

The
Demography
of
Zimbabwe:
Some Research Findings



University of Zimbabwe Demographic Unit

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A current and capital budget for the Ministry of Health for the second Five-Year National Development Plan 1991–1995

Tinodaishe T. Hove

Introduction

The aim of this paper is to provide an estimate of the current and capital budgets for the Zimbabwe health sector over the period 1991–1995, coinciding with the second Five-Year National Development Plan, while taking into account the country's population growth rate. Emphasis in the health sector will be on primary health care (PHC), defined by the World Health Organisation (1978) as essential health care based on politically and scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation and at costs that the community and the country can afford to maintain at every stage of their self-determination.

The capital budget shows expenditures whose returns extend beyond a year (usually planned for several years). These involve equipment replacement, plant extension, product improvement and new products. The current budget includes salaries, health personnel training costs and health facility maintenance costs.

Rationale

Since one measure of national development is a nation's state of health, its promotion and protection is essential to sustained economic growth and social development, and contributes to a better quality of life.

Health, as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, is a fundamental human right. The attainment of the highest possible level of health is an important social goal requiring action in many other social and economic sectors for its realization.

Inequalities in a nation's health service provision are politically, socially and economically unacceptable and therefore of common concern.

Health services characteristically take a massive share of expenditure in Third World countries, necessitating the provision of a thorough plan so as to maximize benefits and minimize losses.

Since a health plan would be of little benefit without demographic components, such as growth and distribution of population, age structure and

population related aspects, it is of interest to apply demographic techniques to the planning process.

Objectives

- To arrive at a current and capital budget that ensures an adequate health service for the generality of the population.
- To provide a budget that concentrates on preventive care.
- To show the effect of different population growth rates on health resources, particularly primary health care.

Literature review

Life expectancy in developed countries is estimated at 74.5 years for 1990–1995 while that in developing countries is 61.5 years for the same period (United Nations, 1989). Although there has been an increase in life expectancy at birth in developing countries, there is little evidence that the basic needs of the poor are being met to any greater extent than they were 30 years ago (Abel-Smith and Leiserson, 1978). MacPherson (1985) states that the legacy of colonialism was not simply a health system that was inadequate, maldistributed and generally irrelevant to the needs of the majority, but an approach to health itself inimical to the development of an appropriate health service. Gish (1978) suggests that planning health care in developing countries should differ from that in developed countries because of greater scarcity of personnel and facilities, differences in population structure and different disease patterns.

Africa has the poorest supply of doctors with one doctor per 20 000 to 40 000 persons (MacPherson, 1985). In 1989, Zimbabwe had one doctor per 7 190 persons and one nurse per 741 persons (Ministry of Health, 1989). Due to these limitations, Ransome-Kuti (1987) recommends the adoption of other developing countries' health innovations, such as the section doctors scheme in the Democratic People's Republic of Korea, the family physician network in Cuba and the barefoot doctors in China, which provide comprehensive care at the rural level. Gish (1978) states that the medical assistant (state certified nurse) is the most important cadre in developing countries.

According to Gish (1976), disease patterns determine the type of facilities to be built. In Tanzania, the most significant change in the health service was the rapid development of small rural health facilities, dispensaries and health centres, as opposed to hospitals, and the training of large numbers of health workers to staff them (World Health Organisation, 1987). MacPherson (1985) states that developing countries should provide health centres, which reach large rural populations and provide most health care requirements, rather than concentrate on the provision of large hospitals.

Corsa and Oarkley (1987) state that developing countries spend between 3.0% (Indonesia) and 8.8% (Malaysia) of their total gross domestic product (GDP) on health, compared with developed countries where it is between 4.9% and 13.2%. The Zimbabwe Ministry of Health was allocated 8% of the total GDP for the fiscal year 1989/90 and 7% for the 1990/91 fiscal year. This drop was due to sectoral competition for funding. In 1989/90 and 1990/91 the Ministry of Education had the largest allocation, with 25% and 21% of the budget respectively, followed by the Ministry of Defence with 18% (1989/90) and 15% (1990/91). This indicates that health personnel priorities and other factors may be out of balance. Therefore preventive care should be considered as an investment (improving labour productivity) as opposed to curative care which represents consumption. There is need to concentrate on preventive care and therefore on primary health care.

Sources of data

The 1982 Ten Percent Sample (CSO, 1985) and the 1987 Intercensal Demographic Survey (CSO, 1991) were utilized to arrive at mortality, fertility and migration rates for the purpose of population projections. Information on health facilities, personnel, salaries and allowances was obtained from the Ministry of Health. Information on construction and maintenance costs of health facilities originated from the Ministry of Public Construction and National Housing. With any source of data, limitations can be expected and the data should not, therefore, be accepted at face value. The limitations are discussed further under methodology.

Status of Zimbabwe's health services

An examination of health policy will help to demonstrate the priorities of the Ministry of Health regarding the allocation of personnel and facilities.

The health policy in Zimbabwe states that health facilities should be accessible to all; this includes physical, financial and psychological accessibility (Ministry of Health, 1983). The Ministry of Health intends to create a programme that emphasizes preventive care and the promotion of healthful life-styles. Although the main focus will be on preventive measures, with particular emphasis on rural areas, attention will be given to curative measures.

The structure of the health system consists of four graded levels of care, each engaging in an appropriate mix of promotive, preventive and curative activities, with the higher levels providing support, supervision and referral facilities for all levels.

The first level is primary health care, consisting of village health workers, the community and the health centre facility. The secondary level, known as the District Health Services, consists of the government rural hospitals, mission

hospitals and a district hospital. The tertiary level, known as the Provincial Health Services, consists of the provincial hospitals. The final level consists of referral hospitals.

As of 1990, there were 55 training centres for village health workers (VHWs); 22 for midwives; 24 for state certified nurses (SCNs); 4 for state registered nurses (SRNs) and 1 for medical doctors (Ministry of Health, 1990).

At the same time, there were 19 366 hospital beds in 1 243 health institutions: 1 042 rural health centres, 5 central hospitals, 7 provincial hospitals, 55 rural hospitals, 28 district hospitals, 86 mission hospitals, 11 industrial hospitals and 9 other hospitals. These were staffed by: 1 320 doctors, 6 114 SRNs, 6 779 SCNs and 5 990 midwives (Ministry of Health, 1990).

This data is used as the basis for projections of health personnel and facilities.

Methodology

To arrive at the capital and current budget for the plan period (1991–1995), use was made of:

- targets for health personnel
- targets for facilities
- assumptions for population projections
- assumptions for health personnel projections
- assumptions for health facilities projections
- unit costs for required personnel and facilities.

Targets for personnel

- 1 VHW per 500 people in the rural areas
- 1 SRN per 1 000 people
- 1 midwife per 1 000 people
- 1 doctor per 5 000 people
- 1 SCN per 1 200 people.

Targets for facilities

- The target for hospital beds is 25 beds per 10 000 people.
- One rural health centre (RHC) is to serve a radius of 8 kilometres and a population that does not exceed 10 000. In this study, the target has been set at 1 RHC for every 5 000 rural population due to problems encountered in using distance for estimation purposes.

8 provincial hospitals (1 per province, excluding Harare and Bulawayo).

55 district hospitals (1 per district).

The number of existing rural and central hospitals is considered to be sufficient for the purposes of this study. The targets will be used to identify the personnel and facilities needed for the plan period.

