,86	0,81

According to Table 13, the income elasticities of demand for food by blacks are without exception higher than the corresponding values for the other three populations groups. This implies that blacks spend a larger percentage of their income on food. If for instance, the income of all populations groups were to increase by 10 per cent, the total expenditure on food will increase by 5,9 per cent. The various populations groups will however react differently, with whites, blacks, coloureds and asians each increasing their consumption of food by 4,7; 3,8; 5,8 and 6,2 per cent, respectively.

The above table also shows that meat and meat products, and vegetables and vegetable products, have a large potential in this respect. Increases at 10 per cent in expendable income of blacks will result in increases in consumption of 11,9 and 15,1 per cent respectively. On the other hand, a 10 per cent increase in the expendable income of whites will only result in comparable consumption increases of 4,8 and 6,5 per cent, respectively. It is also important to note that especially grain and grain products (e.g. bread) have lower income elasticities, indicating that meat and vegetables will become relatively more important in future. It also indicates that the Maize Board should consider appropriate policy for promoting the animal consumption of maize, rather than the direct human consumption thereof through white maize meal. This has a much bigger chance of success in alleviating that industry's problems.

(vi) Marketing margins

In view of the sharp rise in retail food prices it is necessary to consider the increase in marketing margins in the food industry; i.e. the difference between the producer price (farm gate price) and retail prices. This also means a declining producer's share of the consumer's Rand spent on food. Trends in marketing margins can therefore be analyzed by determining the producer's share of consumer value. Table 14 provides data on the producers' share of consumer value for grain, meat, fats and oils, dairy products and eggs vegetables, fruit,

sugar and agriculture as a whole.

From Table 14 it is evident that there has been a sharp increase in marketing margins over the last two to three years. This has resulted in higher increases in food prices than in all consumer prices, notwithstanding the relatively lower increase in produce prices of farm products.

Table 14: Producers' share of consumer value (%)

Year	Total	Grain	Meat	Fats and oils	Dairy and eggs	Vegetables	Fruit	Sugar
1974	55,2	41,6	56,0	38,5	69,7	34,2	31,0	43,4
1975	53,8	42,0	57,0	40,1	70,7	34,5	31,8	61,8
1976	53,0	42,7	56,8	40,7	68,4	32,0	34,2	62,4
1977	48,9	40,1	54,4	39,2	60,4	29,5	36,9	41,5
1978	46,9	34,2	52,8	36,5	58,7	31,0	35,2	34,0
1979	48,9	35,6	53,5	38,1	62,5	33,5	35,9	37,1
1980	53,0	41,6	59,3	39,7	66,2	34,1	35,9	45,0
1981	52,6	40,7	59,1	37,5	56,6	30,5	37,2	41,0
1982	51,3	38,0	55,5	38,0	67,3	30,7	36,8	38,5
1983	49,0	36,1	52,0	36,2	65,3	31,8	34,6	44,5
1984	48,1	33,7	52,7	33,6	64,6	26,6	35,5	38,3
1985	48,8	33,8	54,5	32,3	63,5	29,2	36,8	32,5
1986	47,5	33,1	51,6	33,0	62,3	31,1	36,7	33,2
1987	48,3	31,0	54,7	38,8	61,7	32,7	35,8	27,5
1988	46,4	28,5	51,5	39,4	61,5	31,5	33,0	25,5
1989	46,4	24,7	51,2	35,9	65,5	27,5	35,0	27,9
1990	43,1	25,2	48,3	36,0	56,4	29,4	31,5	28,2
1991	42,0	25,0	50,7	37,9	48,9	29,0	33,2	26,9
1992	39,3	24,2	42,3	35,8	48,9	28,5	28,5	25,5

Source: Directorate of Agricultural Economic Trends, Department of Agriculture, 1993.

3.2 Agricultural supply factors

The agricultural industry, traditionally sheltered from the effects of market forces, is increasingly being exposed to the realities of supply and demand. This trend is expected to increase throughout the 1990's. Several recent announcements point to this:

- * more market-related pricing by certain marketing boards;
- * the recent report of the Kassier Committee on the Agricultural Marketing Act; and
- * market related interest rates and less subsidies in agriculture in general; and
- * SA's participation in the GATT negotiations.

Macro-economic considerations such as inflation, changes in exchange rate and monetary instability are playing a growing part in agricultural planning. Agricultural producers are having to operate in an increasingly commercially-orientated sector.

According to research undertaken for the period 1980 to 1990, the total area under field crops has marginally increased with 0,5 per cent per annum during the period 1980-89. Total production has, however, increased by 6,9 per cent per annum against an increase of 3,3 per cent in consumption.

