3. Secular Changes in Project Fund Operations

The secular changes in capital outlay, current expenditures and loan repayment funds from the start of the project until the loan repayment has ended is given below:

Following is the estimate of the cash flow by year supposing that the First Plan is 60% foreign loans.

a. 60% Loans, Interest Rate 3.25%, Amortization Period of 25 Years (including a grace period of 7 years).

(in Million Pesos)

YEAR	CAPITAL OUTLAY (1)	LOAN REPAYMENT (2)	REVENUES (3)	EXPENDI-TURES (4)	BALANCE (3)-(4)	PAYMENT TOTAL (1)+(2)+(4)
1	47.1					47.1
2	94.4					94.4
3	238.3					238.3
4	236.8		1.9	31.1	29.2	267.9
5	216.4		3.7	58.5	54.8	274.9
6	118.6		5.6	85.3	79.7	203.9
7			8.0	117.4	109.4	117.4
8		2.6	8.2	119.2	111.0	121.8
9		15.8	8.3	121.0	112.7	136.8
10		29.3	8.5	123.6	115.1	152.9
11		42.0	8.6	125.9	117.3	167.9
12		53.0	8.6	126.6	118.0	179.6
13∿18		53.0	8.6	127.3	118.7	180.3
19		53.0	8.6	129.7	121.1	182.7
20		53.0	8.6	131.5	122.9	184.5
21		53.0	8.6	133.4	124.8	186.4
22∿25		53.0	8.6	135.1	126.5	188.1
26		50.4	8.6	135.1	126.5	185.5
27		37.2	8.6	135.1	126.5	172.3
28		23.8	8.6	135.1	126.5	158.9
29		11.1	8.6	135.1	126.5	146.2
30			8.6	135.1	126.5	135.1

b. 60% Loans, Interest Rate 7.6%, Amortization Period of 20 Years (including a grace period of 5 years).

(in Million Pesos)

YEAR	CAPITAL OUTLAY (1)	LOAN REPAYMENT (2)	REVENUES (3)	EXPENDI- TURES (4)	BALANCE (3)-(4)	PAYMENT TOTAL (1)+(2)+(4)
1	47.1					47.1
2	94.4					94.4
3	238.3					238.3
4	236.8		1.9	31.1	29.2	267.9
5	216.4		3.7	58.5	54.8	274.9
6	118.6	4.6	5.6	85.3	79.7	208.5
7		28.0	8.0	117.4	109.4	145.4
8		51.8	8.2	119.2	111.0	171.0
9		74.3	8.3	121.0	112.7	195.3
10		93.9	8.5	123.6	115.1	217.5
11		93.9	8.6	125.9	117.3	219.8
12		93.9	8.6	126.6	118.7	220.5
13∼18		93.9	8.6	127.3	118.7	221.2
19		93.9	8.6	129.7	121.1	223.6
20		93.9	8.6	131.5	122.9	225.4
21		89.3	8.6	133.4	124.8	222.7
22		65.9	8.6	135.1	126.5	201.0
23		42.1	8.6	135.1	126.5	177.2
24		19.6	8.6	135.1	126.5	154.7
25			8.6	135.1	126.5	135.1

In the case of (a), the period of capital investment from the 3rd through 6th year forms the peak, reaching about 275 million pesos in the 5th year. From the 7th year, however, there will be only current expenditure with repayment commencing from the 8th year. Thus, from the 12th year, it will remain approximately on the 180 million pesos level. It will fall from the 26th year with, partial completion of repayment until the completion in the 29th year; thereafter it will only be current expenditure.

In the case of (b), the peak period of capital investment will be the same; but with earlier commencement of repayment it will be on the 220 million pesos level from the 10th year. Repayment will be completed partially in the 21st year. Thereafter it will fall until the 24th year; it will only be current expenditure from the 25th year onward.

I-11 CONSTRUCTION COSTS, CURRENT EXPENDITURE AND PROJECT FUND
OPERATIONS FOR PLAN II

1. Construction Costs

   1) Conditions of Estimate

   Estimate are made based on the same conditions shown
in Plan I (I-10, (1) ∿ (5))

   Construction costs, equipment and fixtures costs for
19 hospitals are given below:

(in Million Pesos)

Section		Total value	Currencies		
			Local	Foreign	Indirect Foreign
Facilities	Construction	171	103	0	68
	Mechanical work	106	43	50	13
	Electrical work	52	21	28	3
	Site development work	11	7	0	4
	Sub-total	340	174	78	88
Medical equipment		69	6	59	4
Design and consultant fees, etc.		281	92	150	39
Total (US$ Equivalent)		690 (92.00)	272 (36.27)	287 (38.26)	131 (17.47)

   The total cost of PLAN II is estimated at 690 million
pesos (US$92.00 million), including the foreign and the
indirect foreign currency component of 418 million pesos
(US$55.73 million).

The year by year construction expenses are as shown below.