Population projections assumptions

The term "projection" indicates that future trends are unknown and that the figures quoted will only be accurate if certain levels of mortality, fertility and migration apply. Due to the difficulty in determining future rates, it is usual to arrive at several projections on the basis of different sets of rates (Pollard, Pollard and Yusuf, 1989). To determine the total populations, use has been made of a computer programme, known as Demproj. This programme requires:

- total fertility rates
- the life expectancy at birth $e(o)$ for females and males separately
- sex ratio
- the period of projection (which is 1982-1997)
- a model life table, in this case the Coale and Demeny West life table has been used (Coale and Demeny, 1983).

Use has been made of three sets of projections, two by the Central Statistical Office. The third was made for the purpose of this paper, to show the effect of different population growth rates on the resources needed for primary health care.

In preparing fertility assumptions, past, current and anticipated trends for the country have been carefully evaluated. Trends and anticipated changes in socio-economic structure and programmes directed towards family planning will be considered vis-a-vis expected trends in fertility.

Table 5.1: Total fertility rates using the Brass P/F ratio method, relational Gompertz model and stable population model

Method	1982	1987
Reported TFR	5.6	5.1
Brass P/F ratio	6.9	6.7
Relational Gompertz model		
● current fertility	6.8	6.9
● lifetime fertility	6.9	7.0
stable population model	6.9	6.7

To arrive at fertility rates, use has been made of the Brass P/F ratio method, the relational Gompertz model, and the stable population model (Table 5.1). These are indirect methods of estimating fertility which yield better results than the direct method, particularly where reporting is poor.

Improved socio-economic development has resulted in gradually declining fertility levels since 1982. Mortality figures have been accepted as given by the Zimbabwe Central Statistical Office, since this projection uses indirect methods of estimation. Migration has been insignificant, and hence considered as zero.

Fertility assumptions

Assumptions made in this study: As of 1982, the total fertility rate is considered to have been 6.9. It was expected to decrease to 6.5 during the period 1987–1991 and to 6.0 during the period 1992–1997.

CSO high variant: In 1982 the fertility rate was 5.62, decreasing to 5.13 in 1987 and to 4.64 in 1997 (CSO, 1986).

CSO low variant: In 1982 the fertility rate was 5.62, decreasing to 4.92 in 1987, to 4.23 in 1992 and to 3.53 in 1997 (CSO, 1986).

Mortality assumptions

Assumptions made in this study: $e(o)$ at birth is estimated at 55.7 years for males and 59.1 years for females in 1982, rising to 57.9 years and 63.6 years, respectively, in 1987, and to 60.2 years and 63.6 years, respectively, in 1992.

The other two variants are the same for this period.

Assumptions for personnel projections

Attrition and drop-out rates from the Ministry of Health have been used (multiple decrement table) to determine the personnel available at a specific time. Attrition refers to personnel who resign and retire. Drop-out rate, in this case, refers to those who fail to qualify in their particular field of activity. Supply of personnel can be determined from these rates while personnel demand can be determined through the use of set targets. The difference between personnel supply and demand indicates personnel needs and therefore recruitment and training requirements.

The drop-out rate of village health workers is considered to be 0%. Doctors have a 25% drop-out rate and an attrition rate of 5% which is expected to double during the plan period. State registered nurses have a 10% drop-out rate while the attrition rate ranges from 2% to 3%. The drop-out rate for psychiatric nurses is 0% to 5% and for midwives, a 2% rate is estimated. The state certified nurses' drop-out rate is 5% to 10%; the attrition rate is estimated at 2%.

Assumptions for facilities projections

The target for facilities will only be met when there are 55 district hospitals and 8 provincial hospitals.

Training institutions can provide the following annually: 80 doctors, 60 SRNs, 20 SCNs, 60 midwives and 27 VHWs. The number of personnel who require training is divided by the training capacity per year per institution to determine the number of extra training centres needed.

To determine the number of rural health centres required each year, 75% of the total population for each year of the plan period is divided by the target number of rural health centres (75% represents Zimbabwe's rural population over the plan period).

The provision of beds will be met when there are 25 beds per 1 000 people throughout the country. The number of beds required is determined by dividing the total population per year by 1 000 and multiplying the result by 25.

Unit costs required

Items needed for the plan period are:

- personnel salaries
- personnel training costs
- facility construction costs
- hospital bed provision costs
- facility maintenance costs
- hospital bed maintenance costs.

Although inflation is not a new phenomenon, investors, until recently, often ignored price level changes when measuring the return on money. In this study, use is made of inflation rates when projecting the unit costs for the plan period. Three variants of inflation are considered:

- constant rate at the present level of 17%
- second variant of increase to 25% for the plan period
- third variant of 21% representing the average of the constant rate and the increased rate.

Personnel salaries

The average salaries for each health category as of 1990 are as follows:

- new graduate from medical school: \$26 326 p.a.
- medical specialist: \$35 366 p.a.
- SRN: \$22 688 p.a.

- SCN: \$12 612 p.a.
- nursing tutor for midwives, SRNs and SCNs: \$26 077 p.a.
- midwife: \$23 808 p.a.

It is important to note that VHWs do not get salaries as such but are provided with allowances for food and transport, therefore it is difficult to estimate the costs to the Ministry of Health of their work.

In 1990, the salary increments were 34% for SCNs, 35% for SRNs, 40% for midwives, 28% for doctors. Using inflation rates of 17%, 21% and 25% over the plan period, the salaries for health personnel for the 1991–1995 plan period are as indicated in Table 5.2.

Table 5.2: Salaries of health personnel by category, 1991–1995 (\$)

Year		Doctor	SRN	SCN	Midwife	Tutor
1991	17%	41 378	26 545	14 756	27 855	30 510
	21%	42 793	27 452	15 261	28 808	31 553
	25%	44 208	28 360	15 765	29 760	32 596
1992	17%	48 412	31 058	17 265	32 590	35 697
	21%	51 755	33 218	18 466	34 858	38 179
	25%	55 259	35 450	19 706	37 200	40 745
1993	17%	56 642	36 338	20 200	38 130	41 765
	21%	62 624	40 194	22 344	42 178	46 197
	25%	69 074	44 313	24 633	46 500	50 932
1994	17%	66 271	42 515	23 634	44 612	48 865
	21%	75 775	48 635	27 036	51 035	55 898
	25%	86 343	55 391	30 791	58 125	63 665
1995	17%	77 537	49 743	27 652	52 196	57 172
	21%	91 688	58 848	32 714	61 752	67 637
	25%	107 928	69 238	38 489	72 656	79 581

As shown in Table 5.2, salaries will almost treble within the 1991–1995 period.

Personnel training costs

The training costs per year and duration of training provided by the Ministry of Health (Ministry of Health, 1990), are as follows:

- SRN: \$7 356 p.a. for 3 years
- midwife: (equivalent to the salary of a SCN or SRN depending on the certificate held) average of \$10 032 p.a. for 1 year
- SCN: \$7 218 p.a. for 2 years

- doctor: \$8 670 p.a. for 5 years.

Applying the inflation rates of 17%, 21% and 25% per year, Table 5.3 gives the training costs of health personnel for 1991–1995.