Notwithstanding the serious drought experienced in the early 1980's, South African agriculture has succeeded in producing increasing surpluses in most commodities in normal years. This is to some extent reflected by the self-sufficiency index: South Africa is self-sufficient in all major field crops produced in the country. In total, 34,37 per cent of the production of field crops for the period 1980-90 was available for exports. South African horticultural production is to a large extent not only self-sufficient, but also focuses heavily on the export market. A total self-sufficiency index of 151,78 implies that more than one third of the total annual production is available for exports. Animal products as a group has a self-sufficiency index of roughly just less than 100, thus not enough to provide for the local consumption thereof in the period 1980-90. This applies specifically to red-meat products (beef, mutton, sheep, lamb and goat meat) and industrial milk products (butter, condensed milk and milk powder). In this respect South Africa has relied on imports of these products.

The total gross value of South African agricultural production is more than R18 billion, while agricultural imports amount to only R1,6 billion. Imports consist mainly of products not produced in South Africa due to physical and climatic restrictions (eg. rice) and economic restrictions, such as to the lack of economies of scale and to monopolistic market structures.

Agricultural production, and hence supply, has been shown to be inelastic in the short run (0,38) and elastic in the long run (1,34) over the period 1940-1965. It is, however, doubtful whether these elasticities are still valid. Elasticities of substitution have changed substantially between the periods 1960-1972 and 1973-1985. Land and labour changed from being substitutes to complements; the same happened between land and fertilizer. The substitutions between land and energy became less elastic. Labour and machinery ceased to be complements, and became substitutes. A logical result of these declining elasticities of substitution is a decline in the elasticity of supply. Agricultural production has become less flexible in its reaction to price signals. This obviously increased the vulnerability of agriculture to market changes in a period of increasing turbulence in product markets.

New agricultural ventures in areas at present devoted to subsistence agriculture, should therefore strive to have a higher than "average" flexibility. This implies fewer specialized committed resources and thus a movement toward labour rather than capital-intensive structures. The developing areas do in this sense have an advantage over the more settled commercial farming areas. They need not start with the fixed plant complement and committed costs of the present commercial farming sector. Neither do they have to imitate the technology used in that sector; they can opt for more appropriate technology, much of which will be of a capital-saving nature. The present subsistence farming areas should also be prepared to adjust to market forces once surpluses start to come forth.

Newer developments also point to success in the production of non-traditional products, some of which have in net terms been import replacing ventures can widen the scope for future developments. Other avenues may be found in production and market development of indigenous products which have long been popular foods among the largest part of South Africa's population. Too little resource attention has in the past been devoted to such products.

With regard to Table 15, forecasting the supply and demand for total roundwood, it was found that South Africa is facing a major raw material supply problem, which although will

be most severe in the longer term, is already a problem. By species, the major problem area is in the supply of hardwoods currently, although softwoods in the longer term may face the same situation. Therefore, a major afforestation drive must be implemented, continued efforts should be made to further enhance the yield improvement potential from the existing forest resource base and every avenue must be explored to improve the utilization of the forest resource base.

Given the location and geographic spread of the major wood consuming industries, different afforestation requirements must be applicable to different geographic regions. This is particularly important bearing in mind the high cost of roundwood transport and the effect that unnecessarily long transport distances can have on the economic viability of the industry. It is therefore preferable to site new afforestation as close to the points of consumption as possible. It appears that the new afforestation requirement for Region E consist of approximately 80% of South Africa's annual 17 000 hectares per year.

Table 15: Forecast supply and demand for total roundwood ('000 m³)

Year	Supply	Demand	Surplus (+)/Shortage (-)	
			Annual	Cumulative
1986/87	17 298	16 833	465	465
1989/90	17 783	18 215	-432	97
1994/95	19 988	20 871	-883	-4 223
1999/00	21 174	23 271	-2 097	-11 861
2004/05	22 426	26 072	-3 646	-26 719
2009/10	23 518	29 354	-5 836	-50 683

3.3. Conclusion

Region E's most important products are sugar-cane, maize, wheat, oats, soya beans, dry beans, potatoes, cabbage, oranges, bananas, pineapples, beef, milk & cream, poultry and forestry. The market prospects for many agricultural products appear to be unfavourable in the medium term. Events on world markets point to over-production and increasing instability especially as far as staple foods are concerned. The local market for vegetables and fruit are growing and there is a shortage of red meat.

The demand for agricultural produce in South Africa is going through a period of structural change. This change is due to the combined changes in the expendable income, demand elasticities, urbanisation trends, the rural market and the international markets. Possible future developments in the international markets with respect to trade liberalization can potentially benefit South African agriculture. Through increases in prices of products. The agricultural sector will also share these benefits. It may also open up new development possibilities.

