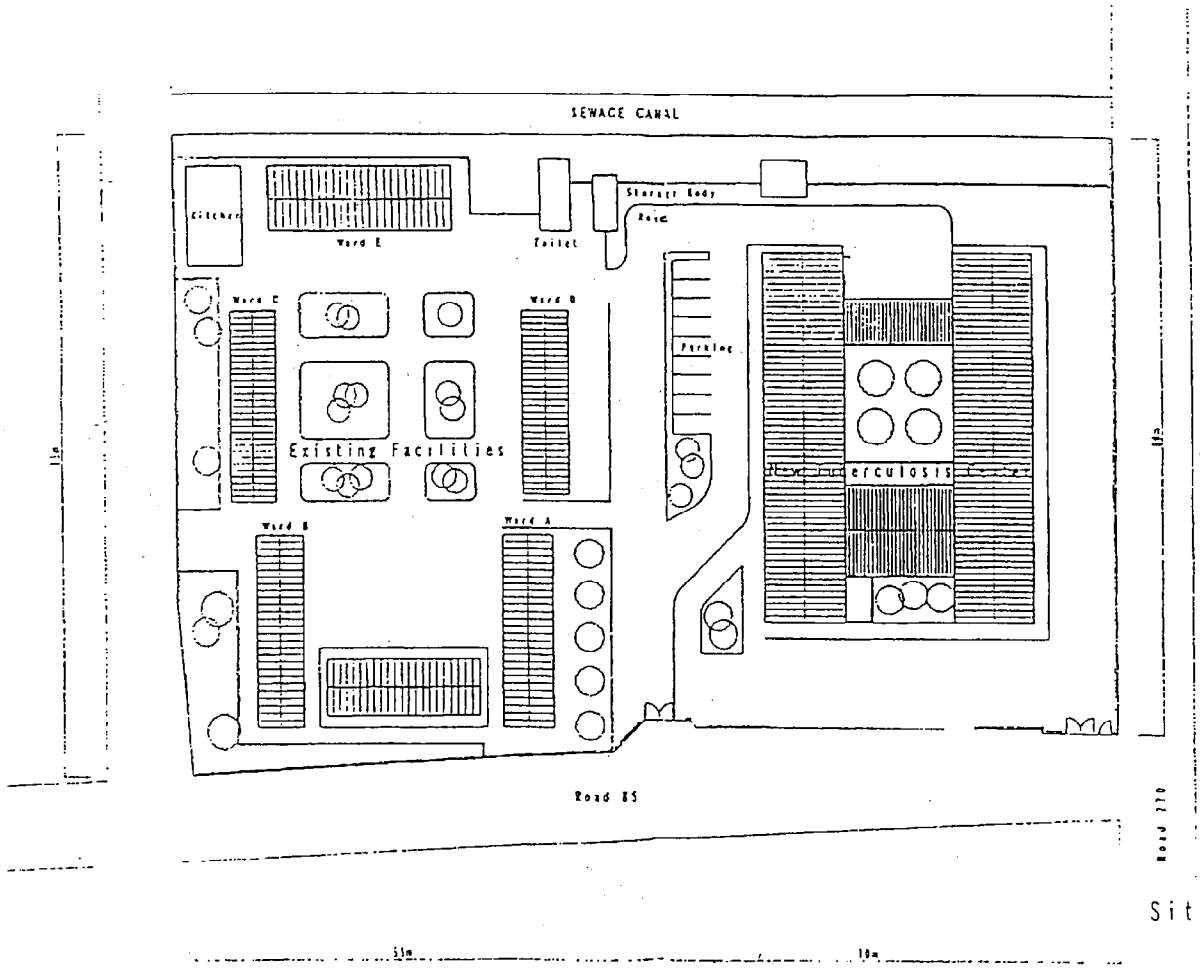
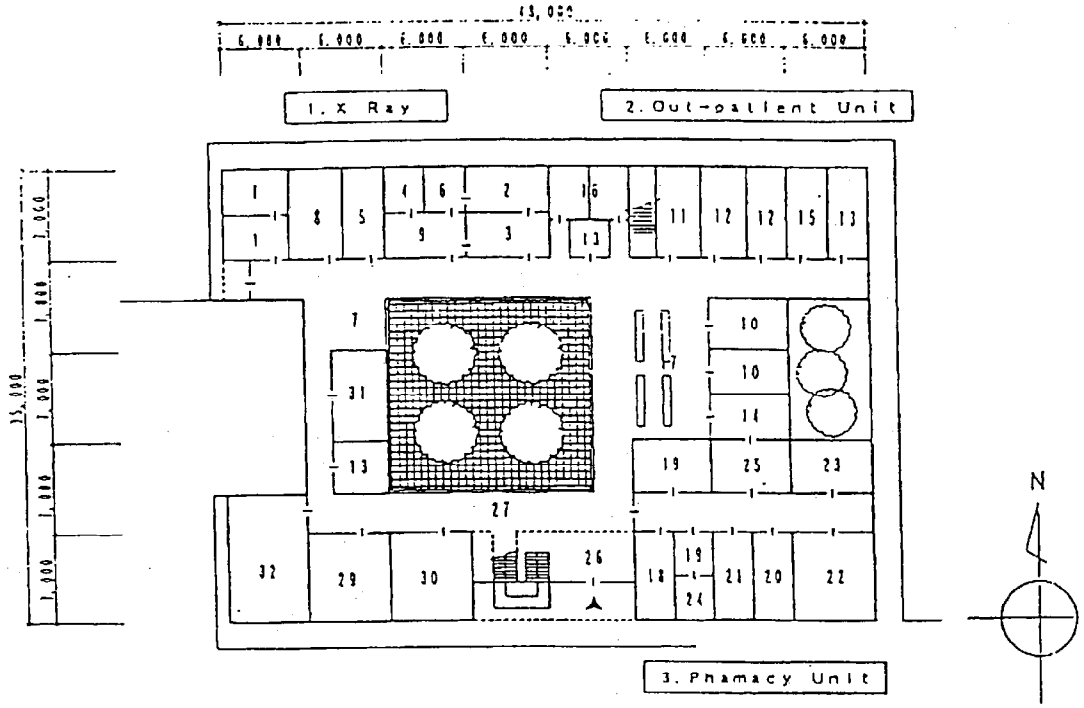
⑥　国立結核センター改築要請配置図・平面図