Table 5.3: Training costs per cadre, 1991–1995 (\$)

Year		Trainee SCN	Trainee SRN	Medical student	Trainee midwife
1991	17%	8 445	8 607	10 144	11 737
	21%	8 734	8 901	10 491	12 139
	25%	9 023	9 420	10 838	12 540
1992	17%	9 881	10 070	11 868	13 732
	21%	10 568	10 770	12 694	14 688
	25%	11 278	11 775	13 547	15 675
1993	17%	11 561	11 782	13 886	16 066
	21%	12 787	13 032	15 360	17 772
	25%	14 098	14 719	16 934	19 594
1994	17%	13 526	13 785	16 247	18 797
	21%	15 472	15 769	18 586	21 504
	25%	17 622	18 398	21 167	24 492
1995	17%	15 825	16 128	19 009	21 992
	21%	18 721	19 080	22 489	26 020
	25%	22 028	22 998	26 459	30 615

Table 5.3 demonstrates that training costs will more than double and slightly less than treble by the end of the plan period.

Facility construction costs

Health facility construction costs are based on 1990 costs. A standard rural health centre costs on average \$525 000 to build, including electricity, water supply and staff housing. The construction of a rural hospital costs \$2 million. A standard district hospital with 140 beds, electricity, water supply and staff housing costs \$10 million to construct. The construction cost of a standard provincial hospital with 320 beds is \$132 million. A multidisciplinary training school costs \$2.7 million to construct (Ministry of Public Construction and National Housing, 1990a).

Construction costs of various health facilities after applying inflation rates of 17%, 21% and 25% are given in Table 5.4.

Table 5.4: Unit costs of constructing health facilities, 1991–1995 (\$ million)

Year		RHC	Rural hospital	District hospital	Training school*	Provincial hospital
1991	17%	.61	2.34	11.70	3.16	154.44
	21%	.64	2.42	12.10	3.27	159.72
	25%	.66	2.50	12.50	3.38	165.0
1992	17%	.71	2.74	13.67	3.70	180.69
	21%	.77	2.93	14.64	3.96	193.26
	25%	.82	3.13	15.63	4.22	206.25
1993	17%	.83	3.21	15.99	4.33	211.38
	21%	.93	3.55	17.13	4.79	233.84
	25%	1.03	3.91	19.53	5.27	257.80
1994	17%	.97	3.76	18.71	5.07	247.31
	21%	1.13	4.30	20.73	5.80	282.95
	25%	1.28	4.88	24.41	6.59	322.27
1995	17%	1.13	4.40	21.89	5.93	289.35
	21%	1.37	5.20	25.08	7.02	342.37
	25%	1.60	6.10	30.52	8.24	402.83

* Multidisciplinary training school

Table 5.4 shows that construction costs will more than double over the period.

Hospital bed provision costs

According to the Ministry of Health (Ministry of Health, 1990), the cost of providing an adult hospital bed in 1990 was \$244.44. Using inflation rates of 17%, 21% and 25%, the costs of providing hospital beds for the plan period are shown in Table 5.5.

Table 5.5: Costs of providing a hospital bed, 1991–1995 (\$)

Inflation rate	Cost per hospital bed (\$)				
	1991	1992	1993	1994	1995
17%	286	335	392	459	537
21%	296	358	433	524	634
25%	306	382	477	597	746

By the end of the plan period hospital bed provision costs will more than double.

Facility maintenance costs

According to the Ministry of Public Construction and National Housing (Ministry of Public Construction and National Housing, 1990b), the costs of maintaining health facilities vary depending on the age of the facility, since it is cheaper to maintain a new building than an old one. The maintenance costs are estimated at 2% to 5% of the capital costs of a building which is less than 20 years old and 10% of the capital costs of buildings which are 20–50 years old. The buildings provided have a life span of 80 years, after which maintenance becomes uneconomical since maintenance costs become higher than capital costs.

The maintenance costs of health facilities using a 3.5% rate of maintenance are as follows:

- rural health centre: \$18 375 p.a.
- multidisciplinary training school: \$94 500 p.a.
- rural hospital: \$70 000 p.a.
- provincial hospital: \$2 640 000 p.a.
- district hospital: \$350 000 p.a.
- central hospital: \$3.5 million p.a.

Using inflation rates of 17%, 21% and 25%, the costs of maintaining health facilities for the plan period are shown in Table 5.6.

Table 5.6: Maintenance costs per facility, 1991–1995 (\$ '000)

Year		RHC	Rural hospital	District hospital	Provincial hospital	Central hospital	Training school*
1991	17%	21	82	410	3 089	4 095	111
	21%	22	85	424	3 194	4 235	114
	25%	23	88	438	3 300	4 375	118
1992	17%	25	96	480	3 614	4 791	130
	21%	27	103	513	3 865	5 124	138
	25%	29	109	547	4 125	5 469	148
1993	17%	29	112	562	4 228	5 605	152
	21%	33	125	621	4 677	6 200	167
	25%	36	137	684	5 156	6 836	185
1994	17%	34	131	658	4 947	6 558	178
	21%	40	151	751	5 659	7 502	202
	25%	45	171	854	6 445	8 545	231
1995	17%	40	153	770	5 788	7 673	208
	21%	48	183	909	6 847	9 077	244
	25%	56	214	1 068	8 057	10 681	288

* Multidisciplinary training school

The maintenance costs will more than double and slightly less than treble by the end of the plan period.

Hospital bed maintenance costs

The costs include use of a bed by a patient and the services received from health personnel by a patient. According to Sanders et al. (1989), the utilization costs of hospital beds per day and per annum in 1986 were as follows:

Karoi District Hospital	\$13.69 per day; \$4 996.85 p.a.
Chinhoyi Provincial Hospital	\$33.06 per day; \$12 066 p.a.
Harare Central Hospital	\$38.67 per day; \$14 114.55 p.a.
Parirenyatwa Hospital	\$92.26 per day; \$33 674.90 p.a.

The differences at the different hospitals are due to the services provided. Inflation rates of 17%, 21% and 25% have been applied to arrive at the maintenance costs for the plan period (Table 5.7).

Table 5.7: Maintenance costs per bed by hospital type, 1991–1995 (\$ '000)

Year		District	Provincial	Central (Pari)	Other central
1991	17%	10.1	23.9	68.0	28.5
	21%	10.6	25.0	71.0	29.8
	25%	11.0	26.0	74.0	31.0
1992	17%	11.8	28.0	80.0	33.0
	21%	12.8	30.3	86.0	36.0
	25%	13.0	33.0	92.0	39.0
1993	17%	13.8	32.8	94.0	39.0
	21%	15.5	36.7	104.0	44.0
	25%	17.0	41.0	115.0	48.0
1994	17%	16.1	38.4	110.0	46.0
	21%	18.8	44.4	126.0	53.0
	25%	21.0	52.0	144.0	60.0
1995	17%	18.8	44.9	129.0	54.0
	21%	22.7	53.7	152.0	64.0
	25%	26.0	64.0	180.0	75.0

Note: Karoi Hospital's figure has been taken as representative of district hospitals; Chinhoyi as representative of provincial hospitals; Harare as representative of central hospitals; Parirenyatwa stands on its own.

By the end of the plan period, the costs of maintaining hospital beds will more than double and slightly less than treble.

Projections

This section gives the population, personnel and facilities projections for the plan period, using the three variants. All projections were based on 1990 figures.

Population projections

The projections for the total population for the plan period, using the three variants, are given in Table 5.8.

Table 5.8: Midyear population estimates based on the CSO high and low variants and assumptions made in this paper, 1991–1995 (thousands)

Year	High variant*	Low variant*	Assumptions made in this paper
1991	9 704	9 620	10 707
1992	9 979	9 871	11 027
1993	10 260	10 124	11 306
1994	10 546	10 379	11 565
1995	10 838	10 636	11 773

* CSO projections

Personnel projections

It is important to note that the personnel demand is achieved in stages: 60% of the target is met in the first year, 70% in the second year, 80% in the third year, 90% in the fourth year and 100% in the final year of the plan period.

