A programme for establishing industrial estates in designated growth points will be developed and will be implemented through the Public Sector Investment Programme. A number of small-scale and medium-size projects are under study. Studies will also be carried out to determine the feasibility of establishing the manufacture of medicines and cosmetics from locally available herbs, plants and other indegenous materials. The study and search for inexpensive and efficient appropriate technologies in agriculture, food processing and household equipment will be intensified and will be supported by Government.

Government will also support manufacture of lighting conductors. In addition, Government will encourage the search for a bio-gas technology appropriate to Zimbabwe and will promote local manufacture of the necessary equipment.

INDUSTRIAL POLICY AND PRIORITIES

As stated in Volume I, Government emphasizes the need for change in the ownership structure and overall restructuring of the manufacturing sector in order for the sector to become more responsive to the requirements of the new social and economic order. In this connection, programmes and projects for the sector will be designed to fulfill this socio-economic requirement. To this end, Government will give incentives to investors in priority areas. Details of these incentives will be outlined in the forthcoming Investment Guidelines.

The priority areas for investment in the manufacturing sector are outlined below. The list of programmes outlined is by no means exhaustive but they represent key areas in which a greater proportion of investment should be channelled over the Plan period. Because of the dynamic nature of the sector, projects conceived during the Plan period will be considered for funding depending upon their potential contribution to the economy.

(a) *Basic Industrial Products Based on Local Raw Materials*

Production of ammonia from coal, ethanol from sugar, basic chemicals from ethanol, steel sheet and steel plate, chemical pulp and paper, sheet and plate glass and refractory bricks.

Government will encourage and support the development of these industries because of their importance in establishing a firm industrial base and diversifying the economy. Government will be directly involved in the manufacture of some of these products.

(b) *Capital Goods*

Production of machinery and equipment. Government will promote specialization in the production of capital goods by local manufacturers, especially those with a long standing record and comparative advantage. An Export Fund which will finance exporters of capital goods and construction work will be established to facilitate international operations of Zimbabwe companies.

(c) *Consumer Goods*

Production of consumer goods for education, health, basic child care, culture, sport and recreation, conservation, coal stoves and various on-the-job requisites.

In order to improve the standards of living of the majority of the population, Government will support production of strategic consumer goods. Local entrepreneurship is preferred in this subsector. Foreign companies may be granted permission to engage in the production of consumer goods only in exceptional cases.

(d) *Manufacturing for Export*

Export-orientated industries (over 50 per cent. of production being for the export market provided that the import content of their exports is less than 25 per cent.) face strong competition on the world market. In order to make exports more competitive, therefore, Government will support industries in this sector through fiscal and monetary measures.

(e) *Manufacturing in Growth Points and Industrial Estates*

Government will promote and assist the establishment of industries in designated growth points. This will be done through fiscal and other policy measures. To this end, a national programme for investment in growth points will be prepared and implemented with Government support in the administrative, technical and financial fields.

In order to encourage introduction of new products, the development of endagenous technologies and technological advancement in general, research activities in these areas will be exempted from taxes. Government will also establish a National Fund for Pre-Investment Studies (NFPD) in the Ministry of Industry and Technology. The fund will be part of the Public Sector Investment Programme.

The criteria which will be used in the selection of projects are: use of locally available natural resources, creation of employment opportunities, contribution to exports and import substitution.

PUBLIC SECTOR INVESTMENT PROGRAMME 1986/87–1990/91

As seen in Table 15 below, the Five-Year National Development Plan envisages public sector investment in the manufacturing sector which is approximately $415 million (at constant 1985 prices).

TABLE 15
MANUFACTURING INDUSTRY: PUBLIC SECTOR INVESTMENT PROGRAMME
1986/87–1990/91 ($ million)

	1986/87	1987/88	1988/89	1989/90 1990/91	Cumulative 1986/87–1990/91
PSIP in constant 1985 prices					415
PSIP in current prices	23	129	104	294	550
of which—					
IDC projects	9	45	—	—	—
ZISCO	6	57	—	—	—
ZDB	5	3	—	—	—
ZDC	0	20	—	—	—
CAPS HOLDING	2	2	—	—	—
Other projects and studies	1	2	—	—	—

MINING AND QUARRYING

DEVELOPMENT OBJECTIVES AND STRATEGY

The overall economic development strategy of the First Five-Year National Development Plan attaches great importance to the Mining and Quarrying sector because of its contribution to the country's export earnings, employment and to the growth of the other sectors, especially the manufacturing sector.

In order for the sector to fulfill the tasks stated above, Government will implement the following strategies:

(a) promotion and development of existing mining operations so as to maintain or increase production and employment as well as increase exports;

(b) encourage mineral exploration by both Government and the private sector, including foreign companies;

(c) increase Government participation in the mining sector; and

(d) increase processing of minerals to increase value added.

Output in the mining and quarrying sector is projected to grow by 6,5 per cent. annually and mineral exports are expected to grow at the rate of 7,4 per cent. Employment in the sector is expected to increase from 56 000 in 1985 to 65 000 by 1990. Investment in fixed assets for the Plan period is estimated at about $962 million, of which $257 million will be public sector investment and the remaining $705 million is private sector investment.

Success of this investment programme depends on Government's capacity to implement the strategies outlined above and also on the state of the world minerals market. Improvements are expected in the prices of minerals on the world market during the second half of the Plan period.

The gold mining industry employed 20 600 people in 1984 and this was 41 per cent. of the total mining industry workforce. Gold exports account for 11,0 per cent. of exports and 25 per cent. of the mining and smelting exports. Of all mineral,s, gold has been more successful in weathering world

ecessions. Prospects for export of minerals are good, especially if new production technology is ntroduced into the industry. Government will encourage and support prospecting and production of gold as well as small-scale mines which currently account for 40 per cent. of the nation's gold output.

The dominant minerals in the group of refined metals and alloys are steel, ferrochrome, nickel and copper. In this group, the ferrochrome industry, which is the country's third leading foreign exchange earner after tobacco and gold has the greatest potential for increase in output and export. However, this depends on the introduction of new mining technology in the industry, world market demand and introduction of new industries that process chrome for both local and foreign markets.

Zimbabwe is endowed with a wide range of non-metallic mineral deposits but many of these minerals are either not being exploited or are exported in raw form. Government will encourage and support exploration and mining of non-metallic minerals as well as their processing into finished products for both domestic and external markets.

The strategy of the First Five-Year National Development Plan aims at increasing manufactured exports in order to increase the value of exports. In this connection, there are several projects under consideration for beneficiation of minerals such as stainless steel from local chrome, steel and nickel; production of chromium chemicals; production of ammonia from coal and refractory bricks based on magnesite, chrome and kyanite; sheet and plate glass from dolomite, limestone, feldspar and silica sand and production of high grade hydrated lime from local limestone deposits.

Successful implementation of these projects will depend upon the degree of integration of mining activities into the country's industrialization strategy.

The most pressing problem in the sector is shortage of foreign currency for procurement of the necessary imported inputs, replacement of equipment and spare parts. This problem will be alleviated through inclusion of the mining sector in the Export Promotion Programme scheme and changes in the import allocation regime.

Government will continue to support ZMDC in mineral exploration, mine development and mineral beneficiation. ZMDC is also engaged in the development and management of mining co-operatives. Through ZMDC and financial parastatals, Government will provide technical services and financial support to local prospectors and co-operatives. MMCZ will intensify its efforts in penetrating external markets.

Government will encourage foreign partners to participate, under specified conditions, in mining activities and projects that require technology which is not available in Zimbabwe or in projects with large capital outlays beyond the financial capability of the country.

As already stated, Government will invest about $257 million in the mining sector (in current prices). During the two fiscal years 1985/86 and 1986/87, public investment was below Plan target. In order to increase Government investment in the sector, therefore, identification of feasible projects will be intensified and the rate of implementation improved.

DEVELOPMENT PROJECTS

The following projects will be implemented by the Zimbabwe Mining Development Corporation:

Ky Mine and refractory materials—Mashonaland East Province

Kyanite will be calcinated and marketed in international markets. Some of the calcinated kyanite and magnesite will be used locally for manufacturing refractory bricks which will save foreign currency worth $7,0 million annually.

Tungsten—Buona Fortuna and Mutandahwe—Manicaland Province

Exploration of the minerals is underway on these adjacent areas. Already sufficient ore has been blocked at Buona Fortuna to justify pilot plant production of tungsten at the mine.

Elvington Gold Mine Gadzema—Mashonaland West Province

Exploration on the mine has been completed and the results are positive. Mine development and plant construction programme are in progress.

Mberengwa Gold Belt—Midlands Province

This project is designed to reopen five dormant gold mines in the Mberengwa district. Full exploration is underway.

Airbone magnetic follow up—Midlands, Matebeleland North and South Provinces

An airborne magnetic survey was carried out over a sizeable area of the country and possible mineral deposits were indicated. During the Plan period, follow up action on these indications will be carried out.

Chemutsi diatomactous earth—Mashonaland West Province

Preliminerary investigations indicate a large diatemactous earth orebody which can be used as a substitute for imported materials in the industrial filtration industry.

R.H.A.—Matebeleland North Provinces

This tungsten mine near Kamativi was abandoned during the war. Efforts to reopen the mine are underway.

Jena and Sabi consolidated gold mines—Midlands Province

Expansion programmes on these mines are underway.

Rehabilitation of the Ferrochrome Industry—Mashonaland West and Mashonaland Central

Increase in ferrochrome production is being hampered by use of inefficient methods of mining the seam ore deposits. More efficient methods of mining these deposits are being explored. Success of these efforts will pave the way for increased ferrochrome output.

Sanyati Copper Queen—Midlands Province

Preliminary drilling in the areas has identified a large ore deposit of copper, lead and zinc. The drilling which is in progress is expected to result in the opening of a large mine.

Shamrocke

Exploration work is in progress on this abandoned, but large copper mine. The results of the exploration work are expected to lead to the reopening of the mine.

Mimosa Platinum—Midlands Province

Government will go into joint-venture in the exploration and mining of the vast platinum deposits in the Midlands Province. The total cost of the project is estimated at $250 million. The joint-venture will be on a fifty-fifty basis.

Other projects

In addition to the projects outlined above, there are other projects which are designed to increase the technical services rendered to the mining industry by Governments technical departments. The quality of these services will also be improved. The most important of these services will be a physical metallurgical laboratory which Government will establish. Exploration projects are also in progress and these include hydrocarbons exploration in the Zambezi Valley and exploration of other minerals in the Lomagundi and Guruve Districts.

The private sector is expected to be particularly active in gold mining during the Plan period. A number of expansions and new private sector projects are already underway. They include the following:

(i) expansion of Athens mine in Midlands Province;

(ii) expansion of Tiger Reef mine in Midlands Province;

(iii) expansion of Shamva mine in Mashonaland Central Province;

(iv) increased production of coal at Hwange Colliery in Matebeleland North Province;

(v) opening of an open cast gold mine near Bindura in Mashonaland Central Province; and

(vi) the Sencol Project whose objective is production of special low-sulphur coal in the Sengwa area.

The following Table 16 shows the capital expenditure for some of the projects outlined above.

TABLE 16
PUBLIC SECTOR CAPITAL EXPENDITURE PROGRAMME FOR THE MINING SECTOR
1986/87–1990/91 ($'000)

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Ky Mine	400	5 000	—	—	—	5 400
Elvington Gadzema Mine	1 000	5 000	—	—	—	6 000
Mutandahwe Tungsten Mine	1 600	1 000	1 000	1 000	—	4 600
Buona Fortuna Mberengwa Gold Belt	1 000	1 000	7 000	8 400	1 000	18 400
Airborne Magnetic follow up	1 500	1 000	600	—	—	3 100
Study on increasing ferrochrome production	1 000	1 000	—	—	—	2 000
Refractory bricks production	50	0	25 000	15 000	—	40 050
Sanyati Copper Queen	1 000	500	5 000	3 000	1 144	10 644
Shamrock	750	500	—	—	—	1 250
Chemutsi	100	500	3 750	700	250	5 300
Industrial minerals follow up	—	1 000	500	500	—	2 000
Plasma smelting	—	25	25	25	—	75
Mimosa platinum	—	—	100 000	50 000	—	150 000
Lab extension	80	126	—	—	—	206
RHA tungsten	—	—	5 000	2 000	2 000	9 000
TOTAL	8 480	16 651	147 875	80 625	4 394	258 025

ENERGY

DEVELOPMENT OBJECTIVES

The development objectives for the energy sector are as follows—

(i) to achieve, as far as possible, self-sufficiency and security in certain types of energy supplies;
(ii) to increase the amount of electricity produced from coal and hydro-power;
(iii) to increase the use of coal, biogas and solar energy so as to reduce the rate of deforestation; and
(iv) to ensure conservation of oil through research and other measures to enable the country to reduce the amount of imported oil fuel.

Progress towards attainment of these objectives is vital to development. The country uses six types of energy which include hydro-power, coal, oil fuel, fulewood, solar power and biogas. Hydropower and coal are available locally and are the main sources of electricity which is widely used in urban areas as the key source of energy in production and lighting. A small amount of electricity is imported to supplement domestic output. Oil fuel is all imported and is largely used by the transport sector. Fuel wood is used primarily in rural areas for domestic purposes. Biogas and solar energy are still in the early stages of development.

Employment is expected to reach 7 000 by 1990. Approximately $1 197 million will be invested in the sector during the same period.

PROGRAMMES AND PROJECTS

The programmes and projects outlined below will be implemented during the Plan period.

Power generation

The development of the energy sector is an on going process. In order to meet the rising demand for electricity, Government has embarked on an expansion programme which includes construction of a thermal power station at Hwange with an installed capcity of 920 MW. This station will cost $850 million most of which will be foreign loans. Further development to meet the country's demand in electricity will include the extension of Kariba South Power Station which will include two additional generators of 150 MW each.

In addition to the Kariba South extension, the generators at Kariba will be refurbished and rewound to provide long term reliability. The rehabilitation of the power station will also allow an increase in rating of the two generators from 111 MW to 125 MW each. The programme will commence in the last years of the Plan period and will be completed during the next Plan period. There will be an on-going programme to rehabilitate, where necessary, the transmission and distribution network country-wide.

Transmission

The transmission programme will continue in both urban and rural areas. Nearly all provinces will be covered, including the Harare and Chitungwiza areas. The projects to be undertaken in the provinces will differ in nature. Some will involve construction of new transmission lines mostly in the rural areas while others will require an increase in the number and capacity of lines for higher voltage. About 18 rural areas will be covered during the Plan period.

Four additional lines will be constructed in the eastern provinces of Manicaland and Masvingo to provide adequate supplies to expanded projects such as the Chisumbanje sugar cane ethanol plant.

The Zimbabwe Electricity Supply Authority plans to spend about $198,0 million on transmission projects during the Plan period.

Rural Energization Programme

The rural energization programme which is a combination of different types of energy such as electricity, solar energy, biogas, fuelwood and coal is intended to provide energy for rural development. The programme will promote the development of cheaper types of energy. In addition a study called Rural Electrification for Low Income Groups (Relig) is underway. The purpose of the study is to identify cheaper types of energy. The study will cost about $1,2 million. In order to concretise the rural energization programme, rural energy centres will be established for demonstration purposes as well as for training local people in the installation and maintenance of rural energy systems.