図－9　国立結核センター改築計画案　配置図



First Floor Plan 1/400

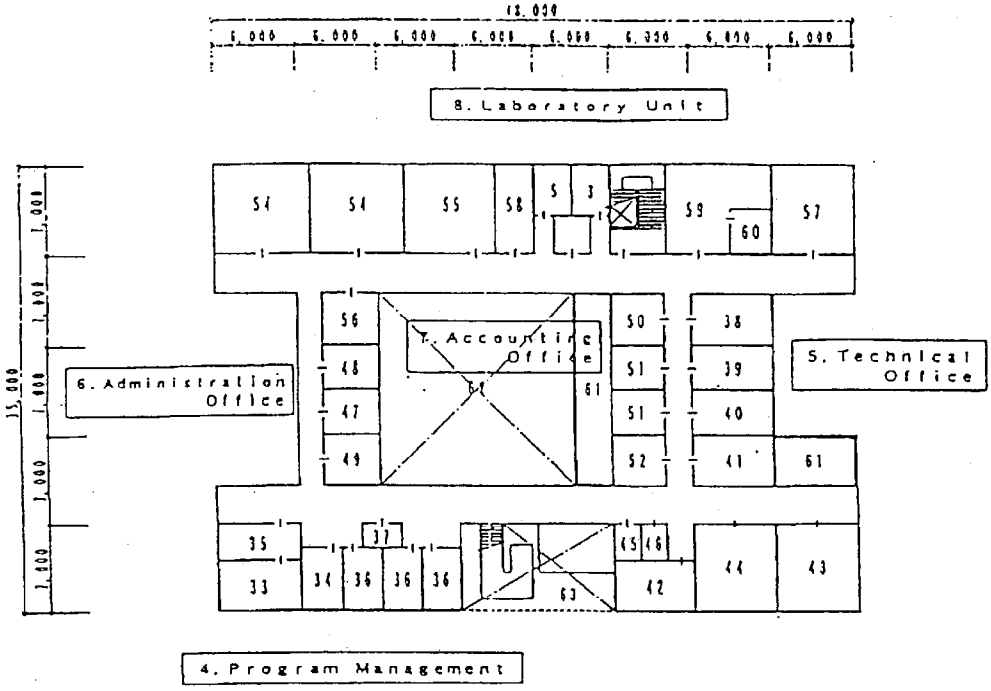
1,265㎡

1．放射線部門(X-Ray)
1.科長・副科長(Chief and vice chief)
2.フィルム乾燥室(Film Drying Room)
3.フィルム庫(Film storage room)
4.読影室(X ray reading room)
5.エコー・心電図室(Echo ECG)
6.暗室(Dark room)
7.待合室(Waiting room)
8.内視鏡室(Endoscopy room)
9.撮影室(X ray room)
2．外来(Out-patient Unit)
10.内科診察室(Physiciant room)
11.健康教室(Health Educt-room)
12.相談室(Cosultation room)
13.倉庫(Storage)
14.薬局(Drug distribute room)
15.重症室(Serious case room)
16.便所(Toilet)
17.待合ロビー(Waiting lobby)

3．薬剤部門(Pharmacy Unit)
18.薬剤科長室(Pharmacy chief)
19.事務室(Staff room)
20.結核薬品庫(TB drug central store)
21.試薬庫(Reagent store)
22.医療材料室(Medical material store)
23.ハンセン病薬品庫(Hansen drug store)
24.書類庫(Document room)
25.配布薬品庫(Distribution drug store)

26.玄関ホール(Entrance hall)
27.廊下(Corridor)
28.中庭(Courtyard)
29.図書室(Library)
30.会議室(Meeting room)
31.洗濯室(Laundry room)
32.ポンプ・発電機室(Pump and generation room)

図－10　国立結核センター改築計画案　1階平面図



Second Floor Plan 1/400
1,150㎡

4．プログラム管理部門
(Program Management)
33. センター長室(Director's office)
34. 副センター長室(Vice director)
35. 秘書室(Secretary)
36. コンサルタント室(Consultant)
37. 便所(Toilet)
5．技術課(Technical Office)
38. 課長室(Chief office)
39. 訓練・監督室
(Training and supervision)
40. 短期化学療法管理室(Dot's home office)
41. 健康教育室(Health education)
42. 倉庫(Storage)
43. 統計・計画室
(Statistics and planning room)
44. 技術委員会(Technical committee)
45. 便所(Toilet)
46. 湯沸室(Kitchenette)

6．経営部門(Administration Office)
47. 課長室(Chief office)
48. 秘書室(Secretary office)
49. 便所(Toilet)
7．会計課(Accounting Office)
50. 課長室(Chief office)
51. 事務室(And staff)
52. 書記室(Clerk office)
53. 便所(Toilet)
8．検査部門(Laboratory Unit)
54. 一般検査室(Routine laboratory)
55. 研究・培養室
(Research laboratory and culture)
56. 試薬準備室(Reagent preparation room)
57. 倉庫(Storage)
58. 科長・副科長室(Chief and vice chief room)
59. 顕微鏡検査訓練室(Microscopy training room)
60. 準備室(Preparation room)
61. バルコニー(Balcony)
62. 吹抜(Void)

図－11　国立結核センター改築計画案　2階平面図

別表－1　改築要請書の必要諸室リストと現状諸室との比較

		計画案（要請リスト）		現状		備考
1．計画管理課(Program Management office)						
人数			7人		7人	
機能	国家結核計画の意志決定と実行					
諸室	所長室(Director room)	1室	24㎡	1室	18㎡	
	副所長室(Vice director room)	1室	15㎡	1室	12㎡	
	秘書室(Secretary)	1室	18㎡			
	アドバイザー室(Advisors office)	3室	45㎡	1室	16㎡	計画図面は "Consultant"
	NTP事務室(National Anti-Tuberculosis Program)			1室	18㎡	
	計		102㎡		64㎡	
2．経営管理課(Administration office)						
人数			10人		10人	
機能	管理文書の作成及び図書室の管理					
諸室	課長室(Chief office)	1室	14㎡			
	秘書室(Secretary office)	1室	14㎡			
	図書室(Library)	1室	42㎡	1室	33㎡	
	事務室			2室	58㎡	
	計		70㎡		91㎡	
3．会計課(Accounting office)						
人数			8人		8人	
機能	給与等政府予算からの支出の管理					
諸室	課長室(Chief office)	1室	16㎡	1室	12㎡	
	職員室(Staff rooms)	2室	28㎡	1室	35㎡	
	書記室(Clerk office)	1室	16㎡			
	計		60㎡		47㎡	

4．技術課(Technical office)						
人数			6人		6人	
機能	国家結核計画の実行にかかる指導室					
諸室	課長室(Chief office)	1室	24㎡	1室	17㎡	
	訓練監督室(Training and supervision)	1室	21㎡			
	化学療法管理室(DOTS home office)	1室	21㎡			
	健康教育室(Health Education)	1室	24㎡			
	倉庫(Storage)	1室	24㎡			
	統計計画室(Statistics and planning room)	1室	42㎡			
	会議室(Meeting room)	1室	42㎡	1室	71㎡	計画図面は "Technical committe"
	在宅ケア事務室(Home care unit office)			1室	14㎡	
	計		198㎡		102㎡	
5．検査部門(Laboratory Unit)						
人数			14人		14人	
機能	結核に関する指導的研究					
諸室	科長及び副科長室(Chief and vice chief room)	1室	21㎡	1室	16㎡	
	一般検査室(Routine laboratory)	2室	98㎡	2室	32㎡	
	研究・培養実験室(Research and culture laboratory)	1室	49㎡	3室	32㎡	
	試薬準備室(Reagent preparation room)	1室	16㎡	1室	16㎡	
	倉庫(Storage)	2室	42㎡	3室	32㎡	計画図面上は1室
	顕微鏡使用法訓練室(Microscopy training room)	1室	45㎡	1室	22㎡	
	準備室(Preparation room)	1室	11㎡			
	心電図室(ECG room)	1室	21㎡			計画図面上は放射線部門にある (Echo ECG)
	採痰・採尿室(Collection, smearing and stalning)			1室	18㎡	
	計		303㎡		168㎡	

6．放射線部門(X-ray Unit)						
人数			6人		6人	
機能	付属病院に関わる放射線検査及び放射線学に関する訓練と研究の計画					
諸室	科長・科員室(Chief and staff room)	2室	35㎡			現在は読影室と兼用
	フィルム乾燥室(Film drying room)	1室	21㎡			
	フィルム保管室(Film storage room)	1室	21㎡			
	読影室(X-ray reading room)	1室	11㎡	1室	11㎡	
	会議室(Meeting room)	1室	42㎡			計画図面上は離れたところにある
	暗室(Dark room)	1室	11㎡	1室	10㎡	
	待合室(Waiting room)	1室	16㎡			現在は廊下を利用
	撮影室(X-ray room)	1室	21㎡	3室	64㎡	
	内視鏡室(Endoscopy room)	1室	28㎡	1室	21㎡	
	受付(Reception room)			1室	16㎡	
	計		206㎡		122㎡	
7．薬剤部門(Pharmacy Unit)						
人数			10人		10人	
機能	付属病院の薬局及び研究用薬品の保管					
諸室	科長室(Chief room)	1室	21㎡	1室	26㎡	
	科員室(Staff room)	2室	35㎡	1室	32㎡	現在は廊下を利用
	結核薬品室(TB drug store)	1室	21㎡			
	試薬室(Reagent store)	1室	21㎡			
	薬品庫(Distribution drug store)	1室	24㎡	5室	95㎡	現在は2棟3ヶ所に分散している
	医療材料室(Medical material store)	1室	42㎡			
	食品庫(WFP store)	1室	—	2室	38㎡	計画図面に無い
	書類庫(Document room)	1室	11㎡			
	計		175㎡		191㎡	計画図面に "Hansen drug store" がある