Table 5.9: Personnel supply, demand and deficit/surplus using the CSO high variant

Year	Doctors	SRNs	SCNs	Midwives	VHWs	Tutors
1991 supply	1 314	6 210	7 008	5 952	13 485	430
1991 demand	1 242	6 155	4 986	6 192	11 644	441
1991 deficit/surplus	+72	+55	+2 022	-240	+1 841	-11
1992 supply	1 308	6 301	7 233	5 196	14 970	430
1992 demand	1 487	7 376	5 974	7 373	13 970	556
1992 deficit/surplus	-179	-1 075	+1 259	-1 457	+1 000	-126
1993 supply	1 303	6 388	7 453	5 882	16 455	430
1993 demand	1 744	8 660	7 886	8 657	16 415	684
1993 deficit/surplus	-441	-2 272	-433	-2 775	+40	-254
1994 supply	1 298	6 471	7 669	5 850	17 940	430
1994 demand	2 006	10 007	8 104	10 005	18 923	81
1994 deficit/surplus	-708	-3 536	-435	-4 125	-983	-385
1995 supply	1 293	6 548	7 881	5 819	19 425	430
1995 demand	2 296	11 421	9 250	11 419	21 676	1 002
1995 deficit/surplus	-1 003	-4 873	-1 369	-5 600	-2 252	-672

The difference between personnel supply and demand indicates the extra personnel needed to be recruited or trained; negative signs (-) show a deficit whereas positive signs (+) show a surplus. The figures for deficit or surplus are accumulated over the years. For example, the deficit for doctors is 105 in 1992 (179-72). The figures for the demand for personnel are used in calculating salaries for the plan period. The number of people who will be in training each year of the plan period is estimated irrespective of population growth and added to the deficits for each year. Tables 5.10, 5.11 and 5.12 show the numbers of people who will be in training each year, including the deficit, for the three variants. It is likely that there will be 5 streams of 80 medical students each year, totalling 400. This totalling has been done for all the personnel categories.

Table 5.10: People in training 1991-1995 using the CSO high variant

Category	1991	1992	1993	1994	1995
Medical students	400	579	841	1 108	1 403
Trainee SRNs	1 242	2 317	3 514	4 768	6 115
Trainee SCNs	766	766	1 199	1 201	2 135
Trainee midwives	507	1 964	3 282	4 632	6 107
Trainee VHWs	1 485	1 485	1 485	2 468	3 736

Table 5.11: People in training 1991-1995 using the CSO low variant

Category	1991	1992	1993	1994	1995
Medical students	400	563	818	1 083	1 360
Trainee SRNs	1 242	2 238	3 399	4 619	5 902
Trainee SCNs	766	766	766	1 074	1 962
Trainee midwives	415	1 646	2 928	4 263	5 655
Trainee VHWs	1 485	1 485	1 485	2 227	3 332

Table 5.12: People in training in 1991-1995 using assumptions made in this paper

Category	1991	1992	1993	1994	1995
Medical students	484	733	1 016	1 308	1 600
Trainee SRNs	1 820	3 087	4 393	5 742	7 097
Trainee SCNs	766	766	1 038	1 981	2 929
Trainee midwives	1 099	2 495	3 921	5 385	6 813
Trainee VHWs	1 485	1 953	3 120	4 362	5 606

The highest number of trainees are required when using assumptions made in this paper and the lowest when using the CSO low variant.

Facilities projections

Rural health centres

Using the set target of 5 000 people for every rural health centre (RHC), the total number of RHCs required are estimated using the figure of 75% of the total population as rural population.

The deficits shown in Tables 5.13, 5.14 and 5.15 indicate the additional RHCs required for each year of the plan period. The figures are accumulated over 1991–1995. The deficit has been arrived at by subtracting 1 042 (the number of RHCs in 1990) from the demand for centres.

Table 5.13: Rural health centres required 1991–1995 using the CSO high variant

Demand/ deficit	Facilities				
	1991	1992	1993	1994	1995
demand	873	1 048	1 231	1 424	1 626
deficit	–	6	189	382	584

Table 5.14: Rural health centres required 1991–1995 using the CSO low variant

Demand/ deficit	Facilities				
	1991	1992	1993	1994	1995
demand	866	1 036	1 215	1 401	1 595
deficit	–	–	173	359	553

Table 5.15: Rural health centres required 1991–1995 using assumptions made in this paper

Demand/ deficit	Facilities				
	1991	1992	1993	1994	1995
demand	964	1 159	1 357	1 561	1 766
deficit	–	117	315	519	724

The additional RHCs needed in 1995 are the total number needed for the whole period since it is an accumulation of the previous years. The highest number of required RHCs occurs when using assumptions made in this paper and the lowest when using the CSO low variant.

District and provincial hospitals

In 1990 there were 41 district hospitals; 14 district hospitals will be built in stages by 1995 to total 55. In 1990 there were 7 provincial hospitals, out of the target of 8, thus the construction of 1 provincial hospital is required.

Training centres

It is necessary to complete a multidisciplinary school in Masvingo and to add other training centres. The number of training centres required is determined by the deficit of personnel and training categories for training institutions as they are at present. Tables 5.16, 5.17 and 5.18 show the number of institutions for training health personnel for the plan period, using the three variants.

Table 5.16: Additional training centres required 1991–1995 using the CSO high variant

Type of training centre	1991	1992	1993	1994	1995
Doctors	—	2	3	3	4
SRNs	—	11	12	13	13
SCNs	—	—	14	—	31
Midwives	3	15	16	17	18
VHWs	—	—	—	36	47
Total	3	28	45	69	113

Table 5.17: Additional training centres required 1991–1995 using the CSO low variant

Type of training centre	1991	1992	1993	1994	1995
Doctors	—	2	3	3	4
SRNs	—	10	12	12	13
SCNs	—	—	—	10	30
Midwives	2	15	16	17	17
VHWs	—	—	—	27	41
Total	2	27	31	69	105

Table 5.18: Additional training centres required 1991–1995 using assumptions made in this paper

Type of training centre	1991	1992	1993	1994	1995
Doctors	1	3	4	4	4
SRNs	6	13	13	13	14
SCNs	—	—	9	31	32
Midwives	10	17	18	18	18
VHWs	—	17	43	46	46
Total	17	50	87	112	114

The highest number of training centres needed are arrived at using the assumptions made in this paper and the lowest using the CSO low variant. The number of required health facilities multiplied by the unit costs gives the total construction costs of training centres for the plan period.

Hospital beds

Table 5.19 gives the number of hospital beds needed for the plan period, using the three variants.

Table 5.19: Total beds required 1991–1995 using the CSO high and low variants and the assumptions made in this paper

Year	High variant	Low variant	Assumptions in this paper
1991 demand	14 556	14 430	16 061
surplus/deficit	+4 810	+4 936	+3 305
1992 demand	17 463	17 275	19 297
surplus/deficit	+1 903	+2 091	+69
1993 demand	20 520	20 248	22 412
surplus/deficit	-1 154	-882	-3 046
1994 demand	23 728	23 353	26 021
surplus/deficit	-4 362	-3 987	-6 655
1995 demand	27 095	26 590	29 433
surplus/deficit	-7 729	-7 224	-10 067

The deficit shows the additional beds to be provided during the plan period. The deficit or surplus has been arrived at by subtracting 19 366 (the number of beds provided in 1990) from the demand. The deficit is shown by a negative sign (-) whilst the surplus is shown by a positive sign (+).