(in Million Pesos)

Year	1	2	3	4	5	6
Construction year	0	1	2	3	4	5
Hospital	Study Basic Planning	Cagayan R.H Benguet P.H Ifugao P.H Don Mariano Marcos M.H. Bontoc P.H.	Pangasinan MC. Quirino P.H Isabela P.H Batanes P.H	La Union R.H. Gabriela-Silang Nueva Vizcaya Abra P.H Ilocos Norte P.H	Cagayan P.H. Cagayan M.H. Kalinga Apayao P.H. Baguio M.C. Major Marcos Veteran M.H	
Construction phase		1st phase	2nd phase	3rd phase	4th phase	
Construction costs for the year	34 (4.53)	74 (9.87)	185 (24.67)	176 (23.47)	147 (19.60)	74 (9.86)

CONSTRUCTION COST FOR PLAN II BY YEAR AND ITEM

(in Million Pesos)

		Year 1 (Constr. Yr 0)				Year 2 (Constr. Yr 1)				Year 3 (Constr. Yr 2)				Year 4 (Constr. Yr 3)				Year 5 (Constr. Yr 4)				Year 6 (Constr. Yr 5)				
		L	F	I	Total	L	F	I	Total	L	F	I	Total	L	F	I	Total	L	F	I	Total	L	F	I	Total	
Facilities — Civil Work	Construction	-	-	-	-	12.6	-	5.4	18.0	32.0	-	13.7	45.7	29.6	-	12.7	42.3	20.9	-	8.9	29.8	8.9	-	3.8	12.7	
	Electrical Work	-	-	-	-	1.9	2.5	0.3	4.7	5.2	6.8	0.8	12.8	5.6	7.3	0.8	13.7	4.7	6.1	0.7	11.5	2.3	3.0	0.3	5.6	
	Mechanical Work	-	-	-	-	5.3	4.7	-	10.0	13.6	12.0	-	25.6	14.2	12.6	-	26.8	12.8	11.4	-	24.2	6.1	5.5	-	11.6	
	Site Development Work	-	-	-	-	0.9	-	0.4	1.3	2.0	-	0.9	2.9	1.6	-	0.7	2.3	1.3	-	0.6	1.9	0.8	-	0.4	1.2	
	Civil Work Total	-	-	-	-	20.7	7.2	6.1	34.0	52.8	18.8	15.4	87.0	51.0	19.9	14.2	85.1	39.7	17.5	10.2	67.4	18.1	8.5	4.5	31.1	
	Medical Equipment	-	-	-	-	1.2	6.5	0.2	7.9	2.6	14.2	0.3	17.1	2.1	11.8	0.3	14.2	2.5	14.0	0.3	16.8	1.7	9.5	0.2	11.4	
	Facility Total (at the end of March, 1929)	-	-	-	-	21.9	13.7	6.3	41.9	55.4	33.0	15.7	104.1	53.1	31.7	14.5	99.3	42.2	31.5	10.5	84.2	19.8	18.0	4.7	42.5	
Price Increase (March ~ August, 1979) *1									4.2				10.7				10.1				7.9				3.7	
Facility Total (at August 1, 1979)									46.1				114.8				109.4				92.1				46.2	
Miscellaneous	Survey (Subsoil, water source and water quality)				2.9																						
	Design, Consultant, Supervision and Administration Fees *2				31.2				7.8				19.7				19.2				16.0				7.9	
	Local Revise + Freight Revise *3				-				1.6				4.0				3.3				2.1				1.5	
	Physical Contingency *3				-				4.6				11.5				10.9				9.3				4.7	
	Price Contingency *4				-				13.8				34.4				32.8				27.8				14.0	
Total (August 1, 1979)					34.1 say 34				73.9 say 74				184.4 say 185				175.6 say 176				147.3 say 147				74.3 say 74	690

L: Local Currency
F: Foreign Currency
I: Indirect Foreign Currency

*1 Price increase is estimated based on the results of additional survey in August, 1979. 15% increase in local and indirect foreign currencies during the term of March-August, 1979 about following times

Item	Rate of Currencies	Increase Rate
Construction	(L-70% F-0% I-30%)	→ 15%
Electrical Work	(L-41% F-53% I-6%)	→ 7%
Mechanical Work	(L-53% F-47% I-0%)	→ 8%
Medical Equipment	(L-15% F-83% I-2%)	→ 3%
Site Development	(L-70% F-0% I-30%)	→ 15%

*2 Design fee 10%, Consultant Fee 5%, Supervision 5% Administration 5%
Total 25% of facility total

*3 Physical Contingency 10% of facility total

*4 Price Contingency 30% of facility total
Price Contingency is estimated uniformly 30% (tough target year is 3rd year)

Note: o 1st year's cost is composed only by survey costs + 1/3 x (design-, consultant-, supervision-, and administration fee)

o From the costs of each hospital 40% is allocated in the beginning year and 60 in the ending year.

2. Current Expenditure (income and expenditures)

The revenues and expenditures are as shown below.