8．外来部門(Out Patient Unit)						
人数			15人		15人	
機能	外来患者の診断、地方から照会された重症例の管理、外来患者への抗結核薬の提供、結核に関する先進技術と知識の医療従事者へ普及と指導					
諸室	内科医室(Physician rooms)	2室	42㎡	3室	51㎡	
	健康教室(Health Education room)	1室	25㎡			現在は廊下を利用
	相談室(Consultation rooms)	2室	46㎡			
	倉庫(Storage)	1室	30㎡			計画図面は2室
	薬局(Drug distribute room)	1室	21㎡	2室	32㎡	現在は2棟2ヶ所に分かれている
	重症室(Serious cace room)	1室	21㎡	1室	18㎡	
	待合ロビー(Waiting lobby)	1室	60㎡			現在はベランダを利用
	書類庫			1室	18㎡	
	カルテ庫			2室	21㎡	
	鍼灸療室			1室	33㎡	
	計		245㎡		173㎡	
9．車庫部門(Garage and Driver Unit)						
人数			5人		5人	
機能	車両の駐車と保守					
諸室	車庫(Garage)	1室	—	1室	190㎡	計画図面に無い
	運転手控室(Drivers room)	1室	—	1室	18㎡	計画図面に無い
	洗濯室(Laundry)	1室	28㎡	1室	14㎡	
	ポンプ・発電機室(Pump & generation room)	1室	60㎡	1棟	36㎡	
	当直室			3室	34㎡	
	警備員室			1室	35㎡	
	更衣棟			1棟	30㎡	
	喀痰棟			1棟	18㎡	
	計		88㎡		311㎡	
総合計			1，447㎡		1，333㎡	

別表－２　要請施設（現地調査時）と現状諸室との比較
(Details of the relation between the requested facilities and the existing ones)

プログラム管理部門及び巡回ＤＯＴＳ事務室 Programme Management Office and Ambulatory DOTS Office	要請施設		現状		現在配置されている建物
スタッフ数(Number of staff)		４２人			
センター長室(Directors room)	１室	２４㎡	１室		管理棟
副センター長室(Vice-Directors room)	２室	３０㎡	２室		管理棟に１室、ハンセン病センターに１室
アドバイザー室(Advisers office)	３室	４５㎡	０室		
チーフ室(Chiefs office)	１室	１４㎡			
チーフ室(Chiefs office)	１室	１６㎡			管理棟に３室、ハンセン病センターに１室
チーフ室(Chiefs office)	２室	４８㎡	４室		
事務室(Staff office)	２室	２８㎡			
事務室(Staff office)	１室	２１㎡			
事務室(Staff office)	３室	７２㎡			管理棟に２室、検査棟に１室、ハンセン病センターに１室
事務室(Staff office)	２室	８４㎡	４室		
秘書室(Secretary office)	１室	１４㎡			
秘書室(Secretary office)	１室	１８㎡	１室		管理棟
事務室(Clerc office)	１室	１６㎡	１室		管理棟
倉庫(Strage)	１室	２４㎡	１室		管理棟
図書室(Library)	１室	４２㎡	１室		図書棟
カンファレンス室(Conference room)	１室	200人用	０室		
会議室(Meeting room)	３室	１２６㎡	１室		検査棟
宿泊室(Dormitory)	５室	２０人分	０室		
駐車場(Parking:cars)		50台分			
駐輪場(Parking:motorcycle)		100台分			

World Health Organization

Regional Office for the Western Pacific

Official HIV and AIDS Case Report

Country: Cambodia

Name of reporter: Dr CHHUON Samrith

Updated report includes cases cumulative to: December 31, 1997

Address: Ministry of Health, National AIDS Program
_ _ _ Kampuchea Krom Avenue Phnom Penh Cambodia
Fax/Phone: (855) 23 722515

Date of last report : 01 September 1997

Case report cumulative to: 31 December 1997

E-Mail: nap@worldmail.com.kh.

		Cumulative Totals Up to 31 Dec 1997		Unknown year		Before 1991		1991 1 jan to 31 Dec 1991		1992 1 jan to 31 Dec 1992		1993 1 jan to 31 Dec 1993		1994 1 jan to 31 Dec 1994	
		HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS
TOTALS:	Number	11807	978	0	0	0	0	3	0	91	0	204	1	646	14
	AIDS Deaths		165		0		0		0		0		0		9
Gender:	Males	3743	108	0	0	0	0	0	0	62	0	141	0	394	9
	Females	3237	23	0	0	0	0	0	0	29	0	10	1	145	5
	Unknown	4827	847	0	0	0	0	3	0	0	0	53	0	107	0
	Sub total	11807	978	0	0	0	0	3	0	91	0	204	1	646	14
Age:	less than 13 years	350	198	0	0	0	0	0	0	0	0	0	0	9	1
	13 to 19 years	985	2	0	0	0	0	0	0	2	0	8	1	45	1
	20 to 29 years	4154	45	0	0	0	0	2	0	68	0	68	0	272	7
	30 to 39 years	1875	42	0	0	0	0	1	0	7	0	44	0	111	4
	40 to 49 years	368	13	0	0	0	0	0	0	4	0	2	0	23	1
	50 years and older	147	246	0	0	0	0	0	0	4	0	0	0	10	0
	Unknown	3928	432	0	0	0	0	0	0	6	0	82	0	176	0
	Sub total	11807	978	0	0	0	0	3	0	91	0	204	1	646	14
Transmission:	Homo/Bisexual	0	5	0	0	0	0	0	0	0	0	0	0	0	0
	Inj. Drug User	3	0	0	0	0	0	0	0	0	0	0	0	3	0
	Heterosexual	5085	348	0	0	0	0	0	0	61	0	1	1	190	13
	Blood transf/prod.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mother-Infant	350	198	0	0	0	0	0	0	0	0	0	0	9	1
	Other/Unknown	6369	427	0	0	0	0	3	0	30	0	203	0	444	0
	Sub total	11807	978	0	0	0	0	3	0	91	0	204	1	646	14

Note: Totals for HIV cases include AIDS cases as well as asymptomatic HIV infections. Reporting year covers the period 1January to 31 December

Official HIV and AIDS Case Report

Country: Cambodia

Date of last report : 01 September 1997

Case report cumulative to: 31 December 1997

		1995		1996		1997		1998		1999		2000		2001	
		1 jan to 31 Dec 1995		1 jan to 31 Dec 1996		1 jan to 31 Dec 1997									
		HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS	HIV	AIDS
TOTALS:	Number	2520	91	4241	300	4102	572								
	AIDS Deaths		15		72		69								
Gender:	Males	749	9	1028	10	1369	80								
	Females	730	1	1197	7	1126	9								
	Unknown	1041	81	2016	283	1607	483								
	Sub total	2520	91	4241	300	4102	572								
Age:	less than 13 years	62	5	123	61	156	131								
	13 to 19 years	218	0	469	0	243	0								
	20 to 29 years	838	6	1721	0	1185	32								
	30 to 39 years	304	3	619	0	789	35								
	40 to 49 years	36	0	131	0	172	12								
	50 years and older	14	1	52	239	67	6								
	Unknown	1048	76	1126	0	1490	356								
	Sub total	2520	91	4241	300	4102	572								
Transmission:	Homo/Bisexual	0	0	0	5	0	0								
	Inj. Drug User	0	0	0	0	0	0								
	Heterosexual	946	75	1921	174	1966	85								
	Blood transf/prod.	0	0	0	0	0	0								
	Mother-Infant	62	5	123	61	156	131								
	Other/Unknown	1512	11	2197	60	1980	356								
	Sub total	2520	91	4241	300	4102	572								

Note: Totals for HIV cases include AIDS cases as well as asymptomatic HIV infections. Reporting year covers the period 1January to 31 December

Distribution by sex, age, l. ation of target populations , HIV Sentinel Surveillance 1997

	Total	Sex		Location		Age group					
		Male	Female	Urban	Rural	<13	14-19	20-29	30-39	40-49	>50
Total samples	10899	3766	7133	5976	4923	1	985	4767	3325	1110	711
Total Positive Cases	896	254	642	677	219	0	151	483	193	49	20