The calculations of total maintenance costs of hospital beds does not include all hospital types due to the lack of data for some types of hospitals. The number of beds used for calculating the maintenance costs for the plan period are given in Table 5.20.

Table 5.20: Total number of beds used for calculating the maintenance costs, 1991–1995

Type of hospital	1991	1992	1993	1994	1995
District	7 700	8 190	8 680	9 170	9 660
Provincial	2 240	2 240	2 560	2 560	2 560
Parirenyatwa	930	930	930	930	930
Other central	1 644	1 644	1 644	1 644	1 644

The increase in the number of beds provided per year over the plan period in district and provincial hospitals is due to a budget allocation aimed at upgrading the rural areas.

This section has given the personnel and facility figures that will be used in the calculation of the budget.

Current and capital budget

The following section presents an estimate of the current and capital budget for the plan period. This section is in two parts: the first deals with the current budget and the second with the capital budget.

Current budget

- salaries of health personnel
- training costs of cadres
- maintenance costs of health facilities
- maintenance costs of hospital beds.

Capital budget

- costs of providing beds
- construction costs of health facilities **excluding rural health centres**
- construction costs of training institutions
- construction costs of rural health centres.

Current expenditure

Tables 5.21–5.34 give the current expenditure for the plan period 1991–1995.

Personnel salaries

Salaries for health personnel are derived by multiplying the demand for personnel by unit cost. In Tables 5.21, 5.22 and 5.23, salaries are estimated by category for each year of the plan period for three rates of inflation.

Table 5.21: Salaries of health personnel 1991–1995 using the CSO high variant by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Tutors	Total
1991	17%	50.5	160.6	72.3	169.8	13.2	466.4
	21%	52.7	167.6	75.5	177.2	13.8	486.8
	25%	54.9	174.6	78.6	184.6	14.4	507.1
1992	17%	75.6	240.6	108.4	252.3	20.9	697.8
	21%	78.9	251.0	113.1	263.2	21.8	728.0
	25%	82.2	261.5	117.8	274.2	22.7	758.4
1993	17%	110.9	353.0	178.8	370.3	32.0	1 045.0
	21%	115.7	368.4	186.5	386.4	33.4	1 090.4
	25%	120.5	383.7	194.3	402.5	34.8	1 135.8
1994	17%	173.6	510.0	229.4	534.9	47.7	1 495.6
	21%	181.2	532.1	239.4	558.1	49.8	1 560.6
	25%	188.7	554.3	249.4	581.4	51.9	1 625.7
1995	17%	245.8	727.5	327.6	763.1	73.3	2 137.3
	21%	256.5	759.2	341.9	796.3	76.5	2 230.4
	25%	267.2	790.8	356.1	829.5	79.7	2 323.3

Table 5.22: Salaries of health personnel 1991–1995 using the CSO low variant by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Tutors	Total
1991	7%	50.1	159.3	71.8	167.0	13.1	461.3
	21%	52.3	166.2	74.9	174.2	13.6	481.2
	25%	54.5	173.1	78.0	181.5	14.2	501.3
1992	17%	74.8	238.0	107.2	249.6	20.5	690.1
	21%	78.0	248.4	111.8	260.4	21.4	720.0
	25%	81.3	258.7	116.5	271.3	22.3	750.1
1993	17%	109.4	348.4	157.1	365.4	31.4	1 011.7
	21%	114.1	363.6	164.0	381.3	32.7	1 055.7
	25%	118.9	378.7	170.8	397.2	34.1	1 099.7
1994	17%	171.7	501.9	226.0	526.4	47.6	1 473.6
	21%	179.1	523.7	235.9	549.3	49.6	1 537.6
	25%	186.6	545.5	245.7	572.2	51.7	1 601.7
1995	17%	241.6	714.0	321.4	749.0	72.6	2 098.6
	21%	252.1	745.1	335.4	781.5	75.7	2 189.8
	25%	262.6	776.1	349.4	814.1	78.9	2 281.1
Total	17%	647.6	1 961.6	883.5	2 057.4	185.2	5 735.3
	21%	675.6	2 047.0	922.0	2 146.7	193.0	5 984.3
	25%	703.9	2 132.1	960.4	2 236.3	201.2	6 233.9

Using the CSO low variant, salaries will increase five-fold over the plan period.

Table 5.23: Salaries of health personnel 1991–1995 using assumptions made in this paper by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Tutors	Total
1991	17%	55.7	177.1	79.8	185.6	15.0	513.2
	21%	58.1	184.8	83.2	193.6	15.6	535.3
	25%	60.5	192.5	86.7	201.7	16.3	557.7
1992	17%	83.4	274.4	119.7	278.6	23.7	779.8
	21%	87.1	286.4	124.9	290.7	24.8	813.9
	25%	90.7	298.3	130.1	302.8	25.8	847.7
1993	17%	122.0	388.9	175.1	408.0	36.7	1 130.7
	21%	127.3	405.8	182.7	425.8	38.3	1 179.9
	25%	132.6	422.7	190.3	443.5	39.9	1 229.0
1994	17%	189.5	559.1	251.7	586.4	56.9	1 643.6
	21%	197.8	583.4	262.7	611.9	59.3	1 715.1
	25%	206.0	607.7	273.6	637.4	61.8	1 786.5
1995	17%	265.4	790.1	355.8	826.3	84.8	2 322.4
	21%	277.0	824.4	371.2	862.3	88.5	2 423.4
	25%	288.5	858.8	386.7	898.2	92.2	2 524.4

Using the assumptions made in this paper, the salaries will increase five-fold by the end of the plan period.

Training costs

Tables 5.24–5.26 give the total training costs for the plan period, by rates of inflation, using the three variants.

Table 5.24: Total training costs for 1991–1995 using the CSO high variant by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Total
1991	17%	3.96	10.8	6.3	5.9	27.0
	21%	4.1	11.2	6.6	6.1	28.0
	25%	4.3	11.7	6.9	6.4	29.3
1992	17%	7.2	25.1	7.9	28.3	68.5
	21%	7.5	26.2	8.3	29.6	71.6
	25%	7.8	27.3	8.6	30.8	74.5
1993	17%	13.1	47.6	15.5	59.2	135.4
	21%	13.6	49.6	16.2	61.7	141.1
	25%	14.2	51.7	16.9	64.3	147.2
1994	17%	21.6	80.7	19.5	104.3	226.1
	21%	22.6	84.2	20.4	108.9	236.0
	25%	23.5	87.7	21.2	113.4	245.8
1995	17%	34.1	129.4	43.2	172.0	378.7
	21%	35.6	135.0	45.1	179.5	395.2
	25%	37.1	140.6	47.0	187.0	411.7