(in 1000 pesos)

Revenue and expenditure / Hospital	Revenue			Expenditure			Remarks
	1977 Actual (a)	Peak (b)	(b)/(a) %	1977 Actual (c)	Peak (d)	(d)/(C) %	
I-1 Pangasinan	764	1,461	191	3,807	21,397	562	
2 Bontoc	115	254	221	1,221	4,142	339	
3 Baguio	1,054	1,652	157	10,139	19,900	196	
4 Benguet	75	236	315	1,571	4,147	264	
5 La Union	–	(616)	–	1,928	9,000	467	
6 Abra	167	252	151	1,197	3,946	330	
7 Gabriela Silang	312	340	109	1,398	4,040	289	
8 Don Mariano Marcos	537	334	62	2,932	4,500	153	
9 Ilcos Norte	326	512	157	1,871	6,872	367	
Sub-total	3,350	5,041 (5,657)	150	26,064	77,944	299	
II-1 Cagayan R.H	442	777	176	4,478	13,626	304	
2 Cagayan M.H	–	–	–	–	–	–	
3 Kalinga Apayao	–	(284)	–	947	3,984	421	
4 Cagayan P.H	[1] 48	216	450	[1] 288	4,020	1,396	[1] Aparri E.H.
5 Isabela	–	(375)	–	2,132	5,566	261	
6 Quirino	202	300	149	1,455	4,092	281	
7 Ifugao	116	247	150	1,184	4,154	351	
8 Major Marcos	–	(358)	–	3,333	5,389	162	
9 Nueva Vizcaya	165	237	144	674	3,947	586	
10 Batanes	68	140	206	1,000	3,178	318	
Sub-total	1,041	1,917 (2,934)	184	15,491	47,956	310	
Total	4,391	6,958 (8,591)	158	41,555	125,900	303	
per Bed (pesos)	2,590	3,096		19,230	45,369		

* The peak figures are taken from a period approximately 13 years
after the hospitals begin operation.

3. Secular Changes in Project Fund Operations

a. 60% Loans, Interest Rate 3.25%, Amortization Period of 25 Years (including a grace period of 7 years).

(in Million Pesos)

YEAR	CAPITAL OUTLAY (1)	LOAN REPAYMENT (2)	REVENUES (3)	EXPENDI-TURES (4)	BALANCE (3)-(4)	PAYMENT TOTAL (1)+(2)+(4)
1	34.1					34.1
2	73.9					73.9
3	184.4					184.4
4	175.6		1.9	31.0	29.1	206.6
5	147.4		3.7	58.4	54.7	205.8
6	74.3		5.6	85.0	79.4	159.3
7			8.0	117.0	109.0	117.0
8		1.9	8.2	118.8	110.6	120.7
9		12.2	8.3	120.6	112.3	132.8
10		22.4	8.5	123.0	114.5	145.4
11		31.5	8.6	125.0	116.4	156.5
12		38.4	8.6	125.4	116.8	163.8
13 ～ 18		38.4	8.6	125.9	117.3	164.3
19		38.4	8.6	127.9	119.3	166.3
20		38.4	8.6	129.3	120.7	167.7
21		38.4	8.6	130.8	122.2	169.2
22 ～ 25		38.4	8.6	132.0	123.4	170.4
26		36.5	8.6	132.0	123.4	168.5
27		26.2	8.6	132.0	123.4	158.2
28		16.0	8.6	132.0	123.4	148.0
29		6.9	8.6	132.0	123.4	138.9
30			8.6	132.0	123.4	132.0

b. 60% Loans, Interest Rate 7.6%, Amortization Period of 20
    Years (including a grace period of 5 years).

<div style="text-align: right">(in Million Pesos)</div>

YEAR	CAPTIAL OUTLAY (1)	LOAN REPAYMENT (2)	REVENUES (3)	EXPENDI- TURE (4)	BALANCE (3)-(4)	PAYMENT TOTAL (1)+(2)+(4)
1	34.1					34.1
2	73.9					73.9
3	184.4					184.4
4	175.6		1.9	31.0	29.1	206.6
5	147.5		3.7	58.4	54.7	205.8
6	74.3	3.3	5.6	85.0	79.4	162.6
7		21.5	8.0	117.0	109.0	138.5
8		39.6	8.2	118.8	110.6	158.4
9		55.7	8.3	120.6	112.3	176.3
10		67.9	8.5	123.0	114.5	190.9
11		67.9	8.6	125.0	116.4	192.9
12		67.9	8.6	125.4	116.8	193.3
13 ∿ 18		67.9	8.6	125.9	117.3	193.8
19		67.9	8.6	127.9	119.3	195.8
20		67.9	8.6	129.3	120.7	197.2
21		64.6	8.6	130.8	122.2	195.4
22		46.4	8.6	132.0	123.4	178.4
23		28.3	8.6	132.0	123.4	160.3
24		12.2	8.6	132.0	123.4	144.2
25			8.6	132.0	123.4	132.0

    In both cases of (a) and (b), the secular trend is similar to
that in the case of Plan I. In the case of (a), the amount at the
peak is 207 million pesos; but it is expected to be on the 160
million pesos level from the 12th year. In the case of (b), the
amount is expected to be 207 million pesos at the peak, falling to
the 190 million pesos level from the 10th year.

I-12 RELATIONSHIP BETWEEN THE IMPROVEMENT PLAN AND CAPITAL
      EXPENDITURE, CURRENT EXPENDITURE, ETC. IN THE PHILIPPINES

The impact of the present improvement plan on the governmental capital expenditure, current expenditure and others may be estimated as below.