The agricultural supply situation in Southern African points to a general oversupply of agricultural produce, with the exception of animal products. Due to the relatively inelasticity of agricultural production this sector has become vulnerable to market changes. The national oversupply of agricultural products do not necessarily imply that local food security exists

in the study area. The potential exists in the area to produce the food requirements of households rather than importing them. Indications are that the development of the developing agricultural sector could contribute substantially to the adjustment that is necessary on the supply side to meet the structural changes of the market.

It would appear that Region E, due to the demand and supply factors described above, has a comparative advantage in the production of animal production, sub-tropical fruit and other high value commodities (sugar-cane, citrus, etc). It also has a comparative advantage in producing summer grains (maize fed to livestock), soya beans and livestock production (beef, mutton and dairy), especially under a free market situation where statutory price controls are abolished.

4. THE ROLE OF THE STATE IN THE DEVELOPMENT OF AGRICULTURE REGION E

It is necessary to place the design of an appropriate institutional structure for agricultural development within the context of a strategy for agricultural development. In this regard it is sound development policy to emphasize the reduction in economic imbalances between and within regions as a major objective. The observation that the location of poverty and low standards of living correspond to those areas where agriculture is characterized by low production, unutilized natural resources and restricted access to and availability of support structures, identifies agriculture as an important sector for development support and aid. This potential 'key role' of the agricultural and rural sector is further confirmed by the strong linkages and higher multipliers generally generated by developing agriculture.

Specific agricultural development objectives as derived from the above approach are :

- To structure agri-support systems, promoting **equitable or fair access** of all farmers to opportunities in agriculture.
- To promote **entrepreneurial activity** in agriculture.
- To promote **market related, commercialized farming** by utilizing available resources, production factors and market opportunities.
- To reach large numbers of the rural population by supporting **small scale farming** and by creating **employment opportunities**.
- To maximize agriculturally generated economic and social spill-overs by **promoting economic linkages**, and complementary agri-industrial and integrated rural development activities.
- To increase **household level food production** to at least secure reasonable subsistence and nutritional levels for poor rural families.

In this regard it is important to realize that agriculture has a key role to play in the process of rural development. Rural development can be defined as the activation, stimulation and promotion of demand and supply activities for goods and services via local, regional, national and international markets in a rural environment. The optimization of forward and backward linkages to the broader political economy is vital for a sound integrated rural development strategy, with the emphasis on linkages with local rural enterprises. Such an approach requires an economic strategy to mobilize rural resources optimally. As agriculture forms the natural economic base in many developing rural areas, strategies which emphasize the

'leading sector' role of agriculture should be followed, although agricultural development should not be seen in isolation from integrated rural development.

The following broad principles are pertinent to guide the planning and implementation of agricultural development strategies, projects and programmes as an integral element in an Integrated Rural Development approach and directed at the above-mentioned objectives :

- Maximum opportunities should be especially given to small farmers, to participate in agricultural activities in an effort to improve the economic base.
- Decision making responsibilities should be devolved as far as possible to the local level.
- Farmers everywhere should have equitable access to opportunities to compete in the market, based on the principle of comparative cost advantage.
- Comprehensive support should be directed towards emerging farmers in the developing areas in order that they improve their abilities and equip themselves for the challenges of commercial agriculture.
- Activities to facilitate and support economic development with pertinent reference to decision-making and institutional responsibilities should as far as possible be devolved to be undertaken by appropriately structured local institutions.
- Local participation should as far as possible be mobilized to ensure long term sustainability of development activities.
- The joint utilization of available infrastructure should be encouraged in order to avoid expensive duplication and promote coordinated planning and cooperation within and between regions.
- The principle of comparative cost advantage should be adhered to and support activities structured in order to promote the location of agricultural activities accordingly.
- The socio-economic benefits should exceed the socio-economic costs of a project or programme. Financial support in the form of subsidization by the public sector to farmers to enable them to participate on a profitable basis in a project or programme, can thus be justified by net socio-economic benefits accruing to the regional economy.
- Development activities should be based upon sound financial and administrative control procedures.
- An agricultural and rural development strategy should aim to optimize the linkages with other economic sectors, and with social services.
- The planning and implementation of projects and programmes should be based upon sound conservation principles to enhance the long term economic viability of the natural resource base.