Table 5.25: Total training costs for 1991–1995 using the CSO low variant by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Total
1991	17%	4.0	10.8	6.3	4.8	25.9
	21%	4.1	11.2	6.6	5.0	26.9
	25%	4.3	11.7	6.9	5.2	28.1
1992	17%	7.0	24.3	7.9	23.7	62.9
	21%	7.3	25.3	8.3	24.8	65.7
	25%	7.6	26.4	8.6	25.8	68.4
1993	17%	12.8	46.0	9.9	52.8	121.5
	21%	13.3	48.0	10.4	55.1	126.8
	25%	13.9	50.0	10.8	57.4	132.1
1994	17%	21.1	78.2	17.4	96.0	212.7
	21%	22.0	81.6	18.1	102.2	223.9
	25%	22.9	85.0	18.9	104.4	231.2
1995	17%	33.1	124.8	39.7	159.3	356.9
	21%	34.6	130.3	41.5	166.2	372.6
	25%	36.0	135.7	43.2	173.1	388.1
Total	17%	77.9	284.1	81.4	336.6	779.9
	21%	81.3	296.4	84.9	353.3	815.9
	25%	84.7	308.8	88.4	365.9	847.8

Table 5.26: Total training costs for 1991–1995 using assumptions made in this paper by rates of inflation (\$ million)

Year		Doctors	SRNs	SCNs	Midwives	Total
1991	17%	4.8	15.7	6.3	12.7	39.5
	21%	5.0	16.4	6.6	13.2	41.2
	25%	5.2	17.1	6.9	13.8	43.0
1992	17%	9.1	33.4	7.9	36.0	86.4
	21%	9.5	34.8	8.3	37.5	90.1
	25%	9.9	36.3	8.6	39.1	93.9
1993	17%	15.8	59.5	13.4	70.7	159.4
	21%	16.5	62.1	14.0	73.7	166.3
	25%	17.2	64.7	14.6	76.8	173.3
1994	17%	25.5	97.2	32.1	121.3	276.1
	21%	26.6	101.4	33.5	126.6	288.1
	25%	27.7	105.6	34.9	131.9	300.1
1995	17%	38.9	150.1	59.3	191.9	440.2
	21%	40.6	156.7	61.9	200.3	459.5
	25%	42.3	163.2	64.5	208.6	478.6
Total	17%	94.2	356.0	119.2	432.6	1 002.1
	21%	98.3	371.5	124.4	451.4	1 045.6
	25%	102.4	387.0	129.6	470.2	1 089.2

For both the CSO high and low variants, there will be a 14-fold increase in costs by the end of the plan period. For assumptions made in this paper, there will be an 11-fold increase in training costs by the end of the plan period. Midwives account for the largest proportion of the training costs, and doctors the smallest.

Facility maintenance costs

Table 5.27 shows the maintenance costs of rural, district, provincial and central hospitals over the plan period, for three rates of inflation. Using the three variants, the maintenance costs of rural health centres are given in Tables 5.28–5.30 and of training centres in Tables 5.31–5.33.

Table 5.27: Maintenance costs of health facilities 1991–1995 by rates of inflation (\$ million)

Year		Rural hospital	District hospital	Provincial hospital	Central hospital	Total
1991	17%	4.4	11.3	21.3	20.1	56.9
	21%	4.6	11.8	22.2	21.0	59.4
	25%	4.8	12.3	23.1	21.9	61.9
1992	17%	5.5	14.1	26.6	25.1	71.3
	21%	5.8	14.7	27.7	26.2	74.4
	25%	6.0	15.3	28.9	27.3	77.5
1993	17%	6.9	17.6	33.2	31.5	89.2
	21%	7.2	18.3	34.7	32.8	93.0
	25%	7.5	19.1	36.1	34.2	96.9
1994	17%	8.6	22.0	41.5	39.3	111.5
	21%	9.0	22.9	43.3	41.0	116.2
	25%	9.4	23.9	45.1	42.7	121.2
1995	17%	10.8	27.5	51.9	49.1	139.3
	21%	11.2	28.7	54.1	51.3	145.3
	25%	11.7	29.9	56.4	53.4	151.5
Total	17%	36.3	92.5	174.4	165.0	468.3
	21%	37.9	96.5	182.0	172.1	488.6
	25%	39.5	100.5	189.6	179.3	509.0

A three-fold increase will be recorded by the end of the plan period.

Table 5.28: Maintenance costs of RHCs 1991–1995 by rates of inflation using the CSO high variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	22.0	27.7	40.7	58.8	83.9	233.0
21%	22.9	29.0	42.4	61.3	87.6	243.2
25%	23.9	30.1	44.2	63.9	91.2	253.3

There will be a four-fold increase in the maintenance costs for rural health centres by the end of the plan period.

Table 5.29: Maintenance costs of RHCs 1991–1995 by rates of inflation using the CSO low variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	22.0	27.5	40.1	57.9	82.2	229.7
21%	22.9	28.7	41.9	60.4	85.8	239.7
25%	23.9	29.9	43.6	62.9	89.4	249.7

There will be a four-fold increase by the end of the plan period.

Table 5.30: Maintenance costs of RHCs 1991–1995 by rates of inflation using assumptions made in this paper (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	22.0	30.6	44.8	64.4	91.1	253.0
21%	22.9	32.0	46.8	67.2	95.0	264.0
25%	23.9	33.3	48.7	70.0	99.0	275.0

Using the assumptions made in this paper, the maintenance costs of rural health centres will increase by slightly more than four-fold over the plan period.

The largest total amount of money needed to maintain rural health centres is incurred when using assumptions made in this paper and the smallest when using the CSO low variant.

Table 5.31: Maintenance costs of training centres 1991–1995 by rates of inflation using the CSO high variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	3.4	7.7	16.8	27.4	32.3	106.0
21%	3.6	8.1	17.6	28.6	33.7	110.6
25%	3.7	8.4	18.3	29.8	35.1	115.2

There will be a 14-fold increase in the maintenance costs of training centres from 1991 to the end of the plan period.

Table 5.32: Maintenance costs of training centres 1991–1995 by rates of inflation using the CSO low variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	3.2	6.1	12.4	23.7	45.6	91.2
21%	3.4	6.3	13.0	24.8	47.6	95.1
25%	3.5	6.6	13.5	25.8	49.6	99.1

Using the CSO low variant, there will be a 13-fold increase in the maintenance costs of training centres by the end of the plan period.

Table 5.33: Maintenance costs of training centres 1991–1995 by rates of inflation using assumptions made in this paper (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	4.8	10.0	19.3	35.2	61.0	130.5
21%	5.0	10.5	20.2	36.8	63.6	136.1
25%	5.2	10.9	21.0	38.3	66.3	141.8

There will be a 13-fold increase in costs by the end of the plan period.

Hospital beds maintenance costs

The maintenance costs of hospital beds, for Parirenyatwa Hospital and district, provincial and central hospitals is given in Table 5.34.

Table 5.34: Maintenance costs of hospital beds 1991–1995 by rates of inflation (\$ million)

Year		District	Provincial	Central (Pari)	Other central	Total
1991	17%	75.6	54.4	63.0	46.6	239.7
	21%	78.9	56.7	65.8	48.7	250.1
	25%	82.2	59.1	68.5	50.7	260.5
1992	17%	100.6	68.0	78.8	58.3	305.6
	21%	104.9	70.9	81.3	60.9	318.9
	25%	109.3	73.9	85.6	63.4	332.2
1993	17%	133.2	97.1	98.4	73.0	401.6
	21%	139.0	101.3	102.7	76.1	419.0
	25%	144.8	105.5	107.0	79.3	436.5
1994	17%	176.0	121.3	123.0	91.2	511.4
	21%	183.6	126.6	128.4	95.1	533.7
	25%	191.3	131.9	133.7	99.1	555.9
1995	17%	231.7	151.7	130.3	122.3	627.6
	21%	241.7	158.3	135.9	127.6	654.9
	25%	251.8	164.9	141.6	132.9	682.2
Total	17%	717.1	492.5	439.4	383.0	2086.0
	21%	748.3	513.9	514.9	399.6	2176.7
	25%	779.5	535.3	536.3	416.3	2267.4

The maintenance costs of hospital beds will increase three-fold from 1991 to 1995. The largest proportion of costs are allocated to district hospitals whilst the smallest are allocated to other central hospitals, excluding Parirenyatwa Hospital.