Liquid Fuels

Although there are no known oil and gas deposits in Zimbabwe, exploration for possible occurrence of natural gas and other hydro-carbons is being carried out by Government in the Zambezi and Sabi-Limpopo Valleys. Government is also carrying out a feasibility study for the construction of a new Oil Refinery. The former oil refinery at Feruka near Mutare, closed since 1966, has been converted into a large oil depot for storing refined products transported via the Beira–Mutare pipeline. Government was initially keen to reopen this refinery to reduce dependence on South Africa for refined oil imports. A technical study on the feasibility of reopening the refinery showed that it would be too costly to reopen the refinery.

It is Government policy to ensure that the country has adequate petroleum products or substitutes. In this connection the necessary measures are being taken to increase internal storage and transportation facilities. However, in order to reduce fuel imports, Government has initiated research into the manufacture of diesel extenders.

Energy Database

During the Plan period, a national energy database will be established for purposes of centralizing energy data in order to assist in the planning of the energy sector as well as in supplying energy statistics when required. The proposed database project will be implemented in two phases. Phase I will cover a period of two years and will include activities such as data collection, data processing and programming. This phase will also cover preparation of energy audits for those sectors that show high energy consumption. Ultimately, the audits will indicate areas in which energy can and should be conserved.

Phase II will cover mathematical treatment of data to produce various planning options for the national energy sector.

Zimbabwe and Botswana Interconnector

Plans are underway to construct an interconnector between Zimbabwe and Botswana. This project will be undertaken within the framework of SADCC and will be completed within the Plan period at an estimated cost of US$38,0 million. Zambia already has similar connections with Zimbabwe.

The following Tables 17 and 18 give details of programmes and projects to be implemented during the Plan period.

TABLE 17
($'000)
PUBLIC SECTOR EXPENDITURE: ENERGY SECTOR, 1986/87–1990/91

Item	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Kariba South Extension	—	50 000	75 000	100 000	25 000	250 000
Rehabilitations	3 772	19 400	31 900	18 120	2 315	75 507
Hwange 7 and 8	—	—	10 000	70 000	301 000	381 000
Normal transmission consumer services	7 493	106 057	32 548	26 516	25 771	198 385
Distribution	7 350	11 754	11 044	8 330	536	39 014
Rural energization	23 429	31 565	3 328	34 080	—	92 402
Other projects	52 910	6 000	1 550	1 000	—	61 460
Transport	20 819	20 171	1 800	2 277	500	45 567
Tools and equipment	—	525	310	280	—	1 115
Buildings	9 300	4 462	2 284	3 016	3 346	22 408
Training and technical assistance	205	14 053	9 190	6 402	268	30 118
TOTAL	125 278	263 987	178 954	270 021	358 736	1 196 976*

* Refers to ZESA's own resources of about $355,751 million and $841,245 million foreign loans.

TABLE 18
GOVERNMENT EXPENDITURE ON ENERGY PROJECTS FOR 1987/88–1990/91 ($'000)

	1987/88	1988/89	1989/90	1990/91	Cumulative 1987/88–1990/91
Rural					
Afforestation, Rural and National	70	50	80	—	200
Woodstoves, Rural and National	100	80	40	—	220
Coal					
Utilization, Rural	225	140	135	—	500
Biogas energy, Rural and National	125	105	75	—	305
Solar energy, Rural	2 137	2 057	1 048	—	5 242
Relic study, Rural and Urban	55	3	15	15	88
Establishment of National Database,	40	242	120	—	402
Development of Rural Areas Service Centres	141	111	111	111	474
TOTAL	2 893	2 788	1 624	126	7 431

NATURAL RESOURCES

Natural resources are the backbone of all material production activities in the economy. Non-renewable resources exist in finite quantities and as such, their time usefulness to society can only be extended through optimum exploitation and economical usage. Renewable resources, on the other hand, depend for their continued existence on careful nurturing and usage by society. In this respect, the future of productive activity in the country rests on planned optimum utilization and management of both renewable and non-renewable resources. Whilst planners and scientists have the principal task of defining the correct balance between development and environment, the ultimate responsibility for the maintenance of this balance rests on all citizens, urban and rural alike.

The objectives of the sector include the following—

(i) ensuring selfsufficiency in all timber products including building timber, furniture, pulp and paper and fuelwood;

(ii) curbing soil erosion and soil loss and the resultant siltation of dams and rivers and general environmental degradation so as to maintain soil and watershed protection;

(iii) instilling popular awareness of the need for soil, flora and fauna conservation for the benefit of the present and future generations;

(iv) bringing benefits of wild game parks and other natural resources to the people living in and around game parks in an organized way, which will help control poaching of protected wild life whilst increasing the standard of living of the people;

(v) promoting the planting of fast growing indigenous and foreign tree species in rural afforestation and re-afforestation projects; and promoting cooperation with SADCC countries in the development of forestry, manpower and all environmental issues.

DEVELOPMENT STRATEGY

In order to fulfil the above objectives, active mass participation in conservation awareness projects falling under the national conservation strategy shall be encouraged in all provinces. For the projects to continue to have popular appeal and support, the projects should produce direct benefits to the relevant community. In this respect, the Communal Area Management Programme for Indigenous Resources project (Project CAMPFIRE) is most appropriate as it seeks to ensure that communities conserve natural resources in their area since the revenue from their harvest will be distributed among them, thus giving them a stake in the utilization and management of the resources. If successful, this project will raise the standards of living of the communal people as well as the contribution of the sector to gross domestic product. Communal game ranching and the gully reclamation programme will form vital components of the CAMPFIRE project.

The National Tree Planting Day which places emphasis on the communal woodlot approach will continue to be observed nationwide and people will be encouraged to increase the time they allocate to tree planting as a strategy for increasing the rate of afforestation and, therefore, availability of timber and fuelwood for domestic use. For the latter case, woodlots are particularly important since cheap alternative sources of energy have not yet been fully developed.

Indigenous tree species should also be made available for woodlot projects during the Plan period especially that research in this area is an ongoing process. To complement this programme, agroforestry will be encouraged for individual tillers of communal plots as a way of increasing greater peasant interest in rural afforestation.

The regional effort at attaining optimum use of commonly shared natural resources in the Zambezi River system has now reached an advanced stage with the adoption by the SADCC of the "Action Plan on the Management of the Zambezi River Basin". Implementation of this project will contribute towards the policy of availing the benefits of natural resources to the people living in the areas in which the resources exist which is also the objective of Project CAMPFIRE referred to above.

As a matter of policy, there will be greater cooperation between the Forestry Commission which deals mainly with forestry and the Department of National Parks and Wild Life Management which looks mainly after the nation's wild game heritage. Playing acomplementary role to both is the Department of Natural Resources which deals with environmental protection.

Successful implementation of the plans of these agencies will depend on the extent to which they educate the people.

INVESTMENT PROGRAMME

The 1986/87–1990/91 total investment programme for the natural resources sector which is detailed below amounts to $129,8 million and is almost equally divided between the Forestry Commission and the Department of National Parks and Wild Life Management.

Forestry Commission

The Forestry Commission will implement a number of projects. Some of the projects are on-going, implying that there will be no limited life span to the projects.

The projects which will be implemented by the Commission will include the following: conservation and maintenance of indigenous forests, mainly on state land in Matebeleland; the urban forest nurseries project in Harare and Gweru; forestry research activities, including research in multiple purpose trees (refer to the forestry section in the Science and Technology chapter); provision of additional facilities to promote skilled manpower development through training at the Zimbabwe College of Forestry. A Forest Industry Centre will be established for this purpose (refer to Human Resource Development Chapter); purchase of land for plantation development; rural afforestation projects; establishment of a Regional Seed Centre; dry zone afforestation; establishment of a timber testing and utilization Laboratory in Mutare; research into the use of hardwoods for fuelwoods; equipment for various facilities including timber harvesting; and saw milling and earthmoving.

Trading activities will include plantation development and timber harvesting in plantations under the Commission's management as well as wild honey harvesting. Plantation development in Manicaland and near Mvuma in the Midlands will include planting of 10 000 hectares of softwood and hardwood

plantations to help meet the country's requirements for both types of wood and the requirements of the proposed pulp and paper mill. The purchase of additional softwood plantations is expected to complement construction of the pulp and paper mill.

The investment plan for the Forestry Commission is shown in the table below.

TABLE 19

TRADING ACTIVITIES: CAPITAL EXPENDITURE 1986/87–1990/91 ($'000)

Projects	1986/87	1987/88	1988/89–1990/91	Cumulative 1986/87–1990/91
Plantation development	3 000	1 163	12 211	16 374
Fixed assets for plantation development	800	2 423	5 290	8 513
Fixed assets for trading activities	600	2 301	8 697	11 598
Saw milling and other machinery	—	1 500	3 250	4 750
Earthmoving equipment	—	300	—	300
Purchase of softwood plantations	—	500	—	500
Purchasing logging skidders	—	130	290	420
Purchasing logging trucks	—	346	798	1 144
Communication system	—	—	405	405
Chimanimani sawmill	—	—	14 100	14 100
Access road	—	—	180	180
Agricultural development	—	353	1 162	1 515
Wild honey harvesting	—	72	68	140
TOTAL	4 400	9 088	46 451	59 939

Department of Natural Resources

The Department of Natural Resources will increase its activities in environmental protection awareness through mass meetings and workshops in communal areas and through community based gully reclamation projects. This will be done in close collaboration with Agritex.

Table 20 below shows details of the department's five-year investment programme.

TABLE 20

DEPARTMENT OF NATURAL RESOURCES: CAPITAL EXPENDITURE 1986/87–1990/91 ($'000)

Projects	1986/87	1987/88	1988/89–1990/91	Cumulative 1986/87–1990/91
Gully reclamation	—	90	180	270
Environmental monitoring	—	120	—	120
Control of exotic water weeds	—	45	—	45
TOTAL	—	255	180	435

The Department of National Parks and Wild Life Management

The Department will implement programmes and projects designed to protect and preserve the country's wild life heritage which is also an important tourist attraction; commercial exploitation of the wild life; and promotion of commercial game ranching by peasants which will help curb poaching in National Parks. Table 21 below shows the capital expenditure programme for the Department for the Plan period.

TABLE 21

NATIONAL PARKS AND WILD LIFE MANAGEMENT, CAPITAL EXPENDITURE
1986/87–1990/91 ($'000)

Project	1986/87	1987/88	1988/89–1990/91	Cumulative 1986/87–1990/91
Head Office complex	750	850	24 400	26 000
Zambezi Rhino rescue	577	1 303	—	1 880
Housing	50	200	8 150	8 400
Modification: house	100	55	595	750
Aquaculture	—	—	1 790	1 790
Various facilities	500	700	3 083	4 283
Chizarira Camp reconstruction	80	285	675	1 040
Communication system	186	364	1 450	2 000
National Parks electrification	136	264	600	1 000
Laboratory equipment	—	216	166	382
Sebakwe Camp reconstruction	10	700	270	980
LKFRI vessel*	—	125	0	125
Field labs, workshop and coldroom	84	—	517	601
Patterns and demands of outdoor recreation	13	10	83	106
Glen Eagle Estate	—	1 758	5 189	6 947
Zambezi Valley development	—	3 340	5 445	8 785
CAMPFIRE**	—	1 130	2 120	3 250
Aircraft for control of problem birds	—	500	—	500
Aquadozer (weed control)	—	330	—	330
Hwange game water supply equipment	—	200	100	300
TOTAL	2 486	12 340	54 623	69 449

** Communal Area Management Programme for Indigenous Resources.
* Lake Kariba Fisheries Research Institute.

WATER RESOURCES

DEVELOPMENT OBJECTIVES

The primary objective of Government in the water resources sector is to develop adequate water supplies for agricultural, industrial and domestic purposes, with special emphasis on communal areas requirements.

Table 22 below shows the annual average rainfall for seven consecutive seasons, 1980/81 to 1986/87.

TABLE 22

Year	Rainfall
1980–1981	870 mm
1981–1982	440 mm
1982–1983	403 mm
1983–1984	464 mm
1984–1985	746 mm
1985–1986	703 mm
1986–1987	421 mm

Apart from low annual average rainfall and considerable year-to-year variation, the country experiences uneven rainfall distribution. Some northern parts of the country and most of the eastern areas receive more rainfall than the western and south western parts of the country. In the south-west rainfall varies between 350 mm and 700 mm, with some low lying areas receiving less than 250 mm. The country also experiences frequent drought periods. As shown in the table, four of the seven seasons were drought years.

The north eastern mountain areas receive 700 mm to 1 000 mm, with some eastern highlands experiencing rainfall in the range of 1 000 mm to 2 000 mm.

DEVELOPMENT PROGRAMME

In order to fulfil the development objective of the sector, Government is engaged in the construction of water conservation works, major water supply schemes and rural water supply schemes. Studies for the development of surface and underground water are also underway.

Construction of water conservation works

Government is engaged in the construction of dams to supply water for industrial, agricultural and consumption purposes. Table 23 below gives the planned capital expenditure for the conservation works.

TABLE 23
CAPITAL EXPENDITURE: CONSERVATION WORKS
1986/87 — 1989/90 ($'000)

Expenditure during year: 1986/87	1987/88	1988/89	1989/90	Cumulative expenditure 1986/87–1989/90
18 275	20 060	25 075	28 344	91 754

The above allocations include expenditure for on-going dam construction, the raising and betterment of dams as well as construction of new ones.

Dams for Urban, Industrial and Mining purposes

The following projects will be implemented during 1986/87. The Sebakwe Dam will be raised at an estimated cost of $20,08 million to augment water supply for the Kwekwe/Redcliff area; the Clifton Off River Storage Dam will be completed to provide water to Chegutu town; the Rufaro Dam will be built to augment water supply for Marondera; and the Bangaza Dam will be completed to augment water supply for Chipinge town. Other dams which will be completed include Mangwe Dam at Plumtree and Chimanda Dam at Chimanda Growth Point in Mashonaland Central Province.

During 1987/88 a number of dams will be built to provide water for agricultural and drinking purposes. The dams to be constructed are shown in the table below.

Dam	Cost ($m)
Ngezi Dam, Mashonaland West	22,4
Shashani Dam, Matebeleland South	13,0
Siwaze Dam, Matebeleland South	5,9
Murambinda Dam, Manicaland	2,0
Mondi Mataga Dam, Midlands	8,0
Mahusekwa Dam, Mashonaland East	2,6
Hollins Block Dam, Matebeleland South	2,4
Lungwala Dam, Matebeleland North	5,0

Irrigation Development

Irrigation plays a crucial role in the development of agriculture in the country, especially in the production of winter crops and in overall farming in drier parts of the country.

In this connection, several dams will be built whose primary function will be provision of water for irrigation. The most important of these dams are listed below.

Dam	Cost ($m)
Mazikadei, Mashonaland West	38,6
Mwenje, Mashonaland Central	5,6
Osborne, Manicaland	47,0
Dande, Mashonaland Central	19,3
Manyuchi, Masvingo Province	2,8

Other Dams

The Manyame and Shamva Balancing Dams will be completed during the Plan period and will help increase irrigation capacity in the areas in which they will be built.