1. Capital Expenditure   (Million Pesos)

		1978	1982
1)	Capital expenditure under the improvement plan:	1.9[1]	238
2)	Other capital expenditure relating to medical care:	29	830[5]
3)	Total:	31[2]	1068
4)	Total capital expenditure for Government:	7680[3]	19136[6]

5) $\text{Total ratio} = \dfrac{\text{Medical capital expenditure}}{\text{Total capital expenditure}}$ 0.4%   5.6%   Refer. ESCAP REPORT 1977   2.0% [4]

[1] Capital expenditure in fiscal 1978 is assumed to be the same as 1977.

[2],[3] Presidential Decree No. 1250 P.344, P.346

[4] ESCAP 1978 P.318

[5] FIVE YEAR PHILIPPINE DEVELOPMENT PLAN (FYPDP) 1978~82 P370 converted to 1979 prices

[6] Figures in FYPDP Capital Outlays converted to 1979 prices.

The results of the estimate show that the ratio of medical capital expenditure to the total capital expenditure is extremely small at present. However, it will increase markedly to 5.3% in 1982, the peak year for the improvement plan. As shown below, in many of those countries of the same income level as the Philippines, the ratio exceeds 5%.

	Per capita GNP.	Medical capital expenditure / Total capital expenditure
Malaysia	590 US$	6.7%
Thailand	410	5.0
Fiji	580	2.5
Chile	730	15.3
Columbia	500	10.5
Costa Rica	650	4.5

2. Current Expenditure

Similarly, current expenditure may be estimated as below.

(in Million Pesos)

	1978	1987	1992
1) Current expenditure under the improvement plan:	42[1]	155[5]	177[8]
2) Other current expenditure relating to medical care:	966[2]	1,918[6]	2,805[9]
3) Total medical current expenditure [1)+2)]:	1,008[3]	2,073	2,982
4) Total current expenditure for Government:	21,006[4]	56,680[7]	70,770[10]
5) Ratio of medical current expenditure to national current expenditure [3)/4)]:	4.8%	3.7%	4.2%

(Reference)   ESCAP REPORT[11] (1977):   6.1% (corresponding to the item 5) above).

1) Since 1978 data are not obtainable, the level is assumed to be the same as the 1977 level.

2) 3) - 1) = 1,008 - 42 = 966.

3) Cited from Presidential Decrees No. 1250, p. 341.

4) ibid.

5) Interest payable amounting to 34 million pesos in the case of 60% loan to have an amortization period of 20 years at the interest rate of 7.6% of Plan I added to the current expenditure.

6) Figures of the total costs in FYPDP (p. 196) converted to 1979 prices.

7) Figures of Current Operating Expenditure in FYPDP (p. 375) converted to 1979 prices.

8) As with 5), interest payable amounting to approx. 50 million pesos added.

9) Average growth rate of 7.9% for 1978-1987 applied.

10) Assuming the growth rate to be 8% per annum during the period from 1987 to 1992, 1987 figures in FYPDP

(p. 26) were converted to 1979 prices to obtain GNP in 1992. The ratio of governmental current expenditure to GNP was fixed at 13% of 1987 (FYPDP p. 38).

n) Cited from ESCAP Economic and social survey of Asia and the Pacific 1978, p.318.

Even in 1992 when the current expenditure under the present improvement project reaches its peak, the ratio of medical expenditure to the total governmental current expenditure is expected to remain at about 4.2%. Though simple comparison with other countries is impossible due to the difference in income level, the level of 4.2% is by no means a high level even compared with the countries listed below.

	Per Capita GNP	
Indonesia 1977	310 US$	6.4%
Malaysia	997	4.5
Thailand	410	5.3
Southern Rhodesia	480	7.2
Zambia	480	6.7
Poland	2,160	9.8
Portugal	1,480	15.9

3. Debt Service Ratio

Loan repayments under the present improvement project are expected to reach the peak in 1992. Since other Total debt service and Foreign exchange receipts are not known, they may be estimated by assuming that all loans are effected in 1980 as below.

	Loan ratio 60%	FYPDP
Increase in Debt service under the improvement project:	7.1 MUS$	–
Total Debt Service	1,998.1	1,991
Foreign Exchange Receipt	17,723	17,723
Debt Service Ratio	11.3%	11.2%

The results of the estimate show that in case of loan ratio 60%, there will hardly be an increase in Debt service ratio due to the improvement project.

4. Ratio of Medical Expenditure to National Houseshold Expenditure

Generally, medical expenditure in household expenditure increases with an increase in income. The table below gives the ratio of medical expenditure in other countries compared with the Philippines.