Capital expenditure

Tables 5.35–5.44 give the capital expenditure for the plan period 1991–1995.

Hospital beds provision costs

The capital costs of providing hospital beds over the plan period is given in Tables 5.35, 5.36 and 5.37, using the three variants.

Table 5.35: Capital costs of providing hospital beds 1991–1995 by rates of inflation using the CSO high variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	—	.55	2.4	5.3	8.2
21%	—	—	.58	2.5	5.6	8.5
25%	—	—	.6	2.6	5.8	8.9

Table 5.36: Capital costs of providing hospital beds 1991–1995 by rates of inflation using the CSO low variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	—	.37	2.2	5.0	7.5
21%	—	—	.38	2.3	5.2	7.9
25%	—	—	.4	2.4	5.4	8.2

Table 5.37: Capital costs of providing hospital beds 1991–1995 by rates of inflation using assumptions made in this paper (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	—	1.4	3.7	6.9	12.0
21%	—	—	1.45	3.85	7.2	12.5
25%	—	—	1.5	4.0	7.5	13.0

Facility construction costs

Table 5.38 gives the costs of constructing the required district and provincial hospitals, by rates of inflation, from 1991/92 to 1995/6. Rural health centre construction costs appear separately (see Tables 5.42–5.44).

Table 5.38: Capital costs of constructing health facilities (excluding RHCs) 1991/2–1995/6 by rates of inflation (\$ million)

Year		District	Provincial	Total
1991/2	17%	32.2	30.4	62.6
	21%	33.6	31.7	65.3
	25%	35.0	33.0	68.0
1992/3	17%	40.3	38.0	78.3
	21%	42.0	39.6	81.7
	25%	43.8	41.3	85.1
1993/4	17%	50.5	47.5	98.0
	21%	52.7	49.5	102.2
	25%	54.9	51.6	106.5
1994/5	17%	62.8	59.3	122.2
	21%	65.6	61.9	127.5
	25%	68.3	64.5	132.8
1995/6	17%	78.7	74.2	152.8
	21%	82.1	77.4	159.5
	25%	85.5	80.6	166.1
Total	17%	264.3	249.1	513.5
	21%	275.8	260.0	535.8
	25%	287.3	270.8	558.1

The construction costs of providing 14 district hospitals and 1 provincial hospital will more than double by the end of the plan period.

Training centre construction costs

The capital costs of constructing training centres, using the three variants, are given in Tables 5.39–5.41.

Table 5.39: Capital costs of training centres 1991/2–1995/6 by rates of inflation using the CSO high variant (\$ million)

Year		SCNs	SRNs	Midwives	Total
1991/2	17%	—	—	9.3	9.3
	21%	—	—	9.7	9.7
	25%	—	—	10.1	10.1
1992/3	17%	—	42.7	58.2	100.9
	21%	—	44.5	60.8	105.3
	25%	—	46.4	63.3	109.7
1993/4	17%	67.9	58.1	77.6	203.6
	21%	70.8	60.7	80.9	212.4
	25%	73.8	63.2	84.3	221.3
1994/5	17%	—	78.8	103.0	181.9
	21%	—	82.3	107.5	189.8
	25%	—	85.7	112.0	197.7
1995/6	17%	235.0	98.5	136.4	470.0
	21%	245.2	102.8	142.4	490.4
	25%	255.4	107.1	148.3	510.8
Total	17%	302.9	283.7	384.6	965.6
	21%	316.0	296.1	401.3	1 007.6
	25%	329.2	308.4	418.0	1 049.6

Table 5.40: Capital costs of training centres 1991/2–1995/6 by rates of inflation using the CSO low variant (\$ million)

Year		SCNs	SRNs	Midwives	Total
1991/2	17%	—	—	6.3	6.3
	21%	—	—	6.5	6.5
	25%	—	—	6.8	6.8
1992/3	17%	—	38.8	58.2	97.1
	21%	—	40.5	60.8	101.3
	25%	—	42.2	63.3	105.5
1993/4	17%	—	58.2	77.6	135.7
	21%	—	60.8	80.9	141.6
	25%	—	63.2	84.3	147.5
1994/5	17%	60.6	72.8	103.0	236.5
	21%	63.3	75.9	107.5	246.7
	25%	65.9	79.1	112.0	257.0
1995/6	17%	98.5	227.4	128.9	454.8
	21%	102.8	237.3	134.5	474.6
	25%	107.1	247.2	140.1	494.4
Total	17%	159.2	397.2	429.9	931.0
	21%	166.1	414.4	448.6	971.5
	25%	173.0	431.7	467.3	1 012.0

Using the CSO high variant, there will be a 51-fold increase in the capital costs of training centres by the end of the plan period. Using the CSO low variant, the increase will be 70-fold. The largest proportion of these costs go to the construction of training centres for midwives.

Table 5.41: Capital costs of training centres 1991/2–1995/6 by rates of inflation using the assumptions made in this paper (\$ million)

Year		SCNs	SRNs	Midwives	Total
1991/2	17%	—	18.7	31.1	49.8
	21%	—	19.5	32.4	51.9
	25%	—	20.3	33.8	54.1
1992/3	17%	—	50.5	66.0	116.5
	21%	—	52.7	68.8	121.5
	25%	—	54.9	71.7	126.6
1993/4	17%	43.6	63.0	87.3	193.9
	21%	45.5	65.8	91.1	202.4
	25%	47.4	68.5	94.9	210.8
1994/5	17%	188.0	78.8	109.1	375.9
	21%	196.1	82.3	113.9	392.3
	25%	204.3	85.7	118.6	408.6
1995/6	17%	242.6	106.2	136.4	485.2
	21%	253.2	110.8	142.4	506.3
	25%	263.7	115.4	148.3	527.4
Total	17%	474.2	317.1	420.7	1 221.2
	21%	494.8	330.9	439.0	1 274.3
	25%	515.4	344.7	457.3	1 327.4

There will be a ten-fold increase in construction costs over the plan period.

Rural health centres construction costs

The capital costs of constructing rural health centres, using the three variants, are given in Tables 5.42–5.44.

Table 5.42: Construction costs of RHCs 1991/2–1995/6 by rates of inflation using the CSO high variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	4.5	137.7	450.5	859.6	1 533.6
21%	—	4.7	143.7	170.1	897.0	1 600.3
25%	—	4.9	149.7	489.7	934.4	1 667.0

Table 5.43: Construction costs of RHCs 1991/2–1995/6 by rates of inflation using the CSO low variant (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	—	163.9	422.7	813.7	1 236.9
21%	—	—	171.1	441.1	849.1	1 290.7
25%	—	—	178.2	459.5	884.5	1 344.5

Table 5.44: Construction costs of RHCs 1991/2–1995/6 by rates of inflation using assumptions made in this paper (\$ million)

Inflation rate	\$ million					Total
	1991	1992	1993	1994	1995	
17%	—	88.2	298.5	611.2	1 065.7	2 063.7
21%	—	92.1	311.5	637.7	1 112.1	2 153.4
25%	—	95.9	324.5	664.3	1 158.4	2 243.1

Summary of total expenditure

A summary of the total current expenditure for the plan period is given in Tables 5.45–5.50 and for the capital expenditure in Tables 5.51–5.54.