Pregnant Women	Collected sample	5003		5003	2704	2299	0	452	2681	1631	235	4
	Pos. cases	160		160	86	74	0	12	98	48	2	0
	Prev.	3.2%		3.2%	3.2%	3.2%		2.7%	3.7%	2.9%	0.9%	0.0%
In-patients	Collected sample	1155	675	480	554	601	1	77	303	341	221	212
	Pos. cases	69	48	21	40	29	0	3	21	27	13	5
	Prev.	6.0%	7.1%	4.4%	7.2%	4.8%	0.0%	3.9%	6.9%	7.9%	5.9%	2.4%
Commercial Sex Workers	Collected sample	1132		1132	1132		0	353	675	93	11	0
	Pos. cases	445		445	445		0	133	280	29	3	0
	Prev.	39.3%		39.3%	39.3%			37.7%	41.5%	31.2%	27.3%	
Police	Collected sample	1325	1308	17	613	712	0	12	512	576	197	28
	Pos. cases	79	79	0	37	42	0	1	32	36	10	0
	Prev.	6.0%	6.0%	0.0%	6.0%	5.9%		8.3%	6.3%	6.3%	5.1%	0.0%
Military	Collected sample	1249	1241	8	645	604	0	75	467	471	182	54
	Pos. cases	89	89	0	40	49	0	2	36	40	9	2
	Prev.	7.1%	7.2%	0.0%	6.2%	8.1%		2.7%	7.7%	8.5%	4.9%	3.7%
Tuberculosis patients	Collected sample	1035	542	493	328	707	0	16	129	213	264	413
	Pos. cases	54	38	16	29	25	0	0	16	13	12	13
	Prev.	5.2%	7.0%	3.2%	8.8%	3.5%		0.0%	12.4%	6.1%	4.5%	3.1%

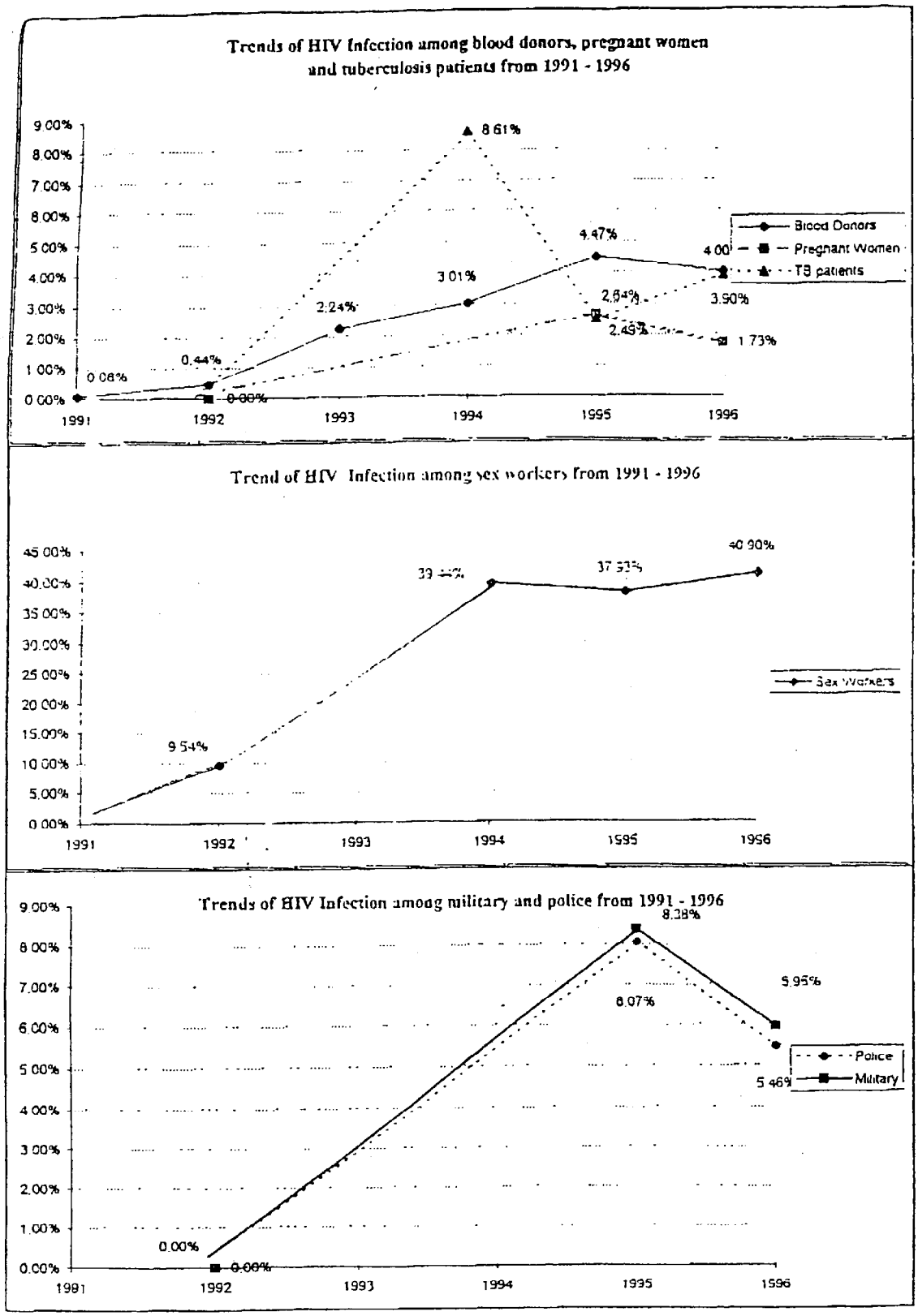
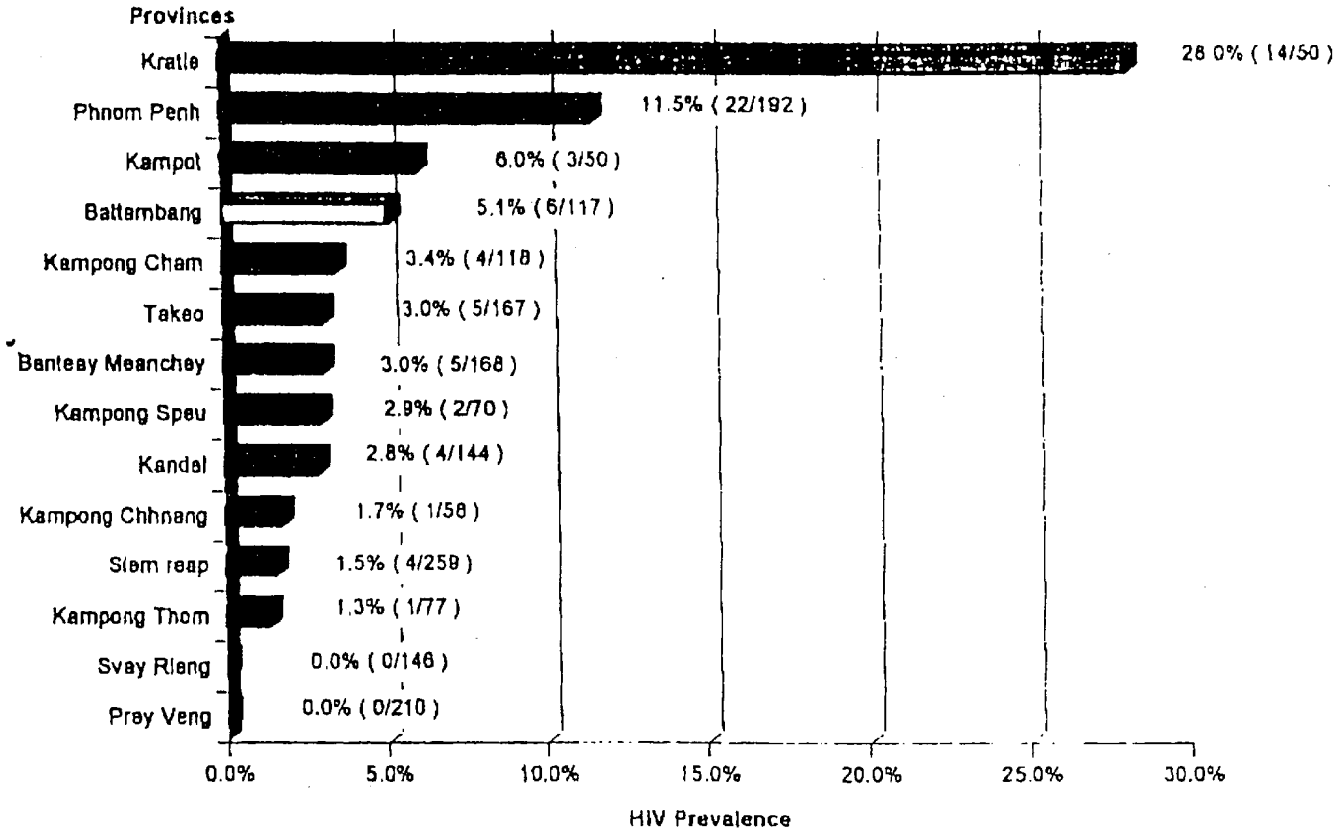
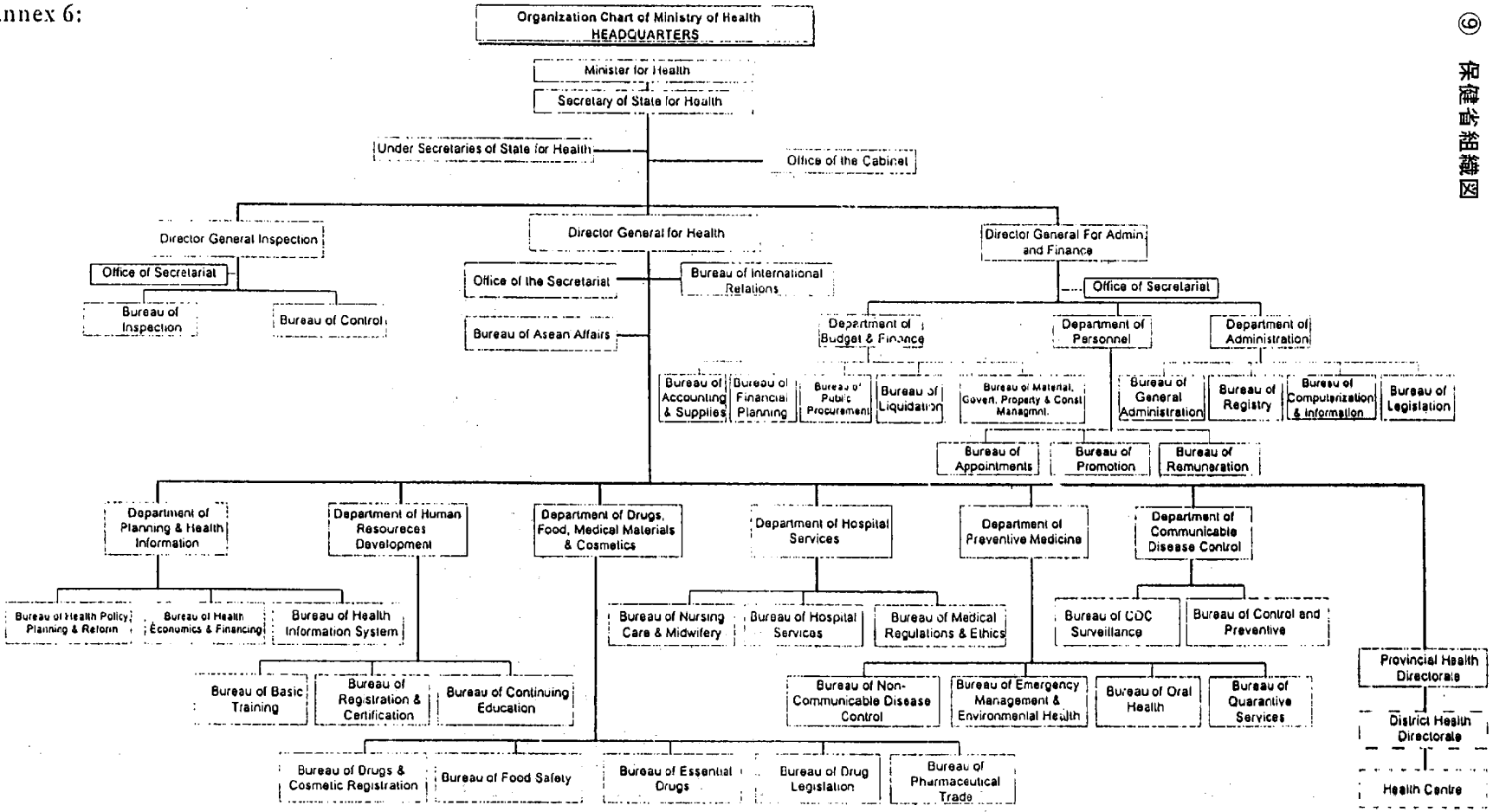