Malaysia (urban) *1

Income	Medical expenditure
$ ~49	0.5
50~99	0.9
100~149	0.9
150~199	1.2
200~299	1.5
300~399	1.5
400~499	1.6
500~599	2.0
600~699	1.9
700~799	2.2
800~	1.8
Average	1.7

Thai (parts) *2

Income	Medical expenditure
~2,999	1.2
3,000~5,999	5.3
6,000~8,999	9.8
9,000~11,999	6.6
12,000~14,999	5.6
15,000~17,999	6.7
18,000~23,999	6.1
24,000~29,999	6.2
30,000~35,999	4.6
36,000~47,999	5.5
48,000~60,000	8.0
60,000~	3.9
Average	5.9

Hong Kong *3

Income	Medical expenditure
$ 400~1499	1.7
1,500~	2.4
Average	2.1

Philippines

Income	Medical expenditure
Urban	2.0
Rural	1.8
Average	1.9

*1 Dept. & Statistics Malaysia. Annual Statistical Bulletin Sara Wak 1977.

*2 National Statistical Office Socio-Economic Survey 1971~3.

*3 Census & Statistics Dept., Hong Kong. The Household Expenditure Survey 1973~74.

I-13 ANTICIPATED RESULTS OF THE IMPROVEMENT PLAN

It is anticipated that the present improvement plan will result in the social benefits listed below through the realization of adequate medical care in the project area.

a) Increase in healthy families.

b) Supply source of good manpower.

c) Increase in employment for medical care related persons.

d) Fostering of medical equipment makers.

e) Increase in employment in local public works.

f) Development of other industries due to a) and b).

Since the supply of good manpower provides the basis of the country's prosperity, the emphasis was thus placed on "Control of infectious diseases", "Eradication of malnutrition" and "Reduction in the mortality during infancy and pregnancy". It also attempted to improve the electric facilities for "Maintenance of the quality of vaccines, etc.", together with "Strengthening of central treatment" and "Improvement of water supply and drainage facilities to prevent in-hospital infection".

The "Present condition of medical care and the distribution of diseases which suggest measures to be taken in future" in the project area in the Philippines shows a typical infectious type similar to the case of Japan prior to 1947.

1. Expected Direct Results (Manpower)

In the case of Japan's medical care, the distribution of diseases had shown an infectious type until 1947. However, with the improved medical and health care, the distribution changed markedly three years later. Infectious diseases were eradicated eight years later in 1955 and the distribution of diseases changed to show a geriatric type (Fig. below).

Consequently, mortality, average life expectancy and productive population improved markedly; particularly the mortality was halved during the period.

Since the present improvement plan exceeds in scope the improvement made in Japan at that time, it is expected to yield similar results through adequate efforts made by physicians and other related personnel, thus serving as the prime mover for supplying good manpower.

That is, during the period from 1947 to 1976, the mortality
was almost halved and the average life expectancy increased
by 22-24 years from 50.06 to 72.69 years (male) and from 53.96
to 77.95 years (female). Productive population showed during the
period from 1950 to 1977 an increase of 7.8% from 59.6% to 67.4%.
Since the rate of population increase in higher in the Philippines,
even more marked results may be expected.

Changes in the order of causes of death in Japan
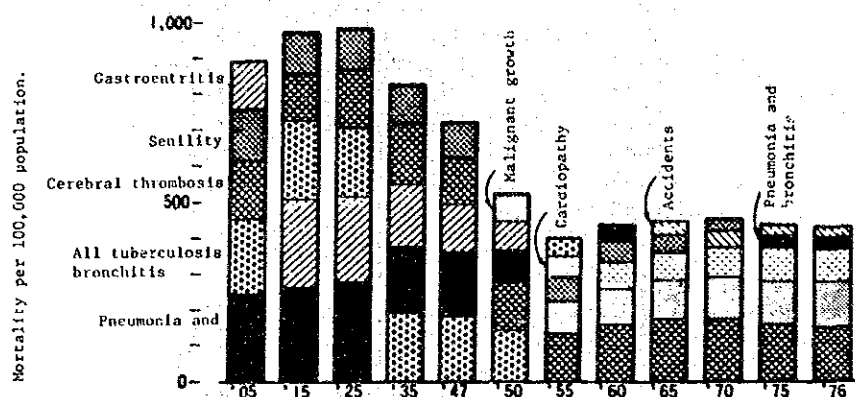
Distribution of Japanese population by age (%) and movements of indicators

	Total	Juvenile (0 - 14 years)	Pro- ductive (15-64)	Old age (over 65)	Juvenile population index	Old age popula- tion index	Dependent popula- tion index	Senes- cence index
(1920)	100.0	36.5	58.3	5.3	62.6	9.0	71.6	14.4
(' 25)	100.0	36.7	58.2	5.1	63.0	8.7	71.7	13.8
(' 30)	100.0	36.6	58.7	4.8	62.4	8.1	70.5	13.0
(' 35)	100.0	36.9	58.5	4.7	63.1	8.0	71.1	12.6
(' 40)	100.0	36.1	59.2	4.7	61.0	8.0	69.0	13.1
(' 50)	100.0	35.4	59.6	4.9	59.4	8.3	67.7	13.9
(' 55)	100.0	33.4	61.2	5.3	54.6	8.7	63.3	15.9
(' 60)	100.0	30.2	64.1	5.7	47.0	8.9	55.9	19.0
(' 65)	100.0	25.7	68.0	6.3	37.9	9.2	47.1	24.4
(' 70)	100.0	24.0	68.9	7.1	34.9	10.3	45.1	29.4
(' 75)	100.0	24.3	67.8	7.9	35.8	11.7	47.5	32.6
(' 76)	100.0	24.3	67.6	8.1	35.9	12.0	47.9	33.5
(' 77)	100.0	24.2	67.4	8.4	35.9	12.4	48.4	34.6

Notes: 1. Excluding aliens except citizens of former territories.
   2. Including the population of Okinawa based on the national census population of the area.
   3. Including the "age unknown".
   4. Estimated population for 1976 and 1977; others based on the national census.
Source: Health and Welfare Statistics Association, Trend in national health: 1978, vol. 25, No. 9.