Total current expenditure

Table 5.45: Salaries 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	466.4	461.3	513.2
	21%	486.8	481.2	535.3
	25%	507.1	501.3	557.7
1992	17%	697.8	690.1	779.8
	21%	728.0	720.0	813.9
	25%	758.4	750.1	847.7
1993	17%	1 045.0	1 011.7	1 130.7
	21%	1 090.4	1 055.7	1 179.9
	25%	1 135.8	1 099.7	1 229.0
1994	17%	1 495.6	1 473.6	1 643.6
	21%	1 560.6	1 537.6	1 715.1
	25%	1 625.7	1 601.7	1 786.5
1995	17%	2 137.3	2 098.6	2 322.4
	21%	2 230.4	2 189.8	2 423.4
	25%	2 323.3	2 281.1	2 524.4

Table 5.46: Training costs 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	27.0	25.9	39.5
	21%	28.0	26.9	41.2
	25%	29.3	28.1	43.0
1992	17%	68.5	62.9	86.4
	21%	71.6	65.7	90.1
	25%	74.5	68.4	93.9
1993	17%	135.4	121.5	159.4
	21%	141.1	126.8	166.3
	25%	147.2	132.1	173.3
1994	17%	226.1	212.7	276.1
	21%	236.0	223.9	288.1
	25%	245.8	231.2	300.1
1995	17%	378.7	356.9	440.2
	21%	395.2	372.6	459.5
	25%	411.7	388.1	478.7

Table 5.47: Maintenance costs of health facilities other than RHCs 1991–1995 (\$ million)

Inflation rate	\$ million				
	1991	1992	1993	1994	1995
17%	56.9	71.3	89.1	111.5	139.4
21%	59.4	74.4	93.0	116.4	145.4
25%	61.9	77.5	96.9	121.2	151.5

Table 5.48: Maintenance costs of rural health centres 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	22.0	22.0	22.0
	21%	22.9	22.9	22.9
	25%	23.9	23.9	23.9
1992	17%	27.7	27.5	30.6
	21%	29.0	28.7	32.0
	25%	30.1	29.9	33.3
1993	17%	40.7	40.1	44.8
	21%	42.4	41.9	46.8
	25%	44.2	43.6	48.7
1994	17%	58.8	57.9	64.4
	21%	61.3	60.4	67.2
	25%	63.9	62.9	70.0
1995	17%	83.9	82.2	91.1
	21%	87.6	85.8	95.0
	25%	91.2	89.4	99.0

Table 5.49: Maintenance costs of hospital beds 1991–1995 (\$ million)

Inflation rate	\$ million				
	1991	1992	1993	1994	1995
17%	239.7	305.6	401.7	511.4	627.6
21%	250.1	318.9	419.1	533.7	654.9
25%	260.5	332.2	436.6	555.9	682.2

Table 5.50: Maintenance costs of training centres 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	3.4	3.2	4.8
	21%	3.6	3.4	5.0
	25%	3.7	3.5	5.2
1992	17%	7.7	6.1	10.0
	21%	8.1	6.3	10.5
	25%	8.4	6.6	10.9
1993	17%	16.8	12.4	19.3
	21%	17.6	13.0	20.2
	25%	18.3	13.5	21.0
1994	17%	27.4	23.7	35.2
	21%	28.6	24.8	36.8
	25%	29.8	25.8	38.3
1995	17%	50.7	45.6	61.0
	21%	52.9	47.6	63.6
	25%	55.1	49.6	66.3

Salaries for health personnel will have the biggest proportion of the current budget while training costs will have the smallest.

Total capital expenditure

Table 5.51: Cost of providing hospital beds 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	--	--	--
	21%	--	--	--
	25%	--	--	--
1992	17%	--	--	--
	21%	--	--	--
	25%	--	--	--
1993	17%	.55	.37	1.4
	21%	.58	.38	1.45
	25%	.6	.4	1.5
1994	17%	2.4	2.2	3.7
	21%	2.5	2.3	3.85
	25%	2.6	2.4	4.0
1995	17%	5.3	5.0	6.9
	21%	5.6	5.2	7.2
	25%	5.8	5.4	7.5

Table 5.52: Training centre construction costs 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	9.3	6.3	49.8
	21%	9.7	6.5	51.9
	25%	10.1	6.8	54.1
1992	17%	100.9	97.1	116.5
	21%	105.3	101.3	121.5
	25%	109.7	105.5	126.6
1993	17%	203.6	135.7	193.9
	21%	212.4	141.6	202.4
	25%	221.3	147.5	210.8
1994	17%	181.9	236.5	375.9
	21%	189.8	246.7	392.3
	25%	197.7	257.0	408.6
1995	17%	470.0	454.8	485.2
	21%	490.4	474.6	506.3
	25%	510.8	494.4	527.4

Table 5.53: Rural health centre construction costs 1991–1995 (\$ million)

Year		CSO high variant	CSO low variant	Assumptions in this paper
1991	17%	—	—	—
	21%	—	—	—
	25%	—	—	—
1992	17%	4.5	—	88.2
	21%	4.7	—	92.1
	25%	4.9	—	95.9
1993	17%	137.7	163.9	298.5
	21%	143.7	171.1	311.5
	25%	149.7	178.2	324.5
1994	17%	450.5	422.7	611.2
	21%	470.1	441.1	637.7
	25%	489.7	459.5	664.3
1995	17%	859.6	813.7	1 065.7
	21%	897.0	849.1	1 112.1
	25%	934.4	884.5	1 158.4

Table 5.54: Health facility construction costs 1991–1995 (\$ million)

Inflation rate	\$ million				
	1991	1992	1993	1994	1995
17%	62.6	78.3	98.0	122.2	152.8
21%	65.3	81.7	102.2	127.5	159.5
25%	68.0	85.1	106.5	132.8	166.1

Construction costs of rural health centres will need the largest proportion of the capital budget for the plan period, whilst the provision of hospital beds will have the smallest proportion.

The highest expenditure will be in the form of salaries for health personnel. The highest costs are incurred when the assumptions made in this paper are used and the lowest when the CSO low variant is used.

Summary and conclusion

An attempt was made to estimate the current and capital budget for the Ministry of Health's primary health care programme for the period 1991–1995. Use was made of inflation rates and three population variants.

Limitations

The full data required for the estimation of the current and capital budget was not available. Information on salaries for tutors (lecturers), both for medical students and village health workers, could not be found. Hence the current budget is a partial presentation only.

Utilization costs of beds for rural and mission hospitals and rural health centres were also not available.

The Ministry of Health does not clearly state the staffing targets for doctors and nurses, hence estimates are used. The attrition rates for doctors and midwives used in this study are estimates, since precise information was not available.

The population projections using the CSO variants appear to be lower than expected for a developing country like Zimbabwe. Budgeting with the use of these variants could lead to an underestimation of actual requirements.

Conclusion

Zimbabwe's high population growth rate together with the information provided in this paper show the necessity of preparing current and capital budgets in

advance. The study also shows that planning requires the inclusion of population statistics that are more realistic than health statistics per se.

Some of the information needed for the preparation of this budget was not available. It is therefore recommended that the Ministry of Health improves its communication system so that information for planning is regularly updated and made readily available.

This paper is intended as an initial step in the investigation of health policy issues and should stimulate further research in the field.

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