Other dams such as the Moza, Biri, Insukamini and Hama will also be completed during the Plan period.

These dams will enhance irrigation in the communal areas in which they are situated.

Some dams will be raised to increase their water storage capacity. This programme includes the Kalope, Roswa, Neshuro, Sivole Sadza and Madabe.

Future dam construction projects being contemplated include Mkwasine in Masvingo. Gates for Claw and Mayfair Dams, Bindura Dam, Lions Head Dam, Tok wane Dam, Jumbo Dam, Munyati Dam and Silverstroom Dam.

Construction of Water Supply

A number of major water supply schemes will be completed during the first half of the Plan period. These include: Karoi, Murombedzi, Hwange, Shamva, Marondera Prison, Ngezi-Mamina, Mashumbi Pools, Mlezu Silobela Administration, Mabasa, Mataga, Mutimurefu, Ngundu, Nyanga, Birchenough Bridge, Nyanyadzi, Muzukomba, Tongwe and Silobela Extensions. Major water supply schemes such as Banket, Sadza Uprating, Trelawney Chizou R.S.C., Goromonzi School, Ndanga, Nyika, Dunga uprating Cross Roads, Murambinda, Mabasa uprating, Kariba Airport, Ntabazinduna, Inyati, Mangwe Police, Tsholotsho and Hauna will be constructed during 1988/89.

Rural Water Supply

The main objective of the rural water supply programme is to provide the rural masses with adequate, safe and accessible water. In assessing the demand, however, close attention will be paid to the potential for livestock watering and small irrigation schemes in order to stimulate food production and raise incomes of rural people. The National Water Master Plan for Rural Water Supply and Sanitation was prepared as part of the strategy for attaining the objective stated above. The Plan envisages a long term strategy for providing portable water within walking distance of thepopula tion in communal and resettlement areas.

In line with Government's policy, Community participation, particularly participation by women, will be crucial in the planning, implementation and maintenance of rural primary water supply programmes.

In view of recurrent droughts, Government will provide more resources for the development of techniques for forecasting droughts. It is necessary to provide a network of boreholes and deep wells to complement each other in order to make adequate water available to communities during drought periods. Wherever it is considered expedient, piped water supplies will be provided. Government has observed in many cases that rural water schemes become non-operational because of inadequate maintenance. There is, therefore, need to give maintenance and operation the highest consideration in planning and implementing rural water supply schemes.

Table 24 below shows the expenditure for the water supply schemes for the years 1986/87–1989/90.

TABLE 24

INVESTMENT IN RURAL WATER SUPPLY SCHEMES FOR THE PERIOD 1986/87–1989/90 ($'000)

Expenditure to 30/6/87	1987/88 allocation	1988/89 estimated expenditure	1989/90 estimated expenditure	Cumulative 1986/87–1989/90
16 350	14 648	18 310	22 888	72 196

Investigations

Investigations, including hydrological and geohydrological for surface and ground water development are essential activities. Hydrological investigations are on-going activities which provide information for planning in the development of water resources. A network of 334 recorder stations and 211 gauge post stations provide regular hydrological data throughout the country. Sediment transport and sedimentation in reservoirs are also being investigated.

Investigation on ground water is also an on-going activity throughout the country. Efforts are underway to assess the ground water potential in the country. Investigations on Basement Aquifer, Gokwe Aquifer, Umboe Aquifer and Kariba South are a continuing process. Drilling operations for this purpose are underway in Lupane, Nkai and Nyamandhlovu.

In addition to hydrological and hydrogeological investigations, other regular investigations carried out on Dams and Water Supply Schemes will continue. Dam safety and water Pollution Control are also permanent features of the regular investigation programme. About $16,5 million will be spent on investigations during the Plan period.

DEVELOPMENT OF WATER RESOURCES ACCORDING TO PROVINCES

MASHONALAND EAST PROVINCE

The main annual rainfall in the Province ranges from 1 100 mm to approximately 650 mm.

Urban areas in the Province have adequate supplies of drinking and industrial water.

Piped water supplies and primary water supplies using boreholes and wells are being constructed in the Province to meet the water requirements of people in communal areas. Piped water supply schemes are recommended for resettlement schemes where people are grouped.

The dam construction programme includes the following:

Dam	*Cost* ($m)
Wedza	1,6 (completed)
Rufaro	4,8 (completed)
Mahusekwa	1,25
Longlands	7,5
Mudzi	0,5

MASHONALAND WEST

Rainfall in the province has a tendency to decrease northwards due to the fact that most of the rain is relief, with the highest totals recorded along the highveld. The northern part of the province is in the rain shadow except for occasional rains on the windward side of the mountain range. Agricultural activity in this northern portion relies on irrigation and hence the need to develop and construct water supply systems.

Many boreholes have been sunk, especially at district and rural service centres but these are far from adequate because many of them are of low yield and are not fully equipped.

A number of potential dam sites have been identified in the Province. However, further investigations are required to determine the feasibility of each of the sites.

The dam construction programme for the Province includes the following:

Dam	*Cost* ($m)
Clifton O.R.S.	3,6 (completed)
Manyame Balancing Dam	2,1 (completed)
Ngezi	22,5
Claw Dam Gates	4,7
Mhondoro Dams (3)	5,1

MASHONALAND CENTRAL

The Province has reliable and adequate rainfall. Many boreholes have been drilled to provide primary water supplies to the plateau area, especially in communal areas. In the valley, water supplies from underground sources have proved to be unreliable but recent geophysical tests carried out in the area have shown that potential exists for the development of underground water supplies in areas associated with alluvial materials.

Although there are many dams and boreholes in the Province, a lot more need to be constructed to provide water supplies to communal farmers and service centres in order to meet the requirement of the international Drinking Water Supply and Sanitation Decade to which Government is committed.

So far, the water resources development programme in the Province has not put sufficient emphasis on the provision of water for irrigation, particularly in the small scale commercial and communal farming areas. Necessary measures will be taken to improve the situation.

Mwenje Dam and Shamva Balancing Dam will be completed during the Plan period at an estimated cost of $5,64 million and $0,938 million, respectively. Mwenje Dam is designed to increase irrigation capacity in the Bindura area while Shamva Balancing Dam will balance the releases of ministerial water from Mwenje Dam and consequently avoid loss of water as well as ensure adequate storage reserve for Shamva water supply during periods of drought.

The following dams will be constructed in the Province during the Plan period:

Dam	*Cost* ($m)
Chimanda	1,4
Dande	19,3
Bindura	25,8
Lionshead	18,0
Silverstroom	18,0
Jumbo	23,4
Concession	12,0

MATEBELELAND NORTH PROVINCE

Water is of great significance in this province as the rainy season is generally short and the distribution of precipitation uneven. The shortage of water in the Province has constrained development in most areas.

It is, therefore, essential that the available water sources be developed systematically and utilized efficiently.

There is potential for developing surface water systems in the Bubi and Lupane districts.

Investigations are underway in the Nyamandhlovu and Lupane districts to determine the feasibility of developing ground water sources. These projects will examine the possibility of providing primary water supplies such as protected wells or boreholes for basic domestic use by rural communities and for water for livestock. In areas where ground water is not available, water will be provided from a treated surface supply through piped water systems.

The projects also include provision of water for irrigation schemes in the form of small, medium and large dams. Some of the large dams will have a dual purpose in that they will provide water for industrial, mining and rural resettlement service centres.

About 25 per cent. of the land in the Province is fertile and thus has potential for cultivation but cannot be used due to insufficient water, particularly in areas north of Lupane. The Tsholotsho irrigation scheme, which is the largest of the eight communal land irrigation schemes in the Province, can be expanded from the current 573 hectares to 4 000 hectares if additional water were available.

The Silalabuhwa Dam on the Insiza River was built in 1967 with storing capacity of 23,4 million cubic metres and is used for irrigation. Inspection of the dam over the past two years has revealed potential weakness in the abutments. Thus, strengthening of the thrust zones will be done to ensure the safety and future serviceability of the dam.

A number of dams will be built during the Plan period and they will include:

Dam	*Cost* ($m)
Kalope	1,5
Lugwala	2,7
Silalabuhwa (strengthening)	0,25

MATEBELELAND SOUTH PROVINCE

The Province lies in the dry natural regions of the country and has shallow infertile soils. The development of water resources in the Province is a prerequisite to the exploitation of the mineral resources in the Province, improvement of agricultural production, establishment of industries based on

mineral resources, expansion of towns and the transformation of rural areas. Thus because of persistent droughts, water shortage has become the greatest constraint to overall development of the Provinces. A number of dams have already been built to alleviate the situation. Other dam projects to be undertaken during the Plan period are as follows:

Dam	*Cost* ($m)
Mangwe	3,8
Shashani	13,0
Siwaze	5,0
Madabe Raising	1,6
Hollin's Block	2,4
Sivule	0,72
Mayfair Gates	3,6
Shobi	37,4
Bert Knott	3,9
Mtshabezi	10,0
Mwanakaridza	21,5

MANICALAND PROVINCE

During normal years, Manicaland Province receives the highest rainfall in the country. The Province also has many perennial rivers. For these reasons, the Province has great potential for irrigation schemes, especially along the east and west banks of Save River. Communal wells and boreholes, piped water supply, irrigation schemes and dams have been constructed in the Province. However, this has not exhausted the potentital for further development of water resources. In this connection, Government will increase the rate of exploitation of these resources.

The primary water supply programme which is intended to provide safe drinking water for all communities will be pursued during the Plan period. The water supply programme will include installation of water supply systems at Growth Points and Service Centres. Twenty seven Growth Points and Service Centres and four Resettlement Centres will be serviced. A complementary programme which includes a three tier pump maintenance system will involve communities in the maintenance and rehabilitation of their water points. This is intended to reduce Government's responsibility for community water supplies as well as operating costs.

The dam projects which will be implemented in the Province during the Plan period include the following:

Dam	*Costs* ($m)
Osborne	49,0
Chitowe	150,0

MIDLANDS PROVINCE

About 99,0 per cent. of the Province lies in Natural Regions III, IV and V. Surface water in the Province is not reliable. The main thrust of water resources development in the Province is therefore on the development of large-scale water supply systems and boreholes. The Province has several dams for irrigation purposes. There is, however, need to increase the number of water sources in order to increase agricultural activity. The following are dams under construction or planned for construction during the Plan period:

Dam	*Cost* ($m)
Biri	1,4
Hama	4,94
Insukamini	5,57
Sadza Raising	0,15
Modi Mataga	9,0
Swenoro Dam Raising	13,2
Murezu	2,5
Mtanke	4,0
Sungai	1,5
Musipane	1,92
Lower Damba	2,45
Hozori	10,0

MASVINGO PROVINCE

The Province lies in low rainfall areas. There are few perennial rivers in the Province. Groundwater provides most of domestic water supply in communal areas. The geology is unfavourable for good borehole water yield.

During good rainy seasons, sufficient water is available for domestic use in communal areas. In order to make certain that adequate supplies of water are available, additional water sources will be built. Emphasis will be placed on drilling of wells for domestic water supplies in communal areas because of their low unit cost.

The major dams to be constructed in the Province during the Plan period are listed in the table below.

Dam	*Cost* ($m)
Manyuchi	38,0
Mushwe/Mashava	6,35
Roswa	1,5
Neshuro	0,3
Mbindangombe	1,3

TOURISM

Tourism is not only an earner of foreign currency and a sector with great potential for increasing employment; it is also a source of national pride. During the Plan period, Government, thorugh the Zimbabwe Tourism Development Corporation (ZTDC), will develop tourism for the local people and foreign visitors. Z.T.D.C. also intends to establish its offices in all the Provinces. It will also increase its capital investment so as to expand as well as improve facilities in the sector.

The investment programme for the tourism sector is estimated at $33,643 million for the Plan period. Table 25 below provides details on the investment programme for the sector.

TABLE 25

TOURISM: CAPITAL EXPENDITURE 1986/87 — 1990/91 ($'000)

	1986/87	1987/88	1988/89	1989/90	Cumulative 1986/87–1989/90
Purchase of:					
Rainbow Hotel	—	1 150	—	—	1 150
Mtirikwi Lakeshore Lodge	—	390	—	—	390
Hunting equipment	—	0	1 000	—	1 000
Hotels					
A'Zambezi	250	—	—	—	250
Ambassador	100	—	—	—	100
Tours Operation	120	340	300	300	1 060
Office and training equipment	77	—	—	—	77
Hotel and Conference Centre	—	193	—	—	193
Expansion of:					
Christmas Pass Hotel	—	100	—	—	100
Victoria Falls Conference Centre	—	—	—	2 000	2 000
Construction of:					
Hot Springs Resort	—	—	100	—	100
300 Room Hotel, Harare	—	—	10 500	6 000	16 500
50 Room Hotel, Kariba	—	—	—	3 000	3 000
Chalets and Lodge, Kariba	—	—	700	—	700
Binga Hot Spring Complex	—	—	—	1 000	1 000
Victoria Falls Office Building	—	—	23	—	23
Joint Venture projects	—	—	2 000	2 000	4 000
Accommodation in National Parks	—	—	1 000	1 000	2 000
TOTAL	547	2 173	15 623	15 300	33 643

TRANSPORT

DEVELOPMENT OBJECTIVES AND STRATEGIES

During the Plan period, Government will improve the efficiency of the transport system as well as expand the system. In addition, current efforts at reducing the country's dependence on South Africa for external trade will be intensified. These include the on-going rehabilitation and upgrading of the Beira Corridor which is Zimbabwe's most economical route to the sea.

MODES OF TRANSPORT AND DEVELOPMENT PROGRAMME

Zimbabwe has four modes of transport, and these include railway, road, air and water transport. Optimum use of the railway transport for the long distance movements of bulk goods will be encouraged, since it is the most economical and fuel efficient mode of transport. During the Plan period, Government will construct harbours along Lake Kariba and between Kariba and Sibankwazi as part of the programme for improving water transport. This will facilitate development of the region along the Zambezi River.

Facilities of the National Railways of Zimbabwe will be improved to enable the system to cope with increasing demand for transport services. The programme will cost about $296,4 million. Government will also examine ways and means of improving the financial position of the National Railways.

With respects to roads, considerable progress has been made in the construction of all weather national highways. While the primary road network is nearly complete and is, on the whole, of acceptable standards, the majority of secondary and feeder roads are still sub-standard gravel roads or tracks.

High transport costs and shortage of bus and road haulage service in many rural areas inhibit economic and social development in these areas. In order to improve the situation, Government will embark on a rural road construction programme which includes improvement of existing roads and construction of new ones.

About 85 per cent. of the fund for Road Development for the period 1986–1990 will be spent on improving secondary and feeder roads. This is in line with Government's thrust on rural development. The programme also includes improvements and construction of bridges.

Approximately $295,9 million will be spent on road construction during the Plan period. The main problems in air transport are inadequate capacity at both Harare and Bulawayo International Airports and the outdated fleet of the National Airline. During the Plan period, efforts will be made to expand the capacities of these airports and new aircraft for domestic, regional and international flights will be purchased. An estimated amount of $37,5 million will be spent on the improvement of Air Zimbabwe facilities and about $32,1 million will be spent on improvement of Civil Aviation facilities. Efforts will be made to improve and modernise the Department of Meteorological Services. The programme will cost about $8,0 million.