Changes in life expectancy in Japan

	Male	Female
(1891 ～ 1898)	42.8	44.3
(1899 ～ 1903)	43.97	44.85
(1909 ～ 1913)	44.25	44.73
(1921 ～ 1925)	42.06	43.20
(1926 ～ 1930)	44.82	46.54
(1935 ～ 1936)	46.92	49.63
('45)	23.9	37.5
('46)	42.6	51.1
('47)	50.06	53.96
('48)	55.6	59.4
('49)	56.2	59.8
(1950 ～ 1952)	59.57	62.97
('51)	60.8	64.9
('52)	61.9	65.5
('53)	61.9	65.7
('54)	63.41	67.69
('55)	63.60	67.75
('56)	63.59	67.54
('57)	63.24	67.60
('58)	64.98	69.61
('59)	65.21	69.88
('60)	65.32	70.19
('61)	66.03	70.79
('62)	66.23	71.16
('63)	67.21	62.34
('64)	67.67	72.87
('65)	67.74	72.92
('66)	68.35	73.61
('67)	68.91	74.15
('68)	69.05	74.30
('69)	69.18	74.67
('70)	69.31	74.66
('71)	70.17	75.58
('72)	70.50	75.94
('73)	70.70	76.02
('74)	71.16	76.31
('75)	71.76	76.95
('76)	72.15	77.35
('77)	72.69	77.95

Similarly, upgrading of the central treatment sector and
the sterilization sector for "Eradication of malnutrition" and
"Reduction in the mortality during infancy and pregnancy", the
main points of emphasis in the present improvement project,
and the implementation of family planning are extremely effective
for supplying good manpower ten and several years later.
It will be indispensable for the rapid development of agriculture,
industry, power and water supply in the Cagayan River basin, the
JDB project area in Region II.

2. Other Anticipated Results

   1) Promotion of local public works

      The present hospital improvement project covers
      14 countries and 3 cities in Regions I and II, and
      may promote public works in general while bringing
      benefits to the various parts of the province regarding
      employment, procurement and distribution.

   2) Through the construction work under the project, the
      demand will be created for those makers in the related
      industries and construction materials.

   3) The expansion in the hospital scale will increase
      employment opportunities for those related to medical
      care and others.

   4) With improved medical facilities and equipment, accuracy
      in medical treatment will increase, resulting in de-
      creased patients and shorter recovery periods; thus an
      increase in productive manpower may be expected.

   5) With the improvement of laboratory equipment, stable
      supply of power and the improved water facilities, in-
      fectious diseases may be prevented and in-hospital
      infection reduced. Further, with the proper conserva-
      tion of vaccines, coupled with the improved medical
      facilities and equipment, cyclic infection may be
      prevented, resulting in a marked decrease in the number
      of patients and the mortality. This will amount to
      the maintenance of good labor force at present and in
      future.

   6) Further, development of sanitary hospitals will lead to
      the improved concept of sanitation among residents,
      thus contributing indirectly to the strengthening of
      the national strength.

      The implementation of the present project will not
   directly improve the financial position of the hospital;
   it will in fact increase expenditure in one aspect.
   However, increase in good manpower is expected to take place
   rapidly and continuously through the improvement, resulting
   in increased production in the Philippine agriculture and
   industry, exportation of labor force and improved intellectual
   labor force. Thus, these will result in higher GNP, serving
   as sufficient returns to the investments made under the
   project.

The proposed improvement project and the reviewing of the Philippine hospital standard are concerned with the maintenance of hospital facilities and medical equipment and, as such, formulated in such a way that they will be able to respond to the expanding demand in future and upgrading. They are, therefore, expected to contribute over a long period of time to the maintenance of the Philippine medical care service at a high standard.

I-14 CONCLUSION

As a result of the comprehensive survey in respect of Regions I and II, it may be concluded that the improvement in the medical and health service in these regions is in strong need and that adequate returns to investments may be expected.

In implementing the project, improvement of whole project hospitals by Alternative Plan I is most desirable, but as this total and simultaneous improvement needs enormous amount of initial investment, following combination of implementing method can be also considered to minimize and devide the initial investment.

o Improvement of whole porject hospitals by Plan II.

o Improvement starting with hospitals with higher priority by Plan I or II.

Furthermore, the cost estimation of so called "Plan of Authorized Beds" was made by the request of MOH, Philippines, with facility grade based on the authorized bed capacity of MOH and standard medical equipment.

The breakdown of construction cost of the above mentioned plans by hospital and hospital section are shown in chapter XI and from these datum the calculation of combinated plans in accordance with the necessities of facility or equipment of each hospital can be easily done.