The emphasis placed on the application of sound economic principles and criteria, on the **devolution** of decision making and responsibilities and on support to **private sector** activities, would focus pertinent attention and support towards **farmers** (full or part-time) in the developing areas. It would be important to design agricultural policies, strategies and farmer models with support to and settlement of farmers as major objectives. This approach calls for the redirection of present agricultural development policies towards opening access for farmers and all users of agricultural resources to the common input and product markets. This further implies emphasis on small farmer support programmes as well as agricultural interaction and economic cooperation within and between regions in Southern Africa. These features should be considered as important within the design of a Southern African food policy as they deal pertinently with resource allocation on macro as well as micro levels. Agricultural development strategies can then be derived from these objectives and principles.

The following strategies could be considered for farming activities:

- Fully commercialized estate farming ventures (CFV)
- Central or Core Unit Projects (CUP)
- Settlement Projects (SP)
- Farmer Support Programmes (FSP)
- Farmer Settlement and Support Projects (FSSP)
- Village agricultural projects (VAP)

The choice of appropriate models for agricultural activities will depend on the considerations, objectives and principles as discussed. Characteristics inherent to the agricultural production process will also be important in designing an optimal approach and models, while appropriate funding arrangements should be considered. In general however SP, FSP and FSSP models should be preferred as major development strategies to support farmers to emerge as effective and efficient producers of agricultural commodities. (Van Rooyen, Vink and Christodoulou, 1987). FSP/VAP should also be considered as an important approach to reach poverty-stricken target groups.

It would be important to emphasize and exploit existing agricultural potential as the key sector in integrated rural development strategies. To pursue this optimally, any of these models should be fitted within an integrated rural development programme approach. The aim would be to promote balanced growth via the optimizing of forward and backward linkages to all types of industries, but with the emphasis on local rural enterprises.

5. DEVELOPMENT PERSPECTIVE

In this section a sound economic development perspective is to be established concerning the role and function of agriculture in the economy of the region. The potential role and contribution of the agricultural sector within the economy will be analyzed by addressing the following five fundamental issues:

- i) The opportunities for cooperation in order to integrate the developing economy into commercial activities.
- ii) The potential for increasing agricultural production by means of advances in resource productivity.
- iii) The ability of effective demand for agricultural commodities to expand apace with accelerated agricultural growth and increased production.
- iv) The ability of an expanding agricultural sector to stimulate growth in other sectors i.e. multipliers and linkages.
- v) The scope for agricultural development and growth to contribute to more balanced economic development in regional and sub-regional levels, particularly in terms of the juxtaposition of developing and commercial agriculture within the subregion.

5.1 Integrating the developing economy into commercial activities

The historical development that took place in the region created a situation where there is a clear distinction between the nature of economic development in Natal, KwaZulu and Transkei areas of Region E. In this section the opportunities for cooperation which can take

place between these three distinct parts of the region is investigated. The procedure that is followed in this investigation is firstly to consider the most important factors which caused the differences to develop. Secondly, the opportunities for cooperation in the region by which the economies can be integrated and the development of the whole region can be advanced, are discussed.

5.1.1 Factors causing the development situation

The most important factors which caused the development to take on a dualistic nature are derived from the situation analysis which has already been undertaken. A distinction is made between the factors which are of an overall nature and those which are peculiar to the region. A distinction is also made between the factors influencing the agricultural demand (market) and supply (production) in the region.

(i) National factors

Constitutional/Institutional differences:

The constitutional and institutional difference between the white and black sections, between KwaZulu and Transkei in the region is one of the most fundamental causes of the dualistic development situation in the region. The two (or three) constitutional and institutional systems operating in the region limit economic interaction and integration.

Different agricultural policies:

The different agricultural policies operating in the region are a direct consequence of constitutional and institutional differences in the region. The overall agricultural policies of the South African government focuses mainly on commercial farming by companies and individual farmers in the developed agricultural sector. The policies of the Department of Development Aid until recently addressed agriculture on the South African Development Trust Land. The agricultural development policy of the KwaZulu government give emphasis to the role that agriculture has to play in the overall development of the rural areas (i.e. integrated rural development).

Rural/Urban Differentiation:

The differences between the policies and economic structures of the urban and rural areas in South Africa, tend to favour urban development in certain respects. The interaction between the urban and rural areas is a dynamic process where the problems and opportunities of the one have direct and indirect influences on the other. The poor living conditions in the rural areas are, for example, partially responsible for the urbanisation trend. It has already been indicated that the most important urban area relevant to Region E is the sub-region E1c (see Map 1). A certain degree of migration is taking place towards areas as the Lower Umfolozi, Mahlabatini, Mtonjaneni and Mtunzini of this sub-region. Furthermore, urbanisation in other sub-regions take place in Weenen, New Hanover, Inanda and Port Shepstone.

Population pressure and land tenure:

The population pressure and land tenure systems operating in KwaZulu are grouped together in this instance since their combined effect limits the production viability of the agricultural sector especially in KwaZulu. The combined effect of these two factors cause the farming units in rural KwaZulu to be of uneconomical size. This problem does not exist to the same degree in the Natal/Transkei areas of Region E.