Trends of HIV Infection among blood donors, pregnant women and tuberculosis patients from 1991 - 1996
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
1991
1992
1993
1994
1995
1996
8.61%
4.47%
4.00
3.01%
2.24%
3.90%
2.64%
2.49%
1.73%
0.44%
0.08%
0.00%
Blood Donors
Pregnant Women
TB patients
Trend of HIV Infection among sex workers from 1991 - 1996
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1991
1992
1993
1994
1995
1996
40.90%
37.53%
9.54%
Sex Workers
Trends of HIV Infection among military and police from 1991 - 1996
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
1991
1992
1993
1994
1995
1996
8.38%
8.07%
5.95%
5.46%
0.00%
0.00%
Police
Military

図 2 *HIV Seroprevalence among tuberculosis patients in Cambodia, 1996*



Source : National AIDS Control and Prevention Program

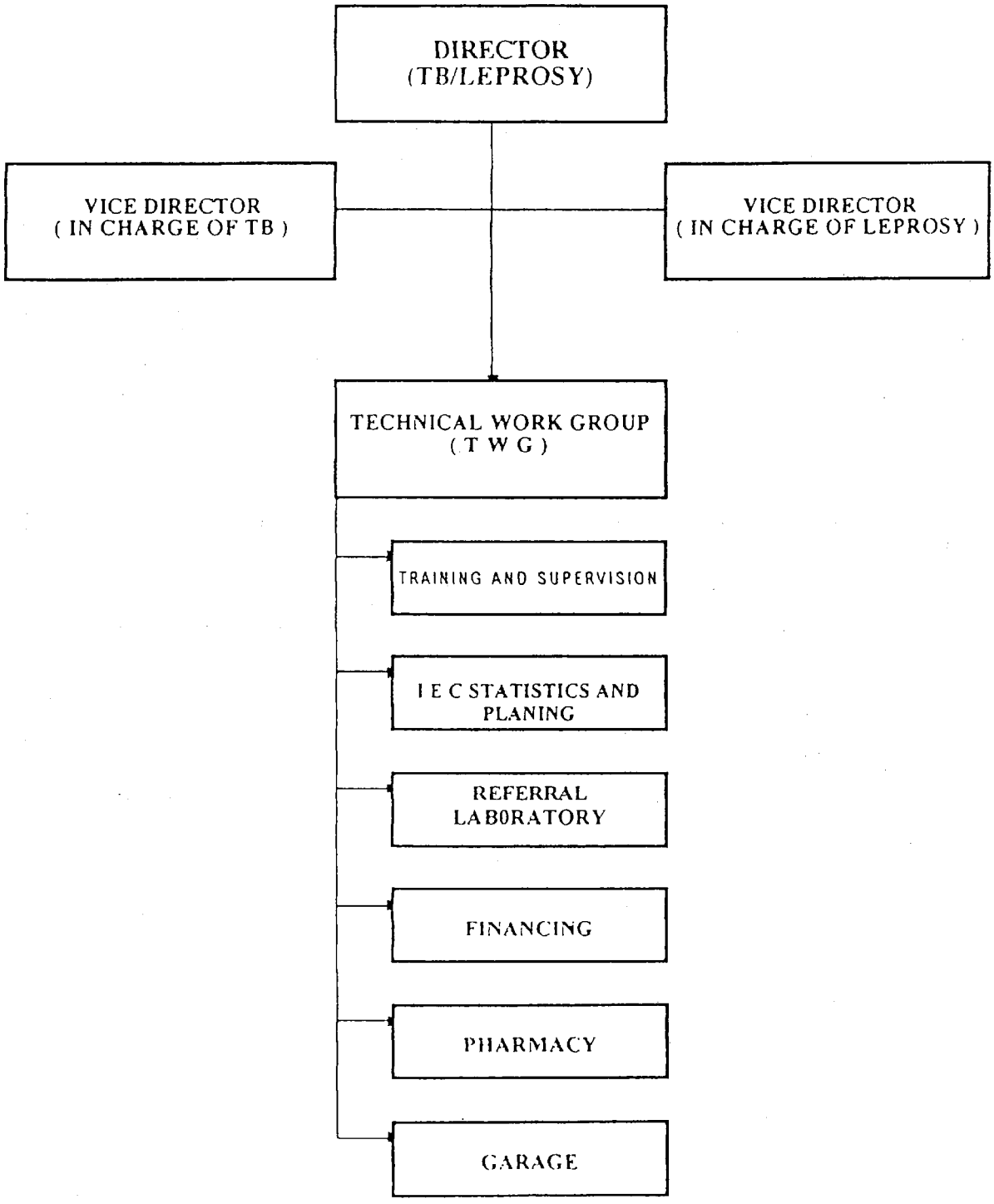
Annex 6:



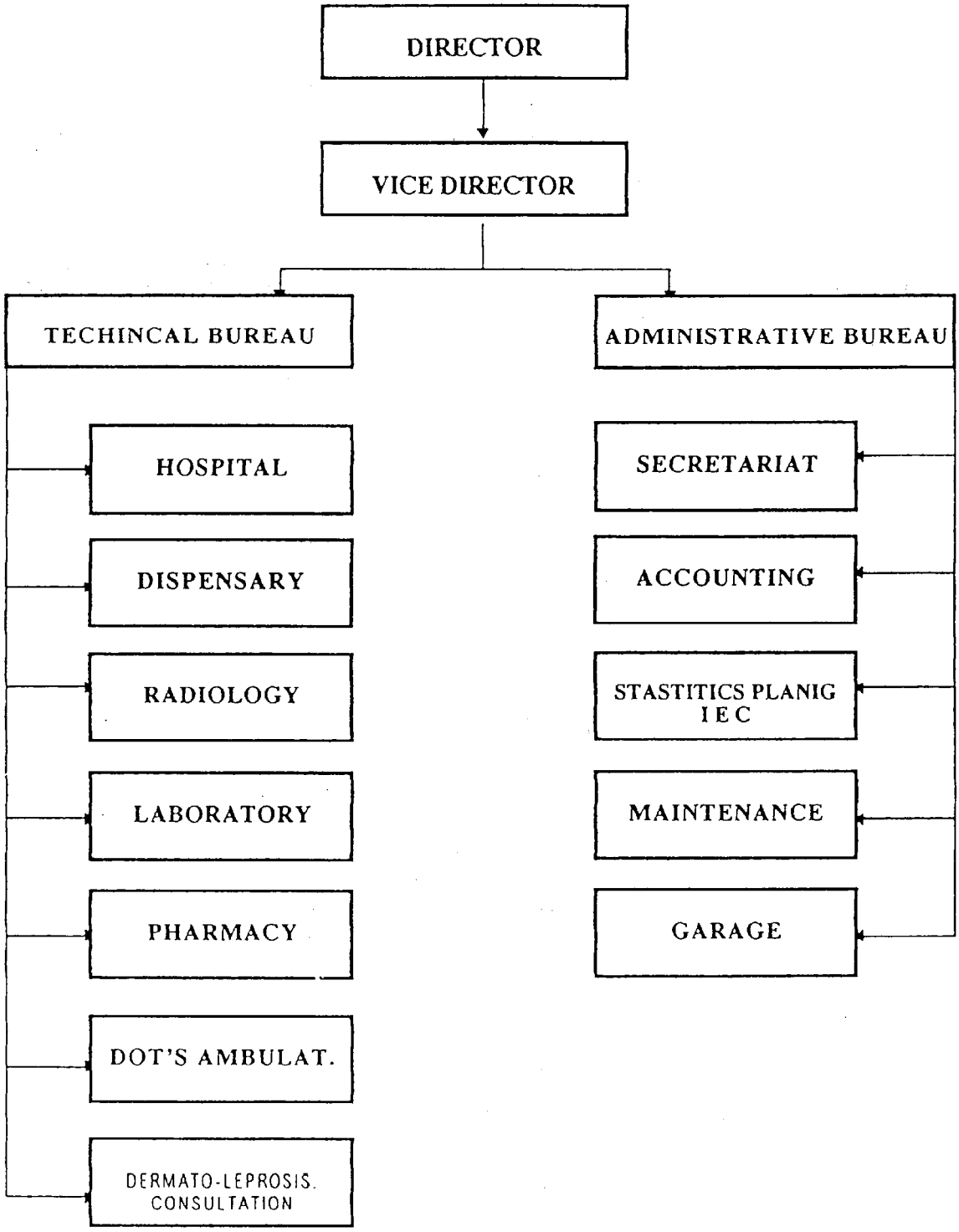
⑥ 保健省組織図

⑩ 国立結核センター組織図

Organization chart of National Tuberculosis Leprosy Program



Organization chart of National Tuberculosis Leprosy Center



Kingdom of Cambodia
Nation Religion King

Ministry of Health

HEALTH POLICY and STRATEGIES 1996-2000

Unofficial Translation
April 1996

Health Department,
Planning and Statistics Unit

TABLE OF CONTENTS

PART I

BACKGROUND

1. Health situation:

Basic statistics (1995)

Total population (million):	*10.2*	% OF Children age one Immunized	
Age >15 (% to total): ①	*56.3*	against Meales/Polio/DPT/BCG	*75-80-79-95*
Sexe Ratio Female/Male (100) ①	*120.5*	% of pregnant women immunized	
Size of household (inhabitant) ②	*5.6*	against tetanus (T_2+)	*33*
Women headed household (%) ②	*21.2*	% of population with access to	
		health services (rural/urban)	*25/80*
GDP Growth (%) ③	*7.6*		
GDP (US$ millions) ③	*289*	% of population with access to safe	
		water (rural/urban)	*26/65*
Life expectancy at birth:	*51.6*		
Infant mortality rate (per 1000	*115*	% of pregnant women received 1	
live births)		antenatal care visit	*44*
Under 5 mortality rate (per 1000	*181*	Population per bed	*1000*
live births)			
% of infants with low birth weight	*17*	Population Medical DR./MA*	*4000*
% under weight children (under	*39.8*	Annual household expenditure for	
5)		medical care (US$ per capita)	*19*
(weight for age)			
% of women breast-feeding		Annual national budget devoted to	
(3/6/12 months)	*100/93/ 72*	health sector (US$ per capita)	*1.8*
		Annual international budget de-	
		voted to health sector (US$ per	*3.1*
		capita)	

① National Institute of Statistics of Cambodia, July 1995.
② Socio-Economic Survey 1993-94, Ministry of Planning.
③ Ministry of Economy and Finance, Prakas nº 313, August 31st, 1995.
* Medical doctor/Medical assistance: staffs of the Ministry of Health of Cambodia.

The Kingdom of Cambodia occupies a territory of 181,035 squares kilometers. It is located in the Southwestern of Indo-China. The country has an estimated 10.2 millions inhabitants, with approximately one million living in the capital city, Phnom Penh .

The **birth rate** is amongst the highest in Asia, estimated at 43 per 1,000. The annual population growth rate is approximately 2.8%. About 43.7% of the total population is under 15 years of age. Women constitute 55% of the adult population and play a major role in food production through hard manual labor.

The **health status** of the people of Cambodia is amongst the lowest in Asia. Reliable mortality and morbidity data are rarely available in Cambodia - most are hospital based and most of the surveys conducted in the past were in a small scale ; thus not representative of the whole population - and an urgent updated baseline for health data is required .