With regard to the improvement in individual hospitals, priority may be given to Regional Hospital (Pangasinan Hospital or La Union Hospital in Region I and Cagayan Regional Hospital in Region II).

APPENDIX I

THE TREATMENT OF 3 PROBLEMATICAL HOSPITALS

- CAGAYAN PROVINCIAL HOSPITAL
- DON MARIANO MARCOS MEMORIAL HOSPITAL
- MAJOR F. MARCOS VETERAN MEMORIAL HOSPITAL

As the results of the field survey above-mentioned 3 hospitals seem to be treated exceptionally by the following reasons.

1. CAGAYAN PROVINCIAL HOSPITAL

a) Study on Feasibility of Aparri Emergency Hospital into Cagayan Provincial Hospital

The location of the hospital as it stands now is a low, swampy area on the outskirts of Aparri City, and its foundation is poor. Buildings of this hospital have already suffered damage, such as slants and cracks, by dint of subsidence, and the affliction of damage is in progress. In fact, the damage has come to a proportion where the maintenance of functions of the hospital may be endangered in the near future. In addition, the drainage system is extremely poor: besides, both waste and foul water is discarded directly the swamp, a condition which is extremely unsuitable in terms of environmental hygiene. As the hospital is situated right near a coast, moreover, its medical equipment and facilities are seriously affected by salinity. Given this situation, it is only natural for the Philippines to work out plans for the relocation of this hospital.

b) Evaluation of Indicated New Site

The new site lately indicated by the Philippine side also has following technical problems. The site is situated along National Route No.5, 5.3 km south of Aparri City and 6.4 km north of Camalaniugan, and is now a part of rice field.

(Evaluation)

The new site is also situated in a paddy field area along the Cagayan River, and it is evident from the result of the field survey that the area is flooded in every rainy season. At present, the road is about 80 cm higher than the site, but this road itself is flooded 10 ∿ 20 cm in the rainy season, so that there is a need to raise the ground level of the site by about 1.5 m. This kind of site has not only poor bearing capacity of soil but also has many problems for the hospital

visits on foot and by tricycle, an important factor particularly for hospitals in the Philippines. Another problem concerns the extent to which a hospital isolated in a broadly flooded area may be able to come out measures against surrounding sanitations. What the Philippine Bureau of Public Works is planning at present is an embankment, (only on the right-hand side), about 1 km in length, from the border of Camalaniugan, and there is no prospect that the site and its perimeter will be saved from flooding in the near future.

c)   About the Selection of Site

     To equip the Aparri Emergency Hospital with the character of a provincial hospital, there is a need for this hospital to serve for the broad, medically underprivileged area northern Cagayan. In this context, the Lalo-Fabrica steel bridge, which will be completed in the near future is extremely important as it will serve to eliminate the disruption between the east and west sides of the Cagayan River and the development of this area is expected. Traffic between both banks of the river, which has been dependent solely on ferryboat services, will not be disrupted in the rainy season. Besides, this bridge is the first step toward the realization of an extension of the Philippine-Japanese Friendship Road, which will go around the northern corner of the Luzon eventually to connect Ilocos. In terms of medical care delivery, it is necessary to take this bridge into consideration for the selection of the site.

     The Camalaniugan Emergency Hospital, the Japanese survey term visited for reference purposes, is situated on an elevated ground near Route No.5, and there is no danger that its site will be flooded.

     For the reasons that have thus far enumerated, it might be concluded that an appropriate site has not yet to be presented for the Cagayan Provincial Hospital.

     Thus we propose 2 alternative plan for this hospital.

A)   New adequate hospital site shall be looked for.