Income multiplier effect:

Whereas the employment multiplier effect of the agricultural sector is high, its income multiplier effect is low. This means that although many employment opportunities are created through agriculture, its ability to increase income is limited. This becomes a critical factor when combined with the sizes of the agricultural plots in the KwaZulu area.

Education and training levels:

The situation analysis clearly indicates that the education and training levels between whites and blacks in Region E differ considerably. The inadequate education and training levels of KwaZulu and Transkei residents restrict their ability to participate fully in the developed economy and commercial agriculture of Region E.

Cultural differences:

The cultural differences which exist between the white and black population in the region serve as a potential barrier restricting the integration of the economies.

(ii) Regional specific factors

Regional specific factors influencing agricultural production:

The most important factors influencing agricultural production in the homeland areas are the following:

- * Uneconomical farming holdings limiting the development of a commercial agriculture sector.
- * The lack of comprehensive support services to assist farmers in both the forward (marketing) and backward (resource utilisation) linkages.
- * The remuneration potential of wage employment exceeds that of agriculture.
- * The system of land ownership in the homeland areas restricts the transfer of land and the creation of economical farming units.
- * Successful production units are dispersed in the homeland areas. This is not conducive to the provision of support services and coordinating marketing efforts.
- * The seasonality of rainfall and the lack of adequate storage capacity limit the agricultural production capability.
- * The duplication of institutional facilities such as agricultural cooperatives restricts economic interaction in the region.
- * The sources of finance are limited in the homeland areas. Security of tenure limits the supply of finance.

- * The different farming models in the homeland regions require different approaches and procedures. The differences in approaches and procedures that are required restrict economic interaction.
- * The farming system in the homeland areas removes the responsibility and cost of utilisation from the individual to the community. The over utilisation of resources such as overgrazing take place.

Regional specific factors influencing the agricultural markets:

The factors influencing the agricultural markets in the region are the following:

- * The region is relatively far removed from the main agricultural markets. The KwaZulu districts are less accessible to the markets than some other production areas.
- * The dispersed nature of production units in the homeland districts of the region prohibits cooperation with regard to the marketing of agricultural produce.
- * There is a general lack of agricultural information made available to the homeland farmers.
- * The size of the local agricultural markets are often too small to increase the agricultural viability of the areas in KwaZulu or Transkei.

5.1.2 Opportunities for integrating the economic activities

The factors listed in the previous section contributed to the homeland districts being generally less developed than the white-owned commercial areas in Natal districts. Opportunities are investigated in this subsection by which the two economies can be integrated to a greater degree. Such an integrated economy would benefit the whole region and increase its development potential through the creation of an extended resource base and the optimal and coordinated use of the resources. The most important opportunities for integrating the two economies are listed below.

- a) To improve access to agricultural land. This aspect requires legislative and policy changes by which mutual ownership of land can be allowed by all residents. The creation of a land market would allow the consolidation of many subsistence agricultural plots into economically viable land units. For this reason, an economic land market should be encouraged within KwaZulu.
- b) Land is to be identified and made available for the establishment of rural villages. The establishment of rural villages which are economically viable could enhance the creation of a land market in the homeland areas. This would take place through a system by which agricultural plots could be exchanged for an village or urban stand. Agricultural land would consequently be released into the market.
- c) The existing sources of finance available to the agricultural sector is to be extended and to become available to the farmers in the homeland areas. This would be one way by which institutional support is to be established through the Land Bank for the purchase of agricultural resources.
- d) The role and function of cooperatives in the region should be expanded to provide services and assistance in KwaZulu, Transkei and Natal districts of the region. These services could include the coordination of the production inputs, marketing, distribution and representation at the national agricultural forum.
- e) The joint utilisation of institutional skills between the three districts would increase the

coordination and integration of the economies. Opportunities for the utilisation of such skills lie at central government, provincial, regional and local levels and could cover a wide spectrum of aspects such as the provision of infrastructure, the rationalisation of financial resources, information and job related education and training.

- f) Opportunities should be investigated by which joint commercial projects can be launched in the region. One of the most obvious projects of this nature would be the establishment of tourist facilities, etc.
- g) The establishment of a regional development communication forum to enhance the communication between the two economies in the region. The possibility of allowing the Steering Committee of this project to fulfil that function should be considered. The relationship between this proposed forum and other regional development institutions such as the Regional Development Advisory Committee should also be investigated.
- h) The sharing of research and extension services between the two economies in the region should be advanced.
- i) The common concern about conservation and tourism in the region should be used to increase communication and economic integration of the two economies.
- j) Increases in agricultural production for household consumption would release expendable income for non-agricultural products. This could further stimulate the economy and benefit integration due to trade activities.