Table 26 over-leaf gives details of capital expenditure for the improvement of the transport system.

MASS COMMUNICATION AND INFORMATION

DEVELOPMENT OBJECTIVES

In accordance with Government efforts to accelerate development, especially in rural areas, production and dissemination of information on development is of vital importance. In this regard, Government will aim at attaining the following objectives in the communication and information sub-sector:

(a) re-orientation in the organization and dissemination of information in order to promote the new social order as pronounced in National Development Plans and other policy statements; and

(b) contribution to the goal of equity through intensification and expansion of the information infrastructure in order to reach the remotest communities in the country.

TABLE 26

TRANSPORT: CAPITAL EXPENDITURE: 1986/87–1990/91 ($'000)

Subsector	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
National Railways						
1. Permanent way	—	10 862	8 511	10 222	118	29 713
2. Plant machinery and equipment	1 500	8 943	9 470	2 000	600	22 513
3. Traffic and operating	1 200	5 880	5 077	4 252	2 190	18 599
4. Vehicle RSM	3 373	4 470	7 314	6 810	8 754	30 721
5. Locomotive and rolling stock	500	8 255	12 613	13 080	143 956	178 404
6. Buildings	—	3 219	6 199	5 474	1 602	16 494
SUB-TOTAL	6 573	41 629	49 184	41 838	157 220	296 444
Roads						
1. Building and maintenance of depots	1 750	3 656	1 146	2 000	—	8 552
2. Primary roads	14 130	5 073	6 850	5 400	—	31 453
3. Secondary roads/bridges	50 080	46 790	9 000	6 700	58 710	171 280
4. Feeder roads	40 010	0	12 550	13 450	11 710	77 720
5. Bridges	1 450	5 285	—	200	—	6 935
SUB-TOTAL	107 420	60 804	29 546	27 750	70 420	295 940
Rural Road Prog (DDF)						
1. Road improvement and new construction	1 635	9 775	11 250	12 930	6 120	41 710
2. Vehicles and equipment	2 510	2 546	9 521	4 265	2 132	20 974
3. New aircraft	—	—	2 025	864	—	2 889
SUB-TOTAL	4 145	12 321	22 796	18 059	8 252	65 573
Air Zimbabwe						
1. New Aircraft (buying)	15 000	—	—	—	—	15 000
2. Equipment replacing	6 235	259	630	3 200	—	10 324
3. Furniture and fitting	2 601	—	683	70	95	3 449
4. Buildings programme	2 404	220	2 068	3 000	—	7 692
5. Motor vehicles	671	—	130	90	100	991
SUB-TOTAL	26 911	479	3 511	6 360	195	37 456
Civil Aviation						
1. New Aircraft (buying)	150	—	—	—	—	150
2. Plant and equipment	438	385	5 038	5 390	2 703	13 954
3. Operation facilities	700	715	1 018	2 354	4 824	9 611
4. Building programme	2 728	50	191	116	5 195	8 280
5. Minor works	—	16	18	19	20	73
SUB-TOTAL	4 016	1 166	6 265	7 879	12 742	32 068
MET Service						
1. Equipment modernization programme	—	—	7 113	40	40	7 193
2. Building programme	244	109	207	188	144	892
SUB-TOTAL	244	109	7 320	228	184	8 085
Water Transport						
1. Harbour construction	—	—	150	—	—	150
2. New boats	—	—	1 500	1 000	—	2 500
SUB-TOTAL	—	—	1 650	1 000	—	2 650
GRAND TOTAL	149 309	116 508	120 272	103 114	249 013	738 216

DEVELOPMENT PROGRAMMES

The programme below is aimed at promoting the objectives stated on page 39.

Rural Information Services

The rural information service is designed to promote Government objectives in rural areas by providing information on development through various media such as mobile cinema and film production units, television and video cassettee recorders, rural newspapers and rural communication centres. This programme will provide information aimed at educating the masses in rural areas and will also provide knowledge and skills to the masses which are essential for self-reliance.

Press and Communication

The improvement of press and communication system which will be implemented in rural areas during the Plan period will go a long way towards improving Government Public Relations Services. Dissemination of information among the masses will be intensified through publication of Government literature such as magazines, booklets, posters and leaflets.

Government will improve the foreign information service during the Plan period in order to project the correct image of Zimbabwe, monitor and assess policies as reflected in foreign media and to enable Government to take corrective measures where necessary.

Because information from both local and foreign sources needs to be processed and analysed in order for the information to produce intended results, Government will continue to improve the research and documentation service to enable it to carry out these functions efficiently.

Table 27 and 27a over-leaf show the planned capital expenditure for the subsector.

TRADE

DEVELOPMENT OBJECTIVES

Internal trade is largely controlled by the private sector. Government's involvement in the sector is through its parastatals such as those in the non-agricultural and mining sectors as well as in regulating the operations of the sector. The regulations are concerned primarily with price and import controls, quality control and consumer protection.

The development objectives of the sector during the plan period include expansion of wholesale and retail outlets in rural and high density urban areas as well as making the price control system more efficient. Banking institutions will be established in rural areas to facilitate trade and overall development.

DEVELOPMENT PROGRAMME

In order to attain the above objectives, Government will promote trade in rural areas through SEDCO. In addition, Government will establish the State Trading Corporation which will carryout both export and import transactions. The Corporation (STC) will be involved in the procurement of goods from local and overseas suppliers as well as in the distribution of goods in the local market at wholesale and retail levels.

Table 28 over-leaf gives details on capital expenditure for the development of the sector.

CONSTRUCTION AND HOUSING

DEVELOPMENT OBJECTIVES AND STRATEGIES

The objectives of Government for the construction and housing sector during the Plan period include containing the cost of construction in order to make housing more affordable by the majority of the people. This will be done through encouragement of architects and builders to produce more cost-effective building designs and techniques; encouraging employers to provide better quality housing, particularly in mining and commercial farming areas; promotion of better housing in communal and resettlement areas; and promotion of better sanitary and other services in existing towns, Growth Points and District Service Centres.

TABLE 27
MASS COMMUNICATION AND INFORMATION: CAPITAL EXPENDITURE
1986/87–1990/91 ($'000)

Projects	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
1. Mobile cinema and film production	—	—	370	370	150	890
2. Rural electronic media	450	430	320	320	320	1 840
3. Rural newspaper	—	—	927	927	927	2 781
4. Government public relation office	—	—	41	—	—	41
5. Production of Government literature	—	—	20	—	—	20
5. Communication Centre Project	—	—	183	183	183	549
7. Foreign Service information	—	—	29	29	29	87
8. Research and documentation	—	—	166	167	167	500
9. State occasion and specialist service	120	114	572	361	360	1 527
TOTAL	570	544	2 628	2 357	2 136	8 235

TABLE 27a
ZBC AND PTC CAPITAL EXPENDITURE, 1986/87–1990/91 ($'000)

Project	1986/87	1987/88	1988/89 –1990/91	1989/90	1990/91	Cumulative 1986/87–1990/91
Zimbabwe Broadcasting Corporation (ZBC)						
Land and building	700	2 360	—	—	—	
Equipment	4 590	230	—	—	—	
Transmitters	828	130	—	—	—	
Other	675	1 734	—	—	—	
SUB-TOTAL	6 793	4 454	13753			25 000
Post and Telecommunication (PTC)						
TELECOM SERVICE						
Land and building	4 167	8 694	—	—	—	
Plant			—	—	—	
Cash purchases	19 501	21 438	—	—	—	
Loans	41 189	33 230	—	—	—	
Capitalised labour and overheads	4 100	4 510	—	—	—	
Capital exch loss	6 000	5 400	—	—	—	
Transport	2 166	1 974	—	—	—	
Housing	605	744	—	—	—	
Office equipment	101	191	—	—	—	
POSTAL SERVICE						
Land and building	2 597	2 990	—	—	—	
Plant	193	293	—	—	—	
Transport	91	307	—	—	—	
Housing	793	1 051	—	—	—	
Office equipment	199	275	—	—	—	
ADMINISTRATION						
Land and building	1 799	3 132	—	—	—	
Stores plant	226	149	—	—	—	
Transport	0	495	—	—	—	
Housing	0	0	—	—	—	
Office equipment	2 260	2 417	—	—	—	
Minor works	310	374	—	—	—	
SUB-TOTAL	86 297	87 664	214 039	—	—	388 000
Radio equipment system for Ministries	—	—	10 000	—	—	10 000
GRAND TOTAL	93 090	92 118	237 792	—	—	423 000

TABLE 28
CAPITAL EXPENDITURE ($'000)

Projects	1986/87	1987/88	1988/89	1989/90	Cumulative 1986/87–1990/91
Trade measures offices	380	120	—	—	500
SEDCO	126	2 974	7 495	6 820	17 415
Loans funds for issue	723	1.880	—	—	2.603
State Trading Corporation	—	88	139	85	312
Export Promotion Authority	—	—	—	—	—
Scale testing equipment	—	—	—	—	—
TOTAL	1 229	5 062	7 634	6 905	20 830

The objectives stated above call for concerted effort on the part of central government, local authorities and the private sector in the provision of housing. Local authorities and central government will create conditions necessary to stimulate private sector activity in the housing and construction sector. The national goal of constructing between 75 000 and 100 000 housing units over the Plan period requires mobilization of much more resources for housing construction than the rate at which the country has been investing in the sector.

The strategy for alleviating the huge housing backlog over the Plan period includes the following: mobilization of funds by the public and private sectors for use in construction of houses; and encouragement of Building Societies to play a greater role in the provision of low-cost housing through tax free facility on specified investments.

The housing tax rebate on houses built for employees should encourage employers to embark on programmes for housing their employees. The use of family savings in house construction will be encouraged in order to promote self-reliance and to ensure affordability of houses by low income families. Home ownership will be the major form of tenure with a small percentage of houses reserved for rental. All houses will be required to meet the legal minimum building standards. Government will channel a significant proportion of external aid (Grants) into the housing programme, particularly for the low-income segment of the population.

The Housing Development Corporation which will be established during the Plan period will finance, construct houses and manufacture building materials. The corporation will be complemented by the Building Research Institute which will also be established during the Plan period to carry out research in local building materials cost-saving designs and building methods.

Tax exemption for specified investments in growth points is expected to attract industries to growth points. This should reduce the rate of rural-to-urban migration, thus reduce the magnitude of the housing and recreation problems being faced by major urban centres.

Because of the self-help approach for the greater part of the housing programme, small contractor employment will be increased in the planned housing projects.

The sector is expected to employ 52 000 workers by 1990.

INVESTMENT PROGRAMME

The total five-year investment programme for the housing and construction sector amounts to about $1 178 million.

Table 29 below gives a summary of the investment programme for the sector.

TABLE 29

CAPITAL PROGRAMME: CONSTRUCTION AND NATIONAL HOUSING 1986/87—1990/91
($'000)

Programme	1986/87	1987/88	1988/89–1990/91	Cumulative 1986/87–1990/91
Miscellaneous works	1 626	3 819	5 604	11 049
Civil Service Housing	3 456	11 479	198 483	213 418
Government Offices	4 498	14 759	140 679	159 936
Urban Housing	32 730	61 763	167 924	262 417
Rural Housing	4 123	5 000	201 102	210 225
Urban Development	18 769	22 134	171 700	212 603
TOTAL	65 202	118 954	885 492	1 069 648

GOVERNMENT CONSTRUCTION

Government investment in the construction programme for the Plan period is estimated at $384,4 million. The programme is designed to improve working facilities at Government establishments countrywide, and Civil Service accommodation, mainly for outlying areas in Provinces to facilitate decentralization of administrative services. Another important aspect of the programme is provision of office space in the main centres and in Provinces.

NATIONAL HOUSING

The national housing development programme is intended to alleviate the housing shortage which exists throughout the country. It will at the same time help improve the quality of housing in some of the older parts of urban areas and in rural areas.

Housing loans to local authorities during the Plan period will amount to about $262 million. This amount includes loans for new houses and for upgrading older houses. Investment in Rural housing is estimated at about $210 million over the Plan period. The programme includes rental housing in growth points and loans for housing in resettlement and communal areas. Appropriate loan recovery mechanisms will be established and villagisation will be stepped up to allow for a faster rate of implementation of the rural housing programme.

URBAN DEVELOPMENT

The urban development programme which amounts to about $212 million for the Plan period includes local authority programmes in the areas of water supply schemes, sewerage works, urban road development, growth point infrastructure, Urban Development Corporation and local authority buildings.

The provision of economic infrastructure at growth points is intended to attract both public and private sector investment, thereby increasing employment opportunities for rural youths and at the same time spreading the benefits of development to rural areas.

Of particular importance is the construction of workshop units and warehouses at growth points, district and rural service centres, as well as the conversion of existing disused buildings into workshops of various sizes in secondary towns. This programme is intended to facilitate the development of light and small-scale industries. Local authorities, together with the Urban Development Corporation will spearhead the construction of these workshop units and warehouses.

An important condition that should be fulfilled in the implementation of these programmes and projects is the use of local raw materials and local labour, where feasible.

Government will strengthen the capacity of the Urban Development Corporation which will assist and give guidance to Government on the implementation of planned urban development programmes and provide technical and professional support to Local Authorities. Local Authority/Private Sector partnerships in industrial development will be encouraged.

The Urban Development Corporation will also complement efforts by other public enterprises, particularly SEDCO, in the establishment of small scale manufacturing enterprises at growth points by ensuring that the required planning and infrastructure are in place in advance of the establishment of industrial estates. In order to encourage commercial development, the Corporation, in partnership with private sector or local authorities, will provide premises such as factory buildings and shopping complexes in urban centres, growth points, district centres and secondary towns.

Another important aspect of urban development is urban transport which is essential for the establishment of an efficient urban system. In order to improve urban transport in Harare, Government will establish an integrated rail and bus transit system between Chitungwiza and Harare and a number of suburbs. Preparatory work, including feasibility studies, have been completed. Detailed designs will be commissioned soon.

TABLE 30
URBAN DEVELOPMENT CAPITAL PROGRAMME 1986/87 — 1990/91 ($'000)

Project	1986/87	1987/88	1988/89–1990/91	Cumulative 1986/87–1990/91
Buildings (Workshops units)	—	—	3 000	3 000
Miscellaneous Works Growth Points and Services	—	2 050	3 792	5 842
Centre Infrastructure	—	3 000	43 369	46 369
Water Schemes	6 558	6 079	33 024	45 661
Sewerage Works	2 118	5 612	5 881	13 601
Urban Roads	—	750	1 634	2 384
Community Facilities	8 207	1 643	8 703	18 553
Plant and equipment	—	1 000	21 852	22 852
Epworth upgrading	1 896	2 000	17 945	21 841
Rapid Rail—Transit System	—	—	32 500	32 500
TOTAL	18 769	22 134	171 700	212 603

COMMUNITY DEVELOPMENT AND SOCIAL WELFARE

COMMUNITY DEVELOPMENT

In the next five years, Government will continue to mobilize the people and create awareness among them on issues related to development to enable them to participate meaningfully in all aspects of development. This entails development of adequate social and economic infrastructure. Some of the necessary infrastructures are outlined below.