Infant mortality rate (IMR) is currently estimated at **115** per **1,000** live births and the **under-five mortality rate** at about **181** per **1,000** live births. The major causes of infant and child death and disability in Cambodia are diarrhoeal diseases, acute respiratory infection, disease preventable by vaccinations and, more recently, dengue haemorrhagic fever. These are compounded by protein-energy malnutrition and micronutrient deficiencies.

Maternal mortality rate is currently as high as **473** per **100,000** live births, the immediate causes of which are mainly complications of abortion, eclampsia and

haemorrage. In general, the antenatal care service is not sufficient for pregnant women with inadequate materials for delivery problems and for transfusion. A comprehensive birth spacing policy has been approved and a National programme has been developed in 1994.

Acute respiratory infections (ARI) and diarrhea are the two major childhood diseases, together accounting for 50% of all pediatric consultations reported by the public health services. Of the two, acute respiratory infections are the most important reason for hospitalization and out-patient consultations with almost 20-30% and 10-20% of all pediatric out-patient consultations and hospitalization respectively. (statistics in 1995) . Surveys have shown that children under 5 suffer four to five episodes of diarrhea each year totaling an estimated seven million episodes annually.

Only 26% of the population in rural areas and 65% in urban areas have access to safe and reliable supply of water. This, together with poor sanitation and hygiene practices has lead to very high prevalence of diarrheal diseases.

The number of **poliomyelitis** cases was reportedly 300 in 1994 and 168 in 1995.

Malaria is also a major cause of illness and death in Cambodia, with nearly 100,000 cases and 1,000 deaths reporded per year. The case fatality rate is 1.5%. The real figure could exceed this number because most of patients did not come to hospitals. In addition to the human loss, malaria in Cambodia also has economical impact on the population. The Ministry of Health, therefore, considers malaria as a major communicable disease problem in the country, causing economic and social damage .

The infectious agent responsible for most cases is ***Plasmodium falciparum***. In many areas it has developed a degree of resistance to most commonly used drugs. The vector responsible for the bulk of the disease, ***Anopheles dirus***, is a forest dwelling mosquito.

Since its first major appearance in 1981, **Dengue Hemorrhagic Fever (DHF)** has grown to become an important cause of childhood mortality and morbidity in Cambodia. In 1990, 7241 cases and 339 deaths were recorded. In 1993, 3801 cases and 168 deaths were reported mainly in Banteay Meanchey and Battambang provinces. In 1994, there were 1688 recorded cases and 89 deaths. In 1995, another serious outbreak has occurred in the country with 10,208 cases and 424 deaths. The disease has both increased and become more widespread. The vector, ***AEDES AEGYTI***, can be found throughout Cambodia and outbreaks are no longer restricted to urban centers but occur in rural areas as well.

Tuberculosis is considered to be one of the most important communicable disease in the Kingdom. The disease is estimated about 30,000 total cases annually . In 1995, approximately 15,000 new cases were detected and treated. In addition, 120 patients with the positive sputum per 100,000 inhabitants were also detected. Annually, the infectivity rate was 2.7% in 1967, 1.8% in 1992, and 1% in 1995.

In addition, the TB-AIDS has been detected in 1992 and in 6 provinces in 1995: 0% in 1992 in Phnom Penh, 7.9% in 1994 and 11.3% in 1995. Other provinces had lower rate than Phnom Penh: 0% to 10%. The National Program Anti-tuberculosis puts into practice the treatment strategy " Direct Observed Treatment with control and Short course " in 80 hospitals among 120 hospitals. This kind of treatment is on going without payment from patients. In 1995,the cure rate was 80%.

The rapid spread of **HIV** becomes a public health problem in Cambodia. Recent sample surveys shown HIV prevalence rates of over 38% (382/1,007) among

commercial sex workers in some areas. Blood donors tested HIV positive have increased from 0.1% in the early 1991 to 4,2% (625/14,778) in 1995. An infection rate among pregnant women was 2.6% (23/870). HIV/AIDS has posed a serious public health problem in the country.

At least 750,000 children under five years of age suffer from various forms of **malnutrition** in various forms. Surveys done from 1991 to 1994 showed that the proportion of children with weight for age less than 80 % of the standard was 39.8 per cent. Chronic malnutrition was 38.4 per cent to 62 per cent. Acute malnutrition was found in 44 per cent. Vitamin A deficiency status exceeded the minimum WHO public health standard for Bitot's spots (0.8 per cent) and night blindness, almost six times (5.6 per cent) of the WHO standard of one per cent. While data on iodine deficiency disorders are limited, a survey in 1989 in the northern province of Rattanakiri reported a goiter rate of 19 per cent among adults.

The influx of vehicles is a major cause for concern of **road accidents**. Monthly hospital data show that there are 500 to 600 traffic accident admissions with the case mortality rate of 2.2%.

The hospital admission by **land mine** accidents continue to claim 300 victims per month (statistics in 1995).The amputation prevalence rate due to the mines is 1 per 236 person i.e. the highest proportion of amputees in the world.

Other causes of disability are also high and includes: mental disorders, poliomyelitis, meningitis, leprosy, tuberculosis, eye disease (especially due to vitamin A deficiency), and middle ear infection causing hearing loss. For the under-15 year old disabled , 43% were caused by polio, 16% by mental disorders and 21% are due to amputations.

The Cambodian Ministry of Health recognizes, and is much concerned, that highly traumatizing events such as the prolonged war, the dislocation of families and loss of relatives, and the constant fear of mine injury, have resulted in considerable psychiatric morbidity, with large numbers in need of psychiatric and counseling services. Studies among displaced Cambodians in border camps shown an unusual high incidence of mental health problem. However, the Ministry of Health is preparing the psychiatric service.

2. Health Infrastructure:

The national health system was organized into four levels: central, provincial, district and commune. The central level consists of two training institutions, 6 national institutes, one drug factory and eight national hospitals with a total of 1,786 beds. The provincial level consisted of 22 provincial health departments and hygiene stations and 23 provincial hospitals providing a total of 3,837 beds. There are four regional nursing schools located in the province of Battambang, Kompong Cham, Kampot and Stung Treng. The district level consist of 164 district hospitals providing a total of 4,703 beds. The national Centres and institutions are responsible for 19 national programmes. The Ministry of Health (MOH) is directly responsible for three additional national programmes, namely, essential drugs, health education and HIV/AIDS control.

Prior to 1994 the Government Policy was for one infirmary to serve one commune and a hospital to serve every district and every province. The allocation of health facilities, staff, medicines and budget was therefore determined on administrative basis. As there are districts in Cambodia which are more heavily populated than some provinces this has resulted in an inefficient allocation of resources. For in-

stance, although the national average population to bed ratio is 1,000 but the ratios range from 380 per bed to 2,300 per bed.

The health infrastructure characteristic is inadequate. Therefore, National Infrastructure Map should be done in order to be a basis for developing the public health infrastructure and health services. Now, the MOH has started to reform the health system based on the equity criteria and oriented towards providing basic health services. In 1995, the MOH approved a new health system for the organization of provincial district and commune health services based upon a redefinition of the criteria for location of health facilities together with a definition of a basic minimum services package to be offered at each level organized by the Ministry of Health. This Plan entitled the *health coverage plan* is based upon an equitable geographical access to basic health and referral services for the population in order to optimize the allocation of scarce health resources. At the provincial level, this will be result in two levels. The first level known as a provincial level and the second level known as referral system which will be based upon the health centers surrounding a referral hospital. Low levels of literacy and of awareness of basic principles of health and hygiene, including child care, prevent people from taking the right decisions to avoid or manage health problems while, at another level, the absence of reliable information to assess public health problems stands in the way of effective action to address them.

3. Human resource situation:

The Pol Pot regime (1975-79) devasted the Cambodian professional classes including health professionals. Only 50 medical doctors remained after the fall of Pol Pot regime. Thus, to fill in the gap in health human resources in the early 1980's, "crash course" training was provided, mainly focusing on curative care. The poor quality of this training partly explains the inadequate technical capacity of the public health services today. There are currently **23,270 health workers** at all levels employed by the MOH (17,964) and other government agencies. **Two thousand** of these workers were trained in the border camps. The various categories of health workers include 1,201 medical doctors, 1,988 medical assistants, 47 dentists, 321 pharmacists, 3,106 secondary nurses and 1,316 secondary midwives.