5.2 Potential for increasing agricultural production

Agricultural production growth can be divided into four components, namely the lateral expansion or increases in the gross planted area, improved yield effects, locational effects referring to shifts in productions between high and low potential regions and shift effects brought by movements between high and low value products.

Relatively little room exists in South Africa in general and in the region specifically, for the lateral expansion of agriculture. Opportunities do however exist to increase the gross planted area but it should be preceded by increases in the yield effects of the existing areas under cultivation. Further growth in agriculture will therefore take place mainly through the latter components i.e. yield and shift effects. Increased irrigation will play a major role in establishing these effects.

In investigating the potential for increasing the agricultural production in Region E, a number of problems related to production increases have been identified. These problems are first discussed before opportunities for increasing the agricultural production is identified.

5.2.1 Problems related to agricultural production increases

The following problems have been identified as factors which affect the agricultural production in specifically the homeland areas of the region negatively:

- a) The training of the farmers in especially the homeland areas (KwaZulu and Transkei) is inadequate.
- b) The agricultural extension services provided are not sufficient to meet the great demand for such services in the homeland areas.
- c) The distribution services of agricultural input materials and resources are inadequately developed in the homeland areas.

- d) Farmer support services including access to financial resources are inadequate to effectively assist the farmers.
- e) Agricultural research in the area is misdirected by concentrating on first world monocultures. Attention should be given to appropriate inter-cropping.
- f) The existing land tenure system restricts improvements in agricultural production. This is especially the case as far as the communal grazing system is concerned. The overgrazing of the veld influences the quality of livestock.
- g) Institutional duplications cause complex and confusing communication channels to restrict development.
- h) The scattered form of urbanisation taking place in some of the homeland districts in KwaZulu and Transkei affects resource utilisation adversely.
- i) The allocation of land and supply of quality water is one of the most important problems of the region affecting agricultural production.
- j) The farmer's management expertise with regard to beef production in homelands is limited and strongly related to traditional practices. Large areas are over-grazed.
- k) Farming as a profession is not held in high esteem by the younger generations. Farming is seen as part of a subsistence economy and not recognised as a viable and attractive career opportunity.
- l) The small agricultural plots render the economic activity in KwaZulu and Transkei uneconomically. A land market needs to be established by which the consolidation of agricultural land can take place.

5.2.2 Opportunities for increases in agricultural production

The following opportunities exist in the region for increasing the agricultural production by means of advances in resources productivity:

- a) The human resources of the region should be developed through focused education and training.
- b) Appropriate models on irrigation projects and all other production areas in KwaZulu should be implemented. The models referred to include combinations of farmer settlement and farmer support projects in the homeland areas.
- c) Appropriate research and development should be undertaken which is implementable in the wide variety of agricultural areas in the region.
- d) Improved utilisation of the water resources of the region should be pursued.
- e) Specific attention should be given to the extension services being provided in the KwaZulu districts of the region.
- f) The breeding practices, marketing and processing of livestock should be addressed in the homeland regions. The quality of the breeding stock could be improved.
- g) The utilisation of appropriate crops to take advantage of the comparative advantages of the region. Sugar-cane, sub-tropical fruit, pecan nuts and spice production are prime examples in this respect.
- h) The increased availability of production inputs in the homeland areas such as competitive financing should be investigated.
- i) The motivation of the farmers and an improvement in the status of agriculture as a career opportunity should be pursued.
- j) Rural support programmes should be launched in the KwaZulu districts, rather than separate farmer and community support programmes. An integral part of such an approach is urbanisation and vocalization programmes.

k) The planting of pastures in the high rainfall areas of the region should be pursued further.

5.3 Effective demand increases for agricultural commodities

For the purpose of this analysis the market for the agricultural products of the region can be divided into three segments, namely the local (regional) market, the South African market and the international market. The ability of these markets to increase its effective demand for agricultural products are discussed below.

5.3.1 Local (Regional) and South African Markets

It has been indicated during the situation analysis phase that the regional and South African agricultural demand is influenced by the following factors, i.e. the nature of the different markets, expendable income, income elasticity of demand, urbanisation trends and rural markets.

Since the general state of the economy has a direct influence on all the above factors it is important that the future growth of the South African economy is to be taken into account in assessing the demand for agricultural commodities.

The average annual compounded growth of the gross geographic product of the South African economy between 1985 and 1990 was estimated to have been 1,5%. Partly due to political uncertainty, labour unrest and general state of violence currently prevailing in the country, economists forecast low economic growth rates for 1993 and possibly also 1994. The longer term potential of the South African economy is, however, encouraging due to the greater international acceptance of South Africa. Structural factors may however impede such potential.