(i) Assist in the establishment of two medium-scale income generating self-help projects in each District at a cost of $20 000 per project. The programme consists of upgrading existing projects as well as establishment of new ones.

(ii) Provision of assistance in the graduating of projects from pre-cooperative to cooperative status will continue. Emphasis in this area will be placed on food processing projects, cooperative marketing centres and transport ventures. Government will give assistance to one such project in each ward;

(iii) Establishment of one national Handicraft Centre and a handicraft Development Centre in each Province;

(iv) Establishment of an Embroidery Centre at Glen View and one in each Province;

(v) Establishment of a model Development Centre per Province at a cost of $1 million each;

(vi) Intensification of community participation in primary health care, pre-school education and adult literacy programme; and

(vii) Enhancing people's participation in Community Development projects through promotion of self-help organization.

WOMEN'S ADVANCEMENT

Women's effective participation in development is one of the key factors in national development. In this regard, Government will implement the following projects as a strategy for integrating women into the development process:

(i) Establishment of the headquarters of the National Women's Council in order to strengthen its institutional and organizational capability;

(ii) Strengthening the role and work of women in Rural Development;

(iii) Rural Development Demonstration Project for Women; and

(iv) Expanding the National Training Centre for Women and Roger Howman Training Centre to provide skills training in a variety of skills.

SPORT AND CULTURE

Government has established a Sport and Recreation Council whose primary function is to coordinate all sporting associations in the country. The Council will work closely with Provincial and District Sport Councils in identifying talented youths through trial competitions.

In addition, Government will establish a National Library and Documentation Service Centre as part of the programme aimed at promoting culture. Culture houses which include museums, art galaries, libraries and recreation halls will be established in all districts.

SOCIAL WELFARE

During the Plan period Government will continue to promote institutional development in the areas of employment and prices/incomes, and improve the effectiveness of programmes in areas such as labour relations, remand homes and trade union activities.

Employment Councils

Although minimum wage controls will still be in force, Government will encourage establishment of Employment Councils in Industry and Commerce as a means for promoting and improving collective bargaining between employers and employees.

Trade Unions

As an ongoing exercise aimed at improving the administration of trade unions, Government will introduce the check-off system for all registered trade unions. The objective is to increase participation by workers in trade union activity and also to make the trade unions financially viable and responsible.

The Labour Relations Act

Government will review the Labour Relations Act to ensure its effectiveness in order to achieve a greater balance between rights and responsibilities as well as enhance worker participation in management.

Prices and Incomes Board

During the Plan period Government will establish a Prices and Incomes Board whose functions will be as follows:

(i) formulating a comprehensive national prices and incomes policy in line with the National Development Plan. The policy will be flexible to accommodate unpredicable changes in economic activity;

(ii) determining minimum and maximum salary and wage levels in the economy which will serve as a basis for collective bargaining agreements;

(iii) developing control mechanisms for increases in prices and incomes; and

(iv) reviewing trends in non-wage incomes such as interest rates, profits and dividends.

Child Welfare

Child Welfare has become an important aspect of social development in Zimbabwe. This is an indication of Government intention to accelerated social development as it relates to the family and the child. In this connection, Government will provide legal protection, food and shelter for children who fall in this category.

Refugee Programme

Zimbabwe will continue to give shelter to refugees. Plans are underway to purchase a farm on which refugees will be settled. This will enable refugees to engage in self-help projects in order to reduce the cost borne by Government.

Remand Homes

Government will expand remand home facilities during the Plan period. Blue Hills will be expanded at an estimated cost of $500 000. New remand homes will be built at Chinhoyi and Masvingo. This should help prevent crowdedness in existing facilities. A transit centre for people in distress will also be built.

Table 31 below gives details of the projects and programmes to be implemented during the Plan period.

TABLE 31

COMMUNITY DEVELOPMENT AND SOCIAL WELFARE: CAPITAL EXPENDITURE ($'000)

	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Village Development Committees Centres	750	—	5 000	2 000	1 000	8 750
National Library and Documentation Centres	—	—	19 586	16 861	12 343	48 790
National Sports Stadium (Completion)	15 900	2 000	—	—	—	17 900
Pre-schools—	0,4	35,5	0,4	—	—	36,3
Literacy Warehouses	—	1 500	1 100	—	—	2 600
National Women's Council	—	250	—	—	—	250
National Handicraft Centre	—	800	—	—	—	800
Glen View Embroidery	—	35	—	—	—	35
Roger Howman	—	—	300	300	400	1 000
Masvingo Remand Home	—	—	90	500	500	1 090
Hwange Remand Home	—	—	200	700	600	1 500
Blue Hills Remand House	—	—	100	400	—	500
Chinhoyi Remand House	—	—	90	500	500	1 090
Transit Centres	—	250	—	—	—	250
Ruwa Rehab. Centre electrification	—	50	—	—	—	50
Ruwa Agric. Farm	—	—	400	200	—	600
Orthepaedic W/S	—	100	—	—	—	100
Refugee Program	—	—	90	450	700	1 240
TOTAL	16 650,4	5 020,5	26 956,4	21 911	16 043	86 581,3

* Some of the programmes/projects are not included in the table; they have been incorporated into relevant chapters.

HEALTH

DEVELOPMENT OBJECTIVE

The primary development objective of Government in the health sector is to provide adequate health services for all. In implementing this objective, emphasis will be placed on the eradication of communicable diseases and malnutrition. Malnutrition is a major health problem, especially in rural areas where the diet is not balanced. Communicable diseases are a result of unsanitary living conditions and lack of protected water supply. The main strategy for implementing the objective of the sector is Primary Health Care (PHC). The Private Health subsector which has expanded since independence will also play an important role in implementing this objective. Non-Governmental organizations (NGO's) in the health sector will continue to receive aid in the form of salary and drug expenses.

INVESTMENT PROGRAMMES

The programmes and projects to be implemented in the sector are outlined below.

Rural Health Centres

This is a continuing programme which is central to the development objective of the sector and the target is to establish 316 centres. In addition to the centres which have already been built, 93 will be built during the Plan period at an estimated cost of $18,6 million.

Hospitex and Provincial Medical Stores

The programme is estimated to cost $3,25 million. Of this amount $2,4, million is for maintenance of equipment, workshops and improvement of existing facilities in order to accommodate new equipment in Midlands, Masvingo and Manicaland Provinces. The remainder of the funds will be used for building provincial medical stores in Mutare, Masvingo and Gweru.

Mental Hospitals—Ingutsheni and Ngomahuru

The programme for improving facilities which are sub-standard in these two hospitals will be continued. However, neglect of these hospitals was prolonged and as a result the deterioration is now so extensive that additional funds are required to raise them to acceptable standards. The improvements will be completed by the end of 1987/88 at an estimated cost of $445 000.

Family Health

The Family Health Programme involves improvement and expansion of)the family health programme facilities in eight districts and 80 associated clinics within the districts in order to provide adequate family health programmes. The programme will enhance health services through provision of nutrition and family planning facilities. The district hospitals programme will include the following districts: Beitbridge, Gokwe, Karoi, Zaka, Nyanga, Mutoko, Pfura and Tsholotsho. The capital expenditure for the programme for four years is estimated at $43,4 million. In order to combat malnutrition, multipurpose centres will be constructed in every district where mothers will be taught basic nutrition for their children. The programme will cost $1,05 million.

Upgrading of Hospitals

Chinhoyi and Gweru hospitals will be upgraded to the status of provincial hospitals. This will cost approximately $15,0 million. Some work has already been done at Gweru and work on the walkways security fence and conversion of the medical records area is already underway. Upgrading of Chinhoyi hospital will depend upon availability of funds. In addition to upgrading the hospitals mentioned above, three additional district hospitals will be built in Chivi, Mudzi and Nkayi.

The estimated capital expenditure for hospital construction over a three-year period is $8,45 million.

Hostels for University Students

During the Plan period hostels for University medical students will be constructed at 10 district hospitals in the following five provinces: Midlands, Manicaland, Mashonaland Central, Mashonaland West and Mashonaland East.

The hostels will accommodate medical University students during their practical training. The hostels will be completed in 1987/88 at an estimated cost of $1,0 million.

Housing for staff is a major constraint in the sector and for this reason health personnel houses will be constructed in the districts at a cost of $3,0 million.

Hospitals Development

All rural hospitals will be improved through provision of items such as refrigeration for mortuaries. The programme will cost about $15,0 million and will be completed in 1989/90.

Rehabilitation

Rehabilitation villages are being constructed in all eight provinces. These villages are for patients discharged from hospitals but who are in need of physiotherapy and occupational therapy. This aspect of training prepares the patient to cope with everyday life.

The Marondera Rehabilitation Unit is a training school for Rehabilitation Assistants who work in these villages as well as for training similar personnel for the Army and NGO's (e.g. Jairos Jiri). The school will also train students from SADCC countries. Units for the mentally handicapped patients are planned for all district hospitals. The programme is estimated to cost about $4,0 million.

Table 32 below gives details on the capital expenditure for the sector.

TABLE 32

CAPITAL EXPENDITURE: HEALTH SECTOR 1986/87—1990/91
($'000)

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Rural Health (16) Centres	—	2 200	7 000	4 600	4 800	18 600
SUB-TOTAL	—	2 200	7 000	4 600	4 800	18 600
Hospitex Prov	1 480	530	446	—	—	2 456
Medical Stores in Mutare	—	40	257	—	—	297
Medical Stores in Gweru	—	40	267	—	—	307
Medical Stores in Masvingo	120	71	—	—	—	191
SUB-TOTAL	1 600	681	970	—	—	3 251
Ingutsheni Hospital Improvements	75	20	—	—	—	95
Ngomahuru Hospital Improvements	100	250	—	—	—	350
SUB-TOTAL	175	270	—	—	—	445
Family Health Projects	4 875	—	14 210	14 209	10 137	43 431
Multipurpose	—	—	526	526	—	1 052
SUB-TOTAL	4 875	—	14 736	14 735	10 137	44 483
Upgrading of Hospitals	1 200	200	20 595	14 570	5 210	41 775
SUB-TOTAL	1 200	200	20 595	14 570	5 210	41 775
University Students Hostel	100	900	—	—	—	1 000
District Houses for Health Personnel	2 200	1 000	—	—	—	3 200
SUB-TOTAL	2 300	1 900	—	—	—	4 200
Hospital Development	2 012	6 288	7 551	2 005	—	17 856
Dev. New Items etc.	—	—	45 066	45 067	45 067	135 200
SUB-TOTAL	2 012	6 288	52 617	47 072	45 067	153 056
Rehabilitation Villages	—	500	677	628	629	2 434
Marondera Rehabilitation village	400	600	—	—	—	1 000
Units for Mentally Handicapped	—	—	536	—	—	536
SUB-TOTAL	400	1 100	1 213	628	629	3 970
GRAND TOTAL	12 562	12 639	97 131	81 605	65 843	269 780

HUMAN RESOURCES DEVELOPMENT

DEVELOPMENT OBJECTIVE

The main objective of human resources development is the attainment of economic and social development goals which are spelt out in Volume 1 of the First Five-Year National Development Plan.

Since independence, human resources development has been expanding in all its forms. It must be pointed out, however, that the expansion that has been occuring in education did not put sufficient emphasis on the relevance of the education system to the requirements of society. To rectify the situation, curricula, in particular those for secondary school level, will be diversified and made more relevant to the needs of social and economic institutions. This will be done through introduction of a new content and structure of education that emphasizes acquisition of a variety of useful technical/vocational skills. This will be facilitated by the localization of examinations.

The education of children with special needs will be improved through a programme which will provide every primary school with teachers trained in special education.

Additional measures intended to improve the quality of education include the development and provision of more and appropriate equipment and materials and the decentralization of support services. Non-formal education will be expanded and the necessary facilities will be improved to ensure attainment of the objective of education for all, including adults, workers, and preschool children.

PROGRAMMES AND PROJECTS

The programmes and projects discussed below will be implemented during the Plan period.

Primary schools

During the Plan period student enrolment for primary education will grow at an average rate of 0,5 per cent. per annum. In accordance with the objectives of the education Act of 1987, attempts will be made to fulfill the objective of compulsory education at primary school level. Every local authority shall endeavour to establish and maintain tuition-free primary schools for children in their areas.

Table 33 below shows projected growth for primary school enrolment for the period 1986–1990.

TABLE 33

PROJECTED PRIMARY SCHOOL ENROLMENTS 1986 TO 1990

Grade	1986	1987	1988	1989	1990
1	350 209	372 839	392 000	402 000	410 000
2	312 171	317 353	338 165	355 544	364 614
3	313 809	302 645	307 515	327 682	344 522
4	317 963	304 653	291 144	295 829	315 230
5	332 821	309 556	292 467	270 499	283 996
6	341 653	325 591	299 960	283 400	270 834
7	289 714	329 757	324 289	298 760	282 267
Special	2 027	2 268	2 227	2 327	2 427
TOTAL	2 260 367	2 264 662	2 247 767	2 245 041	2 273 890

Secondary schools

Both Government and Non-Government Secondary Schools plan to expand educational facilities during the next five years. The average growth rate of enrolment will be 13,0 per cent. per annum, to accommodate a transition rate of about 80 per cent. between Grade 7 and Form 1. Government's objective is to ensure that as many pupils as can afford it will enter Secondary Schools.

The capital expenditure for the period 1987/88 to 1990/91 is estimated at $501,5 million. Tables 34 and 35 gives details on enrolment in secondary schools and the necessary capital expenditure. Allocations for the former ex-refugee schools are included.

TABLE 34
PROJECTED SECONDARY SCHOOL ENROLMENTS 1986 TO 1991

Form	1986	1987	1988	1989	1990	1991
1	169 566	207 072	263 806	259 431	239 008	225 813
2	141 469	153 578	203 759	259 585	255 280	235 184
3	125 945	136 085	146 206	193 978	247 125	243 027
4	96 671	116 234	123 942	143 721	190 681	242 924
L/6	6 516	6 560	9 182	9 791	11 354	15 064
U/6	5 335	5 865	4 972	6 960	7 422	8 606
Special	339	442	389	389	389	389
TOTAL	545 841	625 836	752 256	873 855	951 259	971 007

TABLE 35
SECONDARY SCHOOLS: CAPITAL EXPENDITURE 1987/8—1990/91 ($'000)

	1987/88	1988/89	1989/90	1990/91	Cumulative 1987/88–1990/91
Government Schools	17 011.0	93 311.7	117 069.7	123 042.0	350 434.4
Non-Government Schools	9 000.0	65 918.3	45 638.9	30 493.0	151 050.2
TOTAL	26 011.0	159 230.0	162 708.6	153 535.0	501 484.6

Teachers' Colleges

Teacher Training Colleges will increase student teacher enrolment by about 34,0 per cent. over the Plan period to cater for expansion which will continue at Primary and Secondary school levels. This will also reduce the proportion of untrained teachers in the service. The expansion will cost about $88,0 million.

A second Technical Teachers' College will be built at Chinhoyi to offer subjects largely similar to those offered at Belvedere Teachers' College. In addition, Cuba has offered Zimbabwe a teacher training degree programme in the technical and science fields. Students undergo a six-month induction period in Zimbabwe which gives them proficiency in Spanish before they proceed to Cuba where they will undergo a five-year training programme.