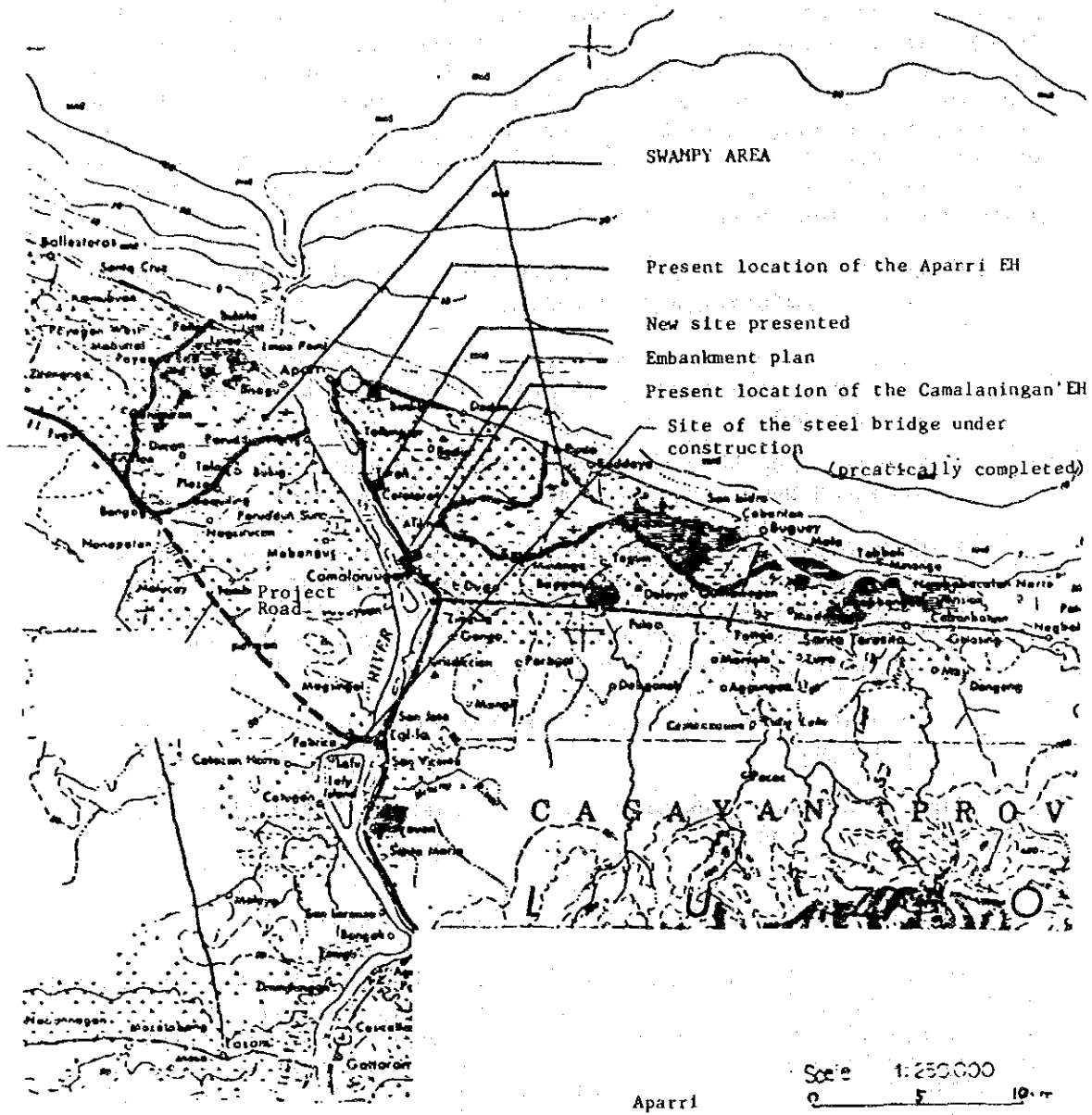   o   Standard cost and grading cost is enough for the construction of the hospital.

     o   No obstacle from flood

B)   Construct hospital on the already indicated site with filling the site.

     o   Construction cost is about 20% higher than standard cost because of filling and the reinforcement of foundation.

o   Surrounding area of the hospital will be still flooded
    and will be problematical for environmental sanitation.

o   Hospital traffic will be restricted.

    Thus plan A) is advisable, and in this report we sum
up the cost based on the A) plan for the construction of
100 beds standard hospital in new site which will be
indicated later by Philippine side.

SWAMPY AREA

Present location of the Aparri EH

New site presented

Embankment plan

Present location of the Camalaningan'EH

Site of the steel bridge under construction

(prcatically completed)

Scale   1:250000

0   5   10 m

Aparri

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2. DON MARIANO MARCOS MEMORIAL HOSPITAL (MEDICAL CENTER)

The Don Mariano Marcos Memorial Hospital is constructed in the small town of Batac south of Laoag, the provincial capital of Illocos Norte. This hospital at present has 100 beds and is officially designated as a medical center. In addition, a five storied modern building capable of accommodating 100 beds is under construction on the same compounds, under BPW supervising and at the moment of visit of field survey team 85% of the Building was already completed, and as the lest of it will be completed soon or later. The following items are studied in this report.

a) Solely supply of 200 bed standard level of medical equipments for the existing new building.

b) Securing 100-200 bed standard level of doctor's quarter and nurse dormitory (reuse of existing old building after renovation)

c) Securing 100 beds because of small patient load (at present with 100 beds capacity and 56% occupancy rate)

d) Cost estimate is made excluding the cost of completion of the building (which was under construction at the moment of field survey), the water work and electrical work in its new building but including the cost of medical equipment and furniture, necessary water work and electrical work.

No cost for the renovation of existing old facilities are included.

Thus this plan aimes high grade treatment and training hospital with small bed capacity.

3. MAJOR F. MARCOS VETERAN MEMORIAL HOSPITAL (REGIONAL)

As the existing hospital in the town of Bayombong, the provincial capital of Nueva Vizcaya, has become too small, the main buidling of a new hospital (three storied above the ground and basement) is supposed to be under construction at a site about 4 km south along Route No. 5. And the work for electric distribution wiring was being done at the time the survey was carried out.

This building is nearly 75 - 80% completed and therefore following items are studied in this report:

a) Solely supply of medical equipments and furniture with 200 beds standard level for the existing new building.

b) Additional construction of lacking facilities as 150 beds rank hospital. (service I & II, staff acommodation facilities).

c) Cost estimate is made in the same way like Don Mariano Marcos
    Memorial Hospital but including the cost of construction of
    additional facilities (service I & II and staff accommodation
    facilities), electrical work and mechanical work.