Due to the expected low economic growth rate and possible increase in unemployment levels in the short term, it can be expected that the expendable income of South Africans in general will not increase much in real terms. An important fact is, however, that the salaries and wages of black people have been increasing at a higher rate than that of the other population groups. The nett effect of higher unemployment levels and the increases in salaries could, however, result in a stagnation in expendable income growth in the short and medium term.

The analysis of the domestic (national) market in Section 2 came to the conclusion that a structural change can be expected in the South African agricultural market mainly due to the change in the per capita income of the black population, the urbanisation trend and the differentiated income elasticities of demand. These changes are likely to favour an increase in demand for those products for which the region has a comparative advantage. This view is derived from the income elasticities of demand as shown in Table 13. It was indicated that blacks have exceptionally high income elasticities of demand for meat and meat products, vegetables and vegetable products and "other" food items.

The income elasticity of blacks on all food expenditure are in fact substantially higher than that of the average for all population groups.

Due to the fact that South Africa is experiencing a shortage of animal products, especially red meats, and has an oversupply of field crops the potential exist to expand beef production

in the region to meet the demand. Field crops (which have a low income elasticity) could be used for animal production (which has a high income elasticity).

It is estimated that there is a large domestic growth potential for citrus and subtropical fruits. It is expected that increasing expendable income of lower income groups will raise per capita consumption. The health value of fresh fruit and vegetables, coupled with purposeful sales promotion, should make a substantial contribution to the growth potential of the domestic market. Urbanisation and increasing consumer demand will mean that a balance has to be maintained in supplying the different markets. It is important that the correct marketing strategy be used in order to promote sales to the black sector. It is expected that the demand for avocados in the homeland areas will expand. With regard to sugar-cane, the demand has been pre-empted because of the new sugar mill near Komatipoort in KaNgwane and the building of the Driekoppies dam.

The growth in the local (regional) market for agricultural products is expected to be relatively high in the short to medium term. This expectation is based on the fact that the region has an below average population growth due to an out-migration trend and an expected low increasing trend in nett expendable income. The urbanisation and vocalization trend within the region, will increase the demand for agricultural products. It is to be expected that this demand increase will be mainly for staple foods.

Thus, provided that employment and therefore income-earning opportunities can be expanded, especially for the poorer groups, indications are that agricultural producers will be faced with a steady increase in demand for food and fibre. Income increases will further also stimulate the demand for higher value food commodities and processed food. Urbanisation will contribute to this trend.

5.3.2 International market

The important threats of trade sanctions and boycotts against South Africa are steadily being relaxed. This means that international markets are again becoming more accessible to South African products.

On an agricultural front the international markets are experiencing over production which have a depressing effect on prices. The potential of a trade war between the USA and EC can be catastrophic for countries such as South Africa. This situation is especially true for field crops.

As far as horticultural products are concerned, unprocessed products are more valuable than processed products. As far as citrus production is concerned, a combination of political change in South Africa and the quality of produce produced here has opened international markets for South African growers. A new and important market for South Africa's agricultural produce will be the Eastern European markets with an additional 280 million people entering the consumer market. With Eastern European countries moving towards more market-orientated economies, foreign exchange for the purchase of South African fruit should become available in the foreseeable future.

Due to the favourable location of the study area to South Africa's main port, Durban, there exists the potential to export in future agricultural products to the Indian Ocean countries.

The east African coastal countries and Asia are of importance in this respect.

This analysis seems to indicate that there is a potential for the high value products of the region to be marketed internationally. It seems that the region has a comparative advantage as far as the production of fruit, vegetables and red meat is concerned for the local market and for fruit in the international market. The high quality of South African products make it a sought after product internationally.

Forestry planners in the northern hemisphere warned some years ago that there will be a gradual shift from the traditional wood producing regions to the non-traditional southern hemisphere. South Africa, and specifically Region E, where plantation forestry dates back about 100 years, can be geared towards taking part in this gradual shift, if afforestation is taking place. Some recent significant accomplishments were that South Africa is the major supplier of wood chips to the Asian market, Sappi is the largest pulp and paper producer in Africa and that Saiccor is the largest bleached dissolving pulp producer in the world. Region E has a comparative advantage of this emergence as South Africa expands as a wood and wood product exporting country.