The duration of the teacher training programme in Zimbabwe colleges will be reduced from four to three years. The current ZINTEC programme will have run its course by April, 1988. In the period under consideration about 2 034 students will qualify through this programme in 1987 and a further 806 in 1988. It is proposed that a second and modified ZINTEC programme will start in May, 1988. The programme will be offered at Morgan and Gwanda Colleges. The course will be four years, with enrolment rising from 400 in 1988 to 2 000 in 1991. The first group will complete the course in 1992.

Tables 36 and 37 give details on enrolment in teachers' colleges and capital expenditure.

TABLE 36
PROJECTED ENROLMENT IN TEACHERS COLLEGES 1987 TO 1991

	1987	1988	1989	1990	1991
Primary School Teachers					
Mkoba	1 454	1 366	1 382	1 425	1 430
Mutare	1 407	1 490	1 493	1 505	1 527
Seke	1 407	1 328	1 359	1 365	1 450
UCE	1 538	1 559	1 581	1 597	1 650
Bendolfi	785	862	880	885	920
Morgenster	828	956	954	970	970
Nyadiri	600	782	830	852	870
Masvingo	311	661	1 031	1 431	1 470
SUB-TOTAL	8 330	9 004	9 510	10 030	10 287
Secondary School Teachers					
Belvedere	2 081	2 097	2 100	2 100	2 135
Gweru	1 674	1 613	1 643	1 700	1 705
Hillside	1 339	1 458	1 462	1 504	1 530
Mutare	224	425	575	735	800
Chinhoyi	0	0	400	800	1 200
CUBA	400	604	1 004	1 004	1 004
SUB-TOTAL	5 718	6 197	7 184	7 843	8 374
GRAND TOTAL	14 048	15 201	16 694	17 873	19 661

TABLE 37

TEACHERS' COLLEGES: CAPITAL EXPENDITURE 1986/87—1990/91 ($'000)

	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
All Colleges	1 500,0	2 036,0	49 765,5	20 350,3	14 849,3	88 501,1

Vocational Training Centres

Government plans to build additional vocational training centres which will incorporate trade testing facilities that are intended to advance semi-skilled persons. The total output of the centres is expected to increase by over six fold.

Initially, training was provided only to persons who were already employed in the trade in which the training was required. Belvedere will now offer training to four-year secondary school leavers who will be trained to be self-reliant and for subsequent employment. About $24,0 million will be spent on capital projects for the centres during the five-year period.

Tables 38 and 39 give details on projected enrolment and capital expenditure, respectively.

TABLE 38

PROJECTED ENROLMENTS IN VOCATIONAL AND TECHNICAL TRAINING CENTRES

	1986	1987	1988	1989	1990
Masasa and Westgate	610	4 174	4 426	4 626	4 620

TABLE 39

VOCATIONAL AND TECHNICAL TRAINING CENTRE: CAPITAL EXPENDITURE 1986/87—1990/91

	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Masasa	—	625	—	—	—	625
Belvedere	760	3 000	—	—	—	3 760
West Gate	—	182	1 183	—	—	1 365
Mutare	—	—	3 810	1 130	—	5 000
Masvingo	—	—	3 810	1 130	—	5 000
Kadoma	—	—	2 010	1 190	—	3 200
Gweru	—	—	3 810	1 130	—	5 000
TOTAL	760	3 807	14 623	4 760	—	5 000

Youth Training Centres

The Ministry of Youth Sport and Culture has 14 training centres which offer a variety of disciplines ranging from the Arts to Technical fields. Formerly, the courses were completed in two years. From 1987, most of the courses will take three years to complete. For this reason there will be no graduates from these centres in 1988. Tables 40 and 41 below give details on enrolment by course and projected output of training centres.

TABLE 40

ENROLMENT BY COURSE

	1987	1988	1989	1990	Cumulative Total
Building	330	—	272	309	911
Carpentry	230	—	238	177	645
Food and Nutrition	53	—	90	82	225
Clothing	97	—	91	102	290
Sheet metalwork	38	—	57	48	143
Fitting	21	—	39	24	84
Motor mechanics	20	—	38	24	82
Book keeping	112	—	64	100	276
Agriculture	56	—	77	112	245
Music	6	—	—	10	16
Fine Arts	3	—	—	10	13
Weaving	8	—	—	10	18
Leatherwork	11	—	25	24	60
TOTAL	985	—	991	1 032	3 008

TABLE 41

TRAINING CENTRE GRADUATES

	1987	1988	1989	1990	Total
Chaminuka	170	—	215	158	543
Mt. Hampden	44	—	—	50	94
Ruwa	—	—	20	—	20
Mt. View	17	—	17	15	49
Magamba	166	—	149	180	495
Mushagashi	30	—	—	20	50
Nyahoni	17	—	—	20	37
Kaguvi	171	—	191	159	521
Esigodini	48	—	50	50	148
Pangani	148	—	226	128	502
Ntabazinduna	31	—	34	42	107
Eagle	112	—	24	41	177
Nyanyadzi	51	—	42	61	154
Mashayamombe	—	—	—	25	25
TOTAL	1 005	—	968	949	2 922

Technical Colleges

The average annual growth rate of enrolment in technical College for the next five years will be about 12,0 per cent. and this will necessitate physical expansion of the colleges. Harare Polytechnic and Bulawayo Technical College both of which have introduced a degree programme require expansion and improvements on facilities such as furniture, laboratory equipment and student accommodation. The cost of the improvements and expansion is estimated at $10,0 million for Harare Polytechnic and $5,0 million for the Bulawayo Technical College. Capital expenditure for the Gweru Technical College will amount to about $8,0 million. Mutare Technical College which will specialize in training manpower in timber and food technologies has a capital expenditure of about $9,0 million. Additional teaching workshop and laboratory facilities for Kwekwe Training College will cost about $3,0 million. Masvingo Technical College will require about $15,7 million for a science workshop, administration block, engineering classrooms and other facilities. Chinhoyi Technical College which will train manpower in agricultural machinery has a capital expenditure of about $7 million for the five year period.

The capital development programme for the Natural Resources College is designed to provide permanent premises. The college was established to provide the necessary training and orientation for wild life and natural landscape conservation officers. This college, located at Mushandike in Masvingo, is currently producing about 19 rangers a year. The Zimbabwe College of Forestry is situated in Mutare and is designed to produce trained foresters and forest rangers for the forestry subsector in Zimbabwe and for the SADCC region. The college trains students to diploma level.

the following Tables 42 and 43 give details on the Technical Colleges discussed above.

TABLE 42

PROJECTED STUDENT ENROLMENT AND OUTPUT OF TECHNICAL COLLEGES: 1986—1990

	1986	1987	1988	1989	1990
Harare enrolment	2 790	3 239	3 854	4 206	4 707
Output	1 819	2 060	2 399	2 601	2 934
Bulawayo enrolment	6 290	6 344	6 512	6 582	6 682
Output	4 254	4 257	4 354	4 366	4 366
Gweru enrolment	897	1 554	1 938	2 634	2 970
Output	557	1 004	1 488	1 989	2 709
Kwekwe enrolment	1 240	1 248	1 278	1 278	1 278
Output	993	993	1 016	1 016	1 016
Masvingo enrolment	2 465	2 465	2 465	2 465	2 465
Output	1 605	1 605	1 605	1 605	1 605
Mutare enrolment	862	1 134	1 267	1 650	2 111
Output	614	852	1 125	1 524	2 000
Kushinga enrolment	304	490	550	640	730
Output	149	221	260	298	456
TOTAL ENROLMENT	14 848	16 474	17 864	19 455	20 943
TOTAL OUTPUT	9 991	10 992	12 247	13 399	15 086

TABLE 43

TECHNICAL COLLEGES CAPITAL EXPEIDNITURE 1986/87—1990/91 ($'000)

Colleges	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Harare	300	2 590	1 280	1 375	4 696,5	10 241,5
Polytechnic	—	430	2 195	1 820	860	5 305
Bulawayo	—					
Gweru	1 500	1 500	3 350	1 890,2	—	8 240,2
Mutare	2 554	4 768	1 972	—	—	9 294
Kwekwe	—	234	435	1 896	860	3 425
Masvingo	4 000	11 125	543	—	—	15 668
Chinhoyi	—	—	7 000	—	—	7 000
Kushinga	—	1 000	—	—	—	7 000
Natural Resources College Zimbabwe	490	100	391	—	—	981
College of Forestry			complete			
TOTAL	8 844	21 747	17 166	6 981,2	6 416,5	61 154,7

Agricultural Colleges

During the Plan period, agricultural colleges will concentrate on improvement of facilities. Student enrolment will increase minimally (0,57 per cent. per annum). About $11,8 million will be spent on improving and expanding these colleges. Tables 44 and 45 below give details on agricultural colleges.

TABLE 44

PROJECTED ENROLMENT OF STUDENTS IN AGRICULTURAL COLLEGE:1986—1990

College	1986	1987	1988	1989	1990
Chibero	120	120	120	120	120
Gwebi	80	80	100	120	120
Esigodini	200	200	200	200	200
Mlezu	300	300	300	300	300
Rio Tinto	120	108	108	108	108
Kushinga	155	155	155	155	155
TOTAL	975	963	983	1 003	1 003

TABLE 45
CAPITAL EXPENDITURE: AGRICULTURAL COLLEGES 1986/87—1990/91($'000)

Colleges	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Chibero	90	200	—	—	—	290
Esigodini	86	464	—	—	—	550
Mlezu and Kushinga	1 855	1 500	190	—	—	3 545
Gwebi	100	1 000	100	—	—	1 200
Rio Tinto	100	1 000	100	—	—	1 200
TOTAL	2 231	4 164	390	—	—	6 785

Technical Training Centres

There are four technical training centres in the country, three in the area of energy and one in forestry. Those in the area of energy include Hwange Training Centre, Harare Training Centre and Bulawayo Training Centre and they are all under the Zimbabwe Electricity Supply Authority (ZESA). The personnel trained at these Centres will hold senior management positions in the energy sector in the near future, thus reducing dependence of the sector on expatriate technicians.

Hwange Training Centre which was opened in 1984 is a joint-venture between Zimbabwe and the Electricite De France. The centre trains personnel specially for the Hwange Power Station.

Construction of the Harare Training Centre which is underway will be completed in 1986/87 at a cost of $11,0 million. The centre will train personnel for the entire electricity subsector. The Bulawayo Training Centre is at present training distribution electricians. In the future, it will also be responsible for upgrading semi-skilled personnel. This Centre will be upgraded to the level of the Harare Training Centre. The capital cost for the Bulawayo Training Centre for the Plan period is estimated at $1,5 million.

The Forest Industries Training Centre will be located in Mutare. Construction will start in 1988/89 and will take six years to complete at a cost of about $6,5 million. The Centre is intended to produce trainers of technicians and skilled workers for primary mechanical forest industries. The centre is expected to produce about 250 trainers of skilled workers and about 20 trainers of technicians for the SADCC region by 1990. Table 46 below gives details of the planned capital expenditure for the Centres.

TABLE 46
CAPITAL EXPENDITURE: TRAINING CENTRES 1986/87—1990/91($'000)

	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Training	850	1 000	700	425	1 290	4 265
Facilities	6 280	1 760	—	—	5 635	13 675
Equipment	1 709	159	—	—	3 574	5 442
Technical Assistants	7 560	2 410	4 875	7 465	8 808	31 118
Natural Resources						
Forest Industries Training Centre	—	—	3 283	1 235	1 948	6 466
TOTAL	16 399	5 329	8 858	9 125	21 255	60 966

Multi-disciplinary Health Training Schools

The establishment of these schools is essential for the successful implementation of Primary Health Care in rural areas. The target is to have one such training school per province. The courses provided take from 6 months to 3 years to complete.

Construction of the Gwanda school is complete with the exception of some improvements needed to meet the Health Professional Council requirement. These improvements include items such as additional beds, paediatrics and OPD. About $1,2 million will be spent to supplement the Bindura School's inefficient solar system with electrical heating and other improvements which were not included in the original contract. The Chinhoyi School will be built at a cost of about $3,0 million. Improvements and expansion of the Masvingo School will require about $3,0 million. Tables 47 and 48 below give details on health training facilities.

TABLE 47
PROJECTED NUMBER OF HEALTH PERSONNEL AND VILLAGE COMMUNITY WORKERS

	1986	1987	1988	1989	1990
Village Community Workers	—	7 000	8 667	10 334	12 000
Ward Community co-ordinators	—	450	967	1 484	2 000
State Certified Nurses	4 496	4 976	5 436	5 916	8 000
Health Assistants	552	600	658	718	430
TOTAL	5 048	13 026	15 728	18452	22 530

Note.—Village Community workers and Ward Community co-ordinators are now the responsibility of the Ministry of Community and Co-operative Development and Women's Affairs.

TABLE 48
CAPITAL EXPENDITURE MULTIDISCIPLINARY SCHOOLS 1986/87—199/91 ($'000)

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Gwanda				—		
Bindura	50	95	1 129	—	—	1 274
Chinhoyi	900	95	220	1 905	—	3 120
Masvingo	900	95	220	1 000	905	3 120
Others (3)	—	—	3 744	1 872	3 744	9 360
TOTAL	1 850	285	5 744	4 313	4 649	16 874

Implementation of Government's health policy will require not only a rapid increase in the number of health personnel but also introduction of major changes in the staffing structure. Government will develop a cost-effective health team with the correct proportions among the different health workers. In the implementation of the Primary Health Care (PHC) system, roles and responsibilities of doctors and nurses will emerge for which they must be adequately prepared. Therefore, revision of the curricula used in training doctors and nurses will be necessary to enable them to perform efficiently in rural areas. New categories of health workers as well as modification of the functions of some of the existing categories of workers will be introduced to support implementation of the PHC, especially at community level.

These changes call for substantive efforts in training. Development of appropriate personnel, including career structure, will also be required.

Table 49 below gives projected requirements for major health personnel.

TABLE 49
PROJECTED HEALTH PERSONNEL REQUIREMENTS

	1986	1987	1988	1989	1990	1991	Total
Doctors	394	611	690	—	765	765	3 225
Pharmacists	80	101	121	—	146	146	594
Radiographers	91	108	122	—	142	142	605
SRNs	2 593	2 903	3 233	—	3 583	3 583	15 895

THE PUBLIC SERVICE

Government plans to continue to equip civil servants with the necessary knowledge, skills and attitudes to enable them to execute their responsibilities efficiently. In this connection Government will upgrade existing training centres and construct new ones in order to provide the necessary training to civil servants and these centres are outlined below.

National Training Centre

The Centre caters for management training needs of senior civil servants. The proposed institution will be built near Lake Robertson in Darwendale at an estimated cost of $35 million.

Domboshawa Multipurpose Training Centre

The Centre needs upgrading (additional hostels, lecture rooms, staff houses) in order to increase the present student intake from 325 to 500. The upgrading will cost about $8,6 million.

Highlands Training Centre

The Centre offers courses for the administrative, financial and personnel groups of the civil service and has a capacity of 150 students per training period. Canteen facilities estimated at $60 000 will be built during the Plan period. This is intended to enable the centre to operate more efficiently.

Bulawayo Centre

This proposed centre will have courses similar to those offered at Highlands Training Centre. It will have an enrolment of about 300 students. The total cost of building the centre is approximately $8,5 million.

Provincial Training Centres

Rural development course programmes of Government and Non-Government Organizations are conducted at these centres. The existing 4 centres will be upgraded in order to increase student intake from 96 to 150. The upgrading will cost $2 730 000. In addition, four centres will be constructed at a cost of $28,8 million. Construction of these additional centres will complete Government's programme of establishing a centre in each of the eight provinces.

District Training Centres

These centres provide training facilities to user Government departments that run their own courses. The target group are the rural masses and as such the nature of the courses is varied. Government plans to build a training centre in each of the 55 districts in the country. Only four districts have such training centres (Murehwa, Mutare, Gwanda and Bikita).

Because of resource constraints, Government will build only 19 additional District Training Centres during the Plan period. The remainder will be built during the next five year plan period. The Public Service training centres will also cater for the following projected levels of Community Development multi-purpose extension staff:

(a) Village Community Workers—7 000 (1987), 8 667 (1988), 12 000 (1990);

(b) Ward Community Coordinators—450 (1987), 967 (1988), 1 484 (1989), 2 000 (1990).

Table 50 below gives details of the capital expenditure for the Public Service Training Centres.

TABLE 50

CAPITAL EXPENDITURE: PUBLIC SERVICE TRAINING CENTRES 1986/87—1990/91

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
ZIPAM	1 650	7 200	10 000	10 000	6 150	35 000
Domboshawa	1 582	800	2 073	2 073	2 072	8 600
Highlands	—	40	20	—	—	60
Bulawayo	—	200	4 000	4 000	380	8 580
Provincial Training Centres						
Upgrading	—	90	575	1 110	950	2 725
4 New Centres	1 800	2 700	7 100	10 950	5 900	28 450
District Training Centres						
Existing 4 Centres	200	280	800	600	600	2 480
New 19 Centres	1 500	—	1 000	—	—	2 500
TOTAL	6 732	11 310	25 568	28 733	16 052	88 395

University of Zimbabwe

In response to Government's objective of rapid and diversified human resources development, the University has introduced new degree courses and consequently student enrolment (part-time and full-time) will increase by about 53.0 per cent. during the Plan period.

In order to meet the teacher requirements of the new structure and content of education, the Bachelor of Education (Technical) and the Bachelor of Education (Science) degrees were introduced. These programmes will produce teachers in fields such as building, technical drawing, agriculture, mathematics and physics.

A new medical curriculum has been introduced which is intended to enable medical students and doctors to work with and educate the community. The University will assume the training of Medical Laboratory Technicians at degree level in 1988. This will replace the six-year Diploma course. In addition to diagnosing disease, the technicians will learn to operate equipment. A new Institute of Food, Nutrition and Family Sciences will also be established.

Expansion of the University is expected to continue in view of national requirements.

Table 51 below gives details on enrolment at the University. The required expansion will cost about $124 million. This amount includes the cost of a new Medical Sciences Centre, a 10 storey building to facilitate medical expansion. Three lecture theatres situated in the Centre will also help accommodate the additional student load. Table 52 gives details of the capital expenditure for the University.

TABLE 51
PROJECTED STUDENT ENROLMENT AT UNIVERSITY OF ZIMBABWE 1987—1990

Faculty	1987	1988	1989	1990	1991
Agriculture	289	312	337	325	370
Arts	1 052	1 121	1 233	1 451	1 621
Commerce and Law	1 317	1 433	1 562	1 388	1 450
Education	678	916	1 053	1 927	1 020
Engineering	389	485	558	630	693
Medicine	546	624	649	670	690
Science	499	630	794	1 298	1 455
Social Studies	1 022	1 248	1 372	1 413	1 546
Veterinary Science	90	104	121	153	167
TOTAL	5 882	6 873	7 679	9 255	9 012

During the Plan period Government will examine the possibility of establishing a second University. A commission has been established to look into this issue.

SCIENCE AND TECHNOLOGY

Volume 1 of the Plan states that the medium-term objective of science and technology as an instrument for socio-economic development is to develop and strengthen an endogenous scientific and technological capability with respect to human resources development institutions for technology production, information collection and dissemination. Thus, the long-term objective of developing and strengthening an endogenous scientific and tecnhological capability is to raise the living standards of the majority of the people by raising the productivity of labour, generate employment opportunities, bring about change in the productive structure of the economy and solve the balance of payments problem.

HUMAN RESOURCES DEVELOPMENT FOR SCIENCE AND TECHNOLOGY

Human resources development plays a decisive role in the creation and development of an endogenous scientific and technological capability. Zimbabwe has not yet achieved a satisfactory level of human resources development, but is in the process of doing so. Science and technical subjects have been made compulsory at secondary school level. A programme leading to a bachelor's degree in technology has been introduced at Harare Polytechnic and Bulawayo Technical College. In addition, the secondary school curriculum will be broadened to include a wide range of technical and vocational subjects which are oriented towards the manpower requirements of the production system. The University of Zimbabwe is also expanding its facilities for the science and technology degree.

The institutions which are currently engaged in the development of human resources for science and technology include the University of Zimbabwe (Faculties of Agriculture, Engineering, Medicine, Science and Veterinary Science), Agricultural Institutions, Technical Colleges and the Department of Apprenticeship in the Ministry of Labour, Manpower Planning and Social Welfare.

TABLE 52

UNIVERSITY OF ZIMBABWE: CAPITAL EXPENDITURE 1986/7—1990/91 ($'000)

	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
Residence Halls						
Phase 3	1 360	Complete	—	—	—	1 360
Phase 4	1 000	5 480	Complete	—	—	6 480
Residence Hall	—	—	3 564	3 564	—	7 128
Teaching equipment	500	2 530	3 000	3 000	3 000	12 030
Physics and chemistry	—	—	2 420	2 420	2 420	7 260
Health Science Centre	—	—	15 000	15 000	15 000	45 000
Buildings						
Engineering	300	Complete	—	—	—	300
Adminstration Block	800	Complete	—	—	—	800
Science	500	2 000	—	—	—	2 500
Architecture	—	—	1 000	415	—	1 415
Lecture Theatre	—	1 500	3 730	—	2 500	7 730
Extensions						
Geography	—	—	250	250	—	500
Agriculture	—	253	1 288	1 003	—	2 544
Physiology	—	—	270	—	—	270
Rural and Urban	420	to complete	—	—	—	420
Curriculum Study	140	220	—	—	—	360
Kitchens (Res.)	—	—	375	375	—	750
Law Library	322	to complete	—	—	—	322
Centre for Blind	—	350	—	—	—	350
Teaching and Learning Centre	200	—	600	600	—	1 400
Food Nutrition and Family Science	—	—	2300	2 300	2 300	6 900
New Medical Curriculum	—	—	500	—	—	500
Vet Science Annual House (3)	—	—	315	315	315	945
Administration Offices and Council Chamber	—	—	542	542	542	1 626
Administration Computer (upgrade)	—	—	1 250	1 250	—	2 500
SITE (sewage, roads and electricity and water)	255	300	300	300	300	1 455
Staff Housing Revolving Fund	—	—	350	350	300	1 000
Kitchen equipment	—	—	340	340	340	1 020
Sports facilities	—	—	100	—	—	100
Computer Centre modification	—	—	30	—	—	30
Lake Kariba Res. St.	—	—	30	—	—	30
S.U. Alteration	—	500	500	—	—	1 000
Service Centre	—	130	2 576	2 576	2 576	7 858
Snr. Comm. Room	—	120	120	—	—	240
TOTAL	5 797	13 383	40 750	34 600	29 593	124 123

THE SCIENTIFIC COUNCIL OF ZIMBABWE (SCZ)

Efficient collection and proper dissemination of scientific and technological information plays an important role in putting science and technology to the service of the people. It is a prerequisite for endogenous technology production and for adapting imported technology to local conditions.

During the Plan period, the Scientific Council of Zimbabwe will continue to promote, direct and co-ordinate scientific and technological research activities to enable the scientific community to play a leading role in the enhancement of scientific and technological capabilities of the nation.

The Council is the primary adviser to Government in the area of science and technology. In this regard, the Council gives direction to the nation in priority areas for research in science and technology.

In seeking inputs from all sectors the Council will continue to consult with the private and public sectors in order to obtain a concerted national view.

INSTITUTIONS FOR TECHNOLOGY PRODUCTION

During the Plan period, Government will take appropriate measures to strengthen and develop institutions for technology production. Some of the measures will include Government funding and incentives for activities in the area of science and technology.

Agriculture

Agricultural research is conducted by a number of organizations in both public and private sectors, the most important of which are: the Department of Research and Specialist Services, Agritex, Department of Veterinary Services, Agricultural Research Trust, Pig Industry Board, Seed Co-op of Zimbabwe, Tobacco Research Board, the Cotton Research Institute, Zimbabwe Sugar Association and the University of Zimbabwe. Tables 54 and 55 below give details on the number of students under training in the fields of science and technology. Table 56 gives capital expenditure for agricultural colleges.

TABLE 53
PROJECTED ENROLMENT OF STUDENTS AT THE UNIVERSITY OF ZIMBABWE

Sector	1986	1987	1988	1989	1990
Agriculture	289	312	337	325	370
Engineering	389	485	558	630	693
Medicine	546	624	649	670	690
Science	499	630	794	1 298	1 455
Veterinary science	90	104	121	153	167
TOTAL	1 813	2 155	2 459	3 076	3 375

TABLE 54
PROJECTED ENROLMENT OF STUDENTS IN TECHNICAL COLLEGE

Department	1986	1987	1988	1989	1990
Civil Engineering	1 150	1 218	1 248	1 268	1 268
Automotive Engineering	312	320	450	500	600
Electrical Engineering	1 311	1 358	1 416	1 416	1 416
Mechanical Engineering	1 430	1 476	1 536	1 536	1 536
Applied Sciences	36	96	156	216	300
TOTAL	4 239	4 468	4 806	4 936	5 120

TABLE 55
PROJECTED ENROLMENT OF STUDENTS IN AGRICULTURAL COLLEGES

College/Year	1986	1987	1988	1989	1990
Chibero	120	120	120	120	120
Gwebi	80	80	100	120	120
Esigodini	200	200	200	200	200
Mlezu	300	300	300	300	300
Rio Tinto	120	108	108	108	108
Kushinga-Phikelela	155	155	155	155	155
Others	300	450	500	520	520
TOTAL	1 275	1 413	1 483	1 523	1 523

TABLE 56
CAPITAL EXPENDITURE FOR AGRICULTURAL COLLEGES ($'000) 1986/78 — 1990/91

Projects	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
1. Chibero Expansion	90	200	—	—	—	290
2. Esigodini Expansion	86	464	—	—	—	550
3. Improvement Mlezu and Kushinga-Phikelela	1 855	1 500	90	—	—	3 545
4. Gwebi Expansion	100	1 000	100	—	—	1 200
5. Rio Tinto improvement	100	1 000	100	—	—	1 200
6. Tar Mlezu Road	—	—	190	—	—	190
TOTAL	2 231	4 164	580	—	—	6 975

The research objective in the field of agriculture is to produce new knowledge and agricultural technologies which reduce production costs and increase output and crop diversification. Much work remains to be done in the area of high yielding and early maturing crops as well as irrigation technologies which save water and energy in order to cope with the climatic conditions of Natural Regions III, IV and V. There is also need to develop drought tolerant stock feed and crops for these regions. Perhaps the best way to deal with these problems is to establish a Department of Biotechnology at the University of Zimbabwe. A nucleus exists at the University for the establishment of such a Department.

During the Plan period, the Department of Research and Specialist Services will implement the following projects: A Cotton Pathology Laboratory, Sabi-Valley Experimental Station, Farming System-Animal Production, Goats Research, Sorghum, Millet and National Agricultural Extension and Research.

Cotton Pathology Laboratory

The research is aimed at controlling cotton diseases. Commercial and Communal farmers can grow cotton profitably provided cotton diseases are under control. Facilities at the Cotton Research Institute at Kadoma are inadequate and establishment of the cotton pathology laboratory would improve the situation.

Sabi Valley Experimental Station

This project entails the provision of equipment essential for carrying out agricultural research. The equipment for the Agronomy Institute will include portable leaf area meter, quantum sensor and hand-held digital thermometer equipment for the Coffee Research Station which include L1-6 000 portable photosynthesis system and equipment for vegetative propagation of coffee seedlings, temperature control unit and hand-held digital thermometer.

Farming System—Animal Production

The project aims at identifying opportunities and removing constraints so as to improve crop and livestock production in communal areas. It also includes training of Department personnel in farm research methodology. Trials have been undertaken in areas such as Murehwa, Chibi, Magunje and Karoi. Trials will spread to other areas during the Plan period.

Sorghum and Millet

Little work has been done on the breeding of these crops. The project at Matopos Research Station, therefore, aims at producing varieties of pearl millet and sorghum for communal farmers, mainly in Natural Regions III, IV and V.

Goat Research

The Matopos Research Station, in addition to its other research activities in drought tolerant crops, is currently engaged in goat research. The project aims at determining the potential for goat production for increased meat and possible milk production.

National Agricultural Extension and Research

The project encompasses national programmes for basic agricultural services such as extension and research. The objective is to increase the agricultural extension and research capacity.

Table 57 below gives details on the capital expenditure for the programme discussed above.

TABLE 57
CAPITAL EXPENDITURE: DEPARTMENT OF RESEARCH AND SPECIALIST SERVICES 1986/87 — 1990/91 ($'000)

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
1. Cotton Pathology Laboratory, Kadoma	—	130	50	40	—	220
2. Sabi Valley Experiment Station	100	100	100	—	—	300
3. Goats Research, Matopos	72	60	—	—	—	132
4. National Agriculture Extension and Research	1 000	500	500	300	—	2 300
5. Rio Tinto Improvement	100	100	100	42	—	342
6. Sorghum and Millet	50	50	40	18	—	158
7. Determination of Human Regard	23	23	—	—	—	46
8. Mid-Altitude Variety Testing Centre	—	500	200	400	500	1 600
9. Gwebi Variety Testing Centre	73	—	—	—	—	73
10. Botanic Garden Ablution Block	18	—	—	—	—	18
11. Expansion of SPRL, Marondera	173	—	—	—	—	173
TOTAL	1 609	1 463	990	800	500	5 362

Foot and Mouth Disease Typing Laboratory

The project is intended to make possible immediate virus typing following a Foot and Mouth Disease outbreak. The laboratory will also facilitate long-term research in the vaccination of cattle and that of wild ruminants and other susceptible animals in the epidemiology of the disease in the country.

Workshop for the Maintenance and Repair of Science and Technical Equipment

Regional laboratories lack adequate and timeous services of repair of their equipment and often do not have ready access to spare parts for laboratory equipment. The project, therefore, seeks to establish a national and regional workshop for the repair and maintenance of laboratory equipment. The workshop will also provide facilities for the training of technicians from SADCC member countries in the repair and maintenance of laboratory equipment. The project will establish a revolving fund for the maintenance of stores of laboratory equipment spare parts.