5.4 The ability of agriculture to stimulate further growth

The income and employment multipliers of the economy of the region show that the agricultural sector has the highest employment multiplier but the lowest income multiplier of all the major economic sectors. This implies that an increase in the demand for agricultural products have a significant impact of the employment in the region. From the backward and forward linkages of the South African agricultural sector, the most important direct backward linkages of the agricultural sector are the following: processing of cereals and stock feed, fertilisers and pesticides, chemical and petroleum products, wholesale, retail and vehicle trades, transport and storage, agricultural machinery and implements and iron and steel products. The most important sectors with which agriculture has a direct forward linkage are meat slaughtering and processing, grain mill products, sugar factories and refineries, preserving fruit and vegetables, dairy products and mines.

Agriculture is therefore an important market for products produced by other sectors and is also the provider of inputs to other sectors. Thus, the intermediate linkages and the multiplier effects (especially for employment) of the agricultural sector indicate that an expanding agricultural sector can play an important role in stimulating growth in other economic sectors.

5.5 The contribution of agriculture to an overall economic development

The agricultural sector can make a significant contribution to the overall economic development. It has been indicated that the lateral expansion of agriculture in the region is relatively restricted, but that significant opportunities exist for increasing the yields, especially in the KwaZulu homeland districts of the region. Therefore by increasing the utilisation and productivity of the agricultural sector in the developing economy of KwaZulu and the northern parts of the Natal districts, agricultural production in the whole region can be improved substantially.

Such an increase in the productivity of the agricultural sector of the developing economy

would increase employment and income throughout the whole economy by means of the linkages and multipliers agriculture has with the other economic sectors. The positive impact of the income and employment creation abilities and the higher income elasticities of demand for food in the developing areas will further boost the demand for agricultural products in Region E.

Restructuring agriculture, especially to benefit small farmers, will upgrade farming productivity and generate multiplier effects creating demand, and entrepreneurial actions, employment and income. Economic upliftment and growth could therefore be expected to occur in the region. This will result in a more balanced economy in the region and provide a sound basis for sustainable growth. Restructuring will be required at four levels, i.e. institutional support, the resource base, comparative advantages and technological supply.

5.6 Conclusion

The core of the study was to address the agricultural environment to gain an idea about the development potential of Region E. From the above discussion and resultant need for restructuring the sector, an outline was formed for the agricultural development. Four aspects will be addressed below.

Institutions operating in agriculture should be restructured towards facilitating the processes of privatisation and the devolution of decision making. This implies *inter alia* that institutions such as agricultural development corporations as well as government departments should withdraw from profitable agricultural production activities on estate projects and redirect their attention towards supporting and facilitating the opportunities. The promotion of local capacities at agri-support and farmer levels should be viewed as an important priority in spite of possible inefficiencies in the short run. In this respect, attempts to re-institute greater centralization and control in the organization and administration of developing agriculture should be viewed as unproductive and contrary to a sound long term development strategy aimed at creating capacity and greater sustainability at local levels. This does not condone the fact that in most instances the development of new crops will require the input of capital strong private sector organisations or even government departments. Research and development in this respect also needs to be conducted through proven structures. Furthermore, an effective marketing and marketing research and development system should be put in place by coordinating and integrating agricultural organisations operating in the region as a whole. This is especially important due to the current fragmentated nature of institutions, the long distances and often difficult topography involved.

The second aspect of restructuring agriculture should focus on adjusting the present distribution and utilisation of agricultural resources. The opening of access to such resources to all farmers will inevitably direct attention towards the present availability and distribution of agricultural land resources. It must be appreciated that restrictions on access to land jeopardize the long run economically optimal utilisation of land resources while effectively undermining private enterprise initiatives in agriculture.

The third principle of comparative cost advantages requires that sound economics dictate the location and establishment of agricultural activities. With present efforts to stimulate the economic potential of the less developed areas of Southern Africa to compete in the market, the application of the principle of comparative cost advantages may imply certain shifts in

production localities to ensure the economically optimal utilisation of scarce agricultural resources and markets. Rigidities, inflexibilities and market opportunities in the regional market should receive special attention.

The fourth aspect refers to the appropriateness of available technology in the region. Commercial agriculture is presently characterised by over-investment with the emphasis on expensive imported technology and on large scale machinery. Restructuring in this respect should be towards less expensive and more modest mechanisation equipment. Smallholder farming on the other hand lacks the financial demand to register needs for appropriate small scale technology in the market. Technology and mechanisation are viewed as amongst the most prominent inputs required to modernise agriculture and improve productivity. A system to stimulate research and development towards appropriate technical inputs adapted to local conditions and to the diversity of agriculture in the region is necessary. In this respect the Farm System Research approach seems appropriate to direct attention to the needs of individual smallholders in developing agriculture. This system approach could equally be applied to the commercial farming sector as it focuses on the individual farmer operating within the farming environment.

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