Provincial Laboratories

Laboratories will be located in Masvingo, Mutare and Gweru. Table 58 gives details on the capital expenditure for the Department of Veterinary Services.

TABLE 58

CAPITAL EXPENDITURE: DEPARTMENT OF VETERINARY SERVICES1986/87—1990/91 ($'000)

Project	1986/87	1987/88	1988/89	1989/90	1990/91	Cumulative 1986/87–1990/91
1. Foot and Mouth disease Typing Laboratory		120	30	—	—	150
2. Tick Research Laboratory		29	20	—	—	49
3. Veterinary Research Laboratory		900	246	—	—	1 146
4. Maintenance and repair of scientific and technical equipment workshop		—	200	400	100	115	815
5. Provincial Laboratories		91	—	—	—	—	91
TOTAL		1 140	496	400	100	115	2 251

The Department of Veterinary Services will accelerate the expansion of its services, especially the services it provides to communal farmers. Furthermore, SADCC has earmarked the Veterinary Laboratory as the reference laboratory for the region. The projects which will be implemented by the Department are discussed below.

The Institute of Agricultural Engineering which is a branch of the Department of Agricultural, Technical and Extension services is carrying out research into two major agricultural problems in communal areas, namely shortage of draught power and soil erosion. The thrust of research on soil erosion characteristics.

The Agricultural Research Trust, together with Wright Rain Africa are carrying out research into many applications of drip irrigation, a technology which saves water and energy. The cost of energy which is constantly rising and concern for the level of surface and subsurface water supplies which becomes inadequate during drought periods have necessitated the development of drip irrigation.

Manufacturing Industry

As stated in Volume I of the Plan the manufacturing industry is the key sector for changing the productive structure of the Zimbabwean economy as well as for achieving rapid and sustained overal economic growth and development. For the manufacturing industry to achieve the above, it is necessary to develop an endogenous industrial technological capability through research and development and through unpackaging of imported technology.

During the Plan period, therefore, Government will establish the Council for Industrial Research whose R and D activities will be demand oriented. The primary function of the Council will be to promote the development of an endogenous technological capability within the manufacturing industry, especially in the production of intermediate and capital goods which currently constitute about 78,8 per cent. of the country's total import bill.

The farm machinery and mechanisation section of the Agricultural Research Trust (ART), a private organization, undertakes research and development in agricultural machinery. ART carries out this work in conjunction with the Agricultural Dealers and Manufacturers' Association (ADMA). (ADMA used the facilities of ART for testing locally designed agricultural machinery and equipment.)

Research and development has also been going on in the transport industry. The research has focused mainly on import substitution for spare parts. In 1983, the Madza Group of Companies embarked on a programme of R and D and technological unpackaging intended to produce parts for Mazda vehicles. The organization has spent about $365 000 over the last two years on research and development. About 20 engineering firms are involved in research and development for the production of parts for vehicles.

The objective of the group is the creation of technological capability for the local production of motor vehicles. It must be mentioned that this objective is constrained by the small size of the local market. It is, therefore, necessary to find ways and means of expanding the local market and also examine the export potential for the vehicles in the SADCC countries.

In this connection, detailed techno-economic feasibility studies for the development of chemical industries based on coal, molasses and imported salt will be carried out during the Plan period. A feasibility study on the establishment of a Department of Chemical Engineering at the University of Zimbabwe will be carried out during the Plan period. The development of the chemical industry will be in line with Government's objective of establishing industries based on locally available natural resources. The country has some of the largest deposits of coal in the world and grows sugar cane which is the source of molasses. Only salt will be imported from SADCC countries (Botswana and Mozambique).

The coal-based chemical industry will produce ammonia for the fertilizer industry and for many feedstocks and for other chemical industries. Molasses will be used for the production of ethanol which is at present used as a fuel extender. In future, ethanol will also be used as a feedstock and for the production of ethylene which will be used in the manufacture of plastics.

The main constraint which could hinder the production of ethylene in large quantities for the manufacture of plastics is the non-availability of water needed to irrigate a large amount of additional land for sugar cane cultivation. This problem will be solved in the longterm by applying crop biotechnology to increase yields. At present the yields are 100 tonnes per hectare.

Because of Government's emphasis on the development of an endogenous technological capability in the manufacturing industry, it is therefore logical that the facilities of the Standards Association of Zimbabwe be improved to enable it to carry out its tasks effectively. In addition to its present functions which include formulation and publication of national standard specifications for products as well as publication of codes of practice, the Association can play an important role in facilitating technology transfer. After testing a given imported technology the Association can give advice on how the imported technology can be transferred through unpackaging. Because of the important role that the Association is likely to play in promoting the development of an endogenous technological capability, Parliament has passed a bill for the establishment of the Association's Development Fund. The fund will be raised through a levy which will be paid by industry and commerce, including the other productive sectors of the economy such as agriculture. The Fund will be administered by the Ministry of Industry and Technology.

The cost of improving the facilities of the Association in 1988/89 is shown in table 59 below.

TABLE 59

STANDARDS ASSOCIATION OF ZIMBABWE: ESTIMATED COST 1988/89

Purchase of land	23 000
CABS loan repayment	648 000
Building Fund	1 000 000
Salaries and wages	1 500 000
General expenditure	600 000
Purchase of equipment including vehicles	500 000
TOTAL EXPENDITURE	4 478 000

In order to promote the development of an endogenous industrial technological capability Government will abolish import duties for import of basic equipment, especially those used in the production of intermediate and capital goods. Industries that use locally available raw materials will be given priority. Government will also give tax holidays and protect local infant industries from foreign competition.

Forestry

The Research Division of the Forestry Commission is carrying out research into species suitable for afforestation, tree breeding, and seed production. In addition, the Division is involved in entomology and pathology research. In the past, research has been of immense value to commercial timber growing and harvesting.

During the Plan period greater emphasis will be placed on the development of suitable species for arid and semi-arid areas. To implement this programme $308 000 will be appropriated for the purchase of equipment in 1988/89.

The Division will also implement the following projects during the Plan period; dry zone afforestation, research on hardwoods, multipurpose trees and timber testing. The dry zone afforestation project will carry out research into the selection and management of forest trees for the semi-arid areas for fuel and agro-forest systems. This project is essential because it addresses the critical shortage of fuelwood being experienced in communal areas, especially, in the drier parts of the country. Activities to be carried out include extension of trail plots of various tree species.

The buildings, vehicles and equipment for the project will require approximately $250 000.

The project on research into hardwood is expected to cost $241 000. The project is aimed at investigating and establishing trials of potential hardwood trees for woodfuel, especially for arid and semi-arid areas. To date, a nursery has been established and trials on various species are underway.

The multipurpose trees project is aimed at carrying out research on farm trees in communal areas and also at encouraging farmers to integrate trees into their farming activities. This is a pilot project which is intended to complement the present rural afforestation project which has been emphasizing the woodlot approach.

The timber testing project is intended to initiate research into the properties of local softwood timber to provide design stresses for use by architects and engineers in order to promote the use of local timber. The project will also research into seasoning schedules and saw milling methods. The project will cost $1,035 million. Most of the funds will be used in the construction and equipping of a laboratory in Mutare.

Energy

In order for the country to achieve its objective of rural development in which agricultural development is at the centre stage, there is an urgent need to develop a technological capability for producing cheaper energy for use in rural areas.

During the Plan period, Government will examine the possibilities of developing a rural energization programme based on renewable resources. The programme will include biogas, wind and photovoltaic energy to produce a biogas wind and solar photovoltaic (BWS) system which will provide the rural population with cheaper energy for pumping water for irrigation and drinking purposes. This will also be used by small scale industries that process agricultural raw materials as well as for domestic lighting and cooking. Production of biogas also yields a slurry by-product which contains considerable quantities of nutrients which are rich in nitrogen, phosphorous and potassium. Production of biogas therefore reduces the amount of chemical fertilizers needed, thus reducing the cost of agricultural production incurred by rural people. Biogas technology is, therefore a linchpin in rural development.

Zimbabwe is totally dependent on imports for oil fuel. In order to reduce the bill of imported oil fuels, Government has initiated research into the manufacture of diesel extenders from agricultural by-products such as maize. In the production of cooking oil from maize, a lot of starch is produced, most of which is thrown away.

The Department of Energy in the Ministry of Energy, Water Resources and Development, in collaboration with National Foods Limited, is carrying out experiments aimed at producing diesel extenders from maize starch. The Department is carrying out tests on the following blends.

10% Butanol	90% Diesel
20% Butanol	80% Diesel
30% Butanol	70% Diesel
40% Butanol	60% Diesel

The purpose of these tests is to determine the best blend. The blend which will be finally adapted would save a significant amount of foreign currency in the near future. In addition to the butanol-diesel blend testing which is being conducted, Government also intends to examine the diesel ethanol-emulsifier blend testing during the Plan period.

Government will also establish an Energy Research Centre which will carry out research and development work on an energy system based on local natural resources.

Health

The most prevalent diseases in Zimbabwe are related to nutritional deficiencies and communicable diseases. Malnutrition is a major health problem, especially in communal areas where many children are undernourished. It is the single largest contributor to the high rate of maternal, infant and child mortality as well as morbidity. The main cause of malnutrition is the shortage of nutrients such as protein, fat, minerals and vitamins in the diet. In order to remedy the situation, the Department of Nutrition in the Ministry of Health is stepping up its programmes on nutrition education.

In addition to nutrition education, the Department of Research and Specialist Services, Agritex and the Faculty of Agriculture at the University are engaged in research which is intended to increase and diversify the production of crops and livestock. This will provide additional food that is rich in the nutrients which are lacking in the diet of people in communal areas.

Communicable diseases are associated with low living conditions and lack of protected water supplies. There is, therefore need for sound knowledge of the epidemiology of communicable diseases so as to develop an effective control programme. At present, the Blair Research Laboratory is carrying out research on the epidemiology of tropical parasite diseases in Zimbabwe. During the Plan period the Department will intensify these research activities. The development of biogas technology in rural areas, using animal wastes, will result in the reduction of animal-waste-borne pathogens which are disease-causing organisms.

Zimbabwe has the institutional infrastructure and raw materials which can provide an adequate basis for R and D activities for the health sector. The institutions included in this infrastructure are: the Department of Pharmacy and the Department of Chemistry at the University of Zimbabwe, Blair Research Laboratory, National Botanic Garden, Ewanrig Botanic Garden and the Department of Research and Specialist Services.

The National Botanic Garden has carried out a survey on the identification of the flora of Zimbabwe. It also maintains a National Herbarium. This institution can help in identifying medicinal plants which can be used in the production of pharmaceuticals. The Evanrig Botanic Garden has an experimental nursery of important medicinal plants. The Department of Research and Specialist Services has the scientific know-how in the cultivation of economically important plants. It will, therefore, assist in the cultivation of medicinal plants.

The Department of Pharmacy is carrying out research on the pharmacokinetics of new drug formulations and identification of new drugs from plants used in traditional medicine. The Department provides a nucleus for the development of an important programme of Research on Medicinal Plants. The Department of Chemistry is carrying out phytochemical research on Zimbabwe's medicinal flora which could provide a vital source for the production of pharmaceuticals. The Department of Clinical Pharmacology at the University of Zimbabwe's Medical School will provide service in testing the medicinal value of plant extracts. The Blair Laboratory has identified a native plant whose berries kill river snails which act as carriers of bilharzia parasites. Tests have proved that berries from three types of the *Phytolacca dodecandra* plant, locally known as "gopo" are highly toxic to river snails. The discovery, if adequately pursued with proper R and D methodologies, could help reduce the high cost of controlling and preventing the spread of the dreaded disease. At present, Zimbabwe imports, at considerable cost, a chemical for controlling bilharzia carrying snails.

The Department of Biological Sciences has developed a rapid, reliable and cheap method for the routine detection of salmonellae in food, drinking water, livestock, poultry, animal feeds and dairy products. The process can be a very effective diagnostic tool. It has been successfully tested with over 40 salmonella bacteria commonly found in food. In addition, the Department of Biochemistry has developed genetic engineering techniques for growing human hepatitis B virus in bacteria from which larger quantities of DNA of the virus can be obtained for use in screening the Zimbabwe population to determine virus carriers who have the risk of developing liver cancer.

In addition to a good institutional infrastructure for developing technological capability for the health sector, the country has a large variety of raw materials which can be used for the production of pharmaceutical products. A number of plants which are raw materials for the production of drugs of established therapeutic value grow wild; these will be put to use under Government support.

During the Plan period, Government will coordinate and strengthen R and D activities of the institutions that are engaged in the development of an endogenous technological capability for the health sector. In addition, steps will be taken to examine the techno-economic feasibility for the production of pharmaceutical products using local raw materials.

Information Collection and Dissemination

The organizations which are engaged in information collection and dissemination in the country include Agritex, the Scientific Council of Zimbabwe, the Technological Information Pilot Systems (TIPS) and the Zimbabwe Scientific Association. These organizations are designated as the frontier of research in the field of science and technology. For this reason Government will promote and support the activities of these organizations.

Agritex

Agritex is primarily engaged in the dissemination of information among the farming community. Most of the information it disseminates is based on findings of the Research and Specialist Services Department.

Technological Information Pilot Systems

Zimbabwe has established a Technological Information Pilot System (TIPS). The system is intended to promote the development of Zimbabwe's endogenous scientific and technological capability by supplying technological information which the country can use for the development of its technology as well as for human resource development in the areas of science and technology. The system will provide information on technology in the following areas: biogas, solar energy, coal, electronics, food processing, machine tools, pharmaceuticals, textiles, fisheries, metallurgy, biotechnology, hydropower and agricultural machinery.

CONCLUDING REMARKS

The programme and projects outlined in this Volume have all been selected primarily on the basis of the six primary objectives outlined in Volume I of the First Five-Year National Development Plan. As emphasized elsewhere in the Plan, these projects are the building blocks of the Plan and will be realized through Annual Plans and Annual Budgets.

It should, however, be emphasized that success in implementing the total investment programme outlined in this Volume is largely dependant upon the availability of financial resources, particularly foreign currency and the relevant skilled manpower.

Government believes that this Volume, complemented by the forthcoming Investment Register and Investment Guidelines, provides the necessary environment for the economy to unleash the dynamic force inherent in the Zimbabwean economy which has been dormant for a relatively long time.

ANNEX I

PROJECTS STILL UNDER CONSIDERATION (NOT IN PLAN) OR WHOSE FINANCIAL REQUIREMENTS EXCEED THOSE IN THE PLAN

Project	*Cost estimate*
1. Integrated Bus/Rail Transport System	$1 000 million
2. Harare Airport-Terminal Buildings	No estimate yet
3. Feruka–Harare Pipeline	$86,7 million
4. New Government Central Offices	No estimate yet
5. Zimbabwe National Housing Corporation	No estimate yet
6. Oil Product Storage Facilities	$145 million
7. Air Zimbabwe Long Haul Re-equipment	$250 million
8. Kariba South Extension	$269 million
9. Second TV Channel	$23 million
10. External Radio Service	$13,5 million
11. Milk Powder Factory	$33,3 million
12. Oil Refinery	No estimate yet

See Introduction, p. iii.