The low level of salaries, US$ 10-20 a month, for government health workers and the need for supplement income through private practice prevent proper staffing of hospitals and health centers, and promote unofficial payments by patients using public health services. As a result, quality public health services are scarce, their credibility low and their actual use even rarer. Supervisory mechanisms hardly exist. This weakness of the public health sector is being exploited through the provision of poor quality services in the private sector which are increasingly used by the people, though their cost is high and relevance often doubtful.

The urgent need is the following:

- Improve the educational institutions such as medical school and four regional nursing schools in order to increase the ability of students responding to the need of health of people, especially to the minimum package of activities.
- Create the integration system for continuing the training. The health staffs should be trained existing school or institution where we already had.
- Finalize the strategy for human resource development according to the evolution of the new health system.

4. HEALTH FINANCING:

There are three main sources of health care financing: Government, External Aid and out-of-pocket payments by patients. In 1995 The Royal Government spent only US$ 1.8 per person per year on all health services. Despite this limited amount, approximately 70% of the available budget in 1995 was spend on rural - provincial an district level - services and less than 20% of the overall budget on salaries. This is the opposite of the situation of most least developed countries and an indication of MOH commitment to rural health care in line with national priorities.

International data indicate that an adequate public health coverage in least developed countries requires an annual budgetary expenditure of approximately US$ 12 per person. In other words, the health sector is suffering from severe underfunding. As a result, the Socio-Economic Survey 1993-94 reveals that medical expenses are the second largest item of the household budget in rural areas, next to food. On average, a Cambodian household spends the equivalent of US$ 100 per year on health care, which represents about 8 per cent of total household expenditure. This translates into a per capita health expenditure of US$ 19 per year, which is 10 times more than that provided for in the national health budget. Donors have made considerable contributions to the country's health sector in recent years. It is estimated that the total aid flow to the health sector, including support provided by NGOs , amounted to over US$ 37 millions in 1995, which was two times the governments health budget during the same period.

This financial gap is both serious and illustrative of the financing problem facing the Government. Even though increasing health expenditure is an imperative, in this process, identifying appropriate actions to protect and support essential expenditure, ensuring better quality and effectiveness, while taking into account of the interim transitional phase of fisical stabilization and economic transformation, is critical. This is the purpose of the high level of external effort that can be reasonably expected to be continued and intensified as already shown by commitments already made at ICORC I , II and III.

With these issues in mind, the MOH has developed a carefully prioritized programme of health reform and service delivery within a reasonable resource envelope. This envelope is based upon the reasonable assumption that the Royal Government contribution's to the health sector will increase in a carefully phased manner to meet a sectoral allocation equivalent to 2 per cent of GDP or the regional norms for expenditure on health in low-income countries, whichever is the greater, by the year 2000. It is estimated that this would result in the equivalent of US$ 124 million being provided from the national budget during 1996-98

The Cambodia's National Constitution (art. 72) states: " The health of people must be assured. Poor people are exempted from paying medical examination in hospitals, infirmaries and public maternity wards The government is organizing infirmaries and maternity wards in the rural areas ". The Finance Law (No. 006 pro. sor. hor. var) includes specific articles linked with the management of users charge systems, for which application in the public health sector must be reviewed. Recently, the Royal Government permitted to create the Interministrial Committee that consisted of Ministry of Health, Ministry of Finance and Economic, Ministry of Social Welfare, Representative of the Council of Ministers to applicate on the pilot testing of cost recovery schemes and, to ensure sustainable development. This committee is considering ways to generate the health financial law which will be approved for applicating in 1996.

PART II

Health Policy and Strategies 1996-2000

A. The Royal Government of Cambodia (RGC) affirms its mission to improve the health and well-being of all Cambodian people:

1. The RGC recognizes both public and private health care systems;
2. Giving special attention to health education, preventive and curative health cares for people living in the rural areas by organizing health centers and maternity services;
3. Reducing infant and maternal mortality rates through mother and child health cares;
4. Controlling communicable diseases, especially malaria, tuberculosis, dengue haemorrhagic fever and acute respiratory infections;
5. Controlling the spread of sexually transmitted diseases, especially HIV/AIDS;
6. Improving the supply and distribution of drugs for people, if possible, by organizing local drug production using local raw materials; otherwise by better management of international tendering, procurement importation and distribution .

B. After developing the health policy and strategy, the Ministry of Health had it long term prospective in developing the health services in the country.

Significant investment by the government and partners has been made in the development of both policy and management and planning capacity within the MOH . At the end of 1995, the new health coverage plan for the provincial and district levels was also formulated . Additional investment has been made in a number of priority health programs, with varying degrees of success. In the implementation of National Programs for Rehabilitation and Development , the Ministry of Health was decided by the Royal Government as a pilot Ministry in order to reform and to develop the health sectors. This is guided by the overall public administrative reform programme. The reform process contains 5 specific components:

- *Strengthening the management of the Health System,*
- *New Health Information System,*
- *Human resource development and health government staff management ,*
- *Resources coordination ,*
- *New health financing mechanisms.*

In response to national policy and strategy development, the MOH has developed health service development programs which are feasible and appropriate according to priority needs and to ensure that most of the population will access to services , especially those living in the rural area .

The overall aims of MOH are to:

1. Meet the critical needs of the people, especially health education and promotion, preventive and essential curative services, and particularly for those living in rural areas.
2. Provide a cost-effective standard of health care for women and children, especially through immunization, birth spacing, antenatal care, safe delivery, essential obstetrical care and essential clinical services.
3. Reduce the burden of communicable diseases especially malaria, tuberculosis, STDs/HIV, diarrhoeal diseases, acute respiratory infection and dengue haemorrhagic fever.

4. Monitor, coordinate and distribute equitably significant resources from international and non-governmental organizations . Ensure sustainable development with considering ways to generate revenues at the community level.

C. The Ministry of Health Priorities are to:

- Extend basic health care services based upon a cost-effective, but essential minimum package of curative and preventive health services covering all communes in the country; a system that will be based on the " District Health System Approach " and more successful with community participation;
- Promote women and child health through birth spacing ,good nutrition and hygiene practice within the family through the improvement of the delivery of essential maternal and child health services;
- Reduce the incidence of communicable diseases , particulrly malaria, tuberculosis, sexually transmitted disease and HIV, diarrhea, acute respiratory infections , diseases preventable by immunization and dengue fever;
- Improve the quality of hospital services in Phnom Penh and at peripheral level;
- Upgrade the professional capacity of government health staff ;
- Ensure an adequate and secure supply of drugs throughout the health system;
- Ensure the full participation of both private and public sector in the delivery of health service, and appropriate regulatory frameworks to raise service standards.

D. OVERALL OBJECTIVE OF THE RGC IN SOCIAL DEVELOPMENT

1. Reduce maternal mortality Rate 40%
2. Reduce child mortality rate 30%
3. Reduce prevalence of malnutrition 50%

E. TARGET FOR THE YEAR 2000

Despite the immense health problems, some progress of strategic value has been made in recent years. Immunization services are now increasingly available. Although inadequate to meet the need, a basic supply of essential drugs reaches even the remote commune health centers. District and commune level health services are already operational in some areas. The first steps are now being taken towards reviewing how basic health services e.g. Minimum Package of Activities (MPAs) for Health Centers can be accessible and available at the community level.

The Ministry of Health of Cambodia has laid out its targets for health for the year 2000:

1. Sustain Expanded Program on Immunization (EPI) coverage for whole country of 80 per cent or more, eradicating poliomyelitis and virtually eliminating neonatal tetanus and measles.
2. Ensure that essential obstetric services are available in all established health centers and referral hospitals; that 95% of births in urban areas and 70% in rural areas are attended by trainned health personnel; that coverage of prenatal care services and tetanus vaccination for pregnant women increases by 50 % (above the 1995 level).
3. Ensure that all diarrhoeal diseases and acute respiratory infection are correctly managed according to the national protocol.
4. Virtual elimination of Vitamin A deficiency, and provide for universal iodization of edible salt ;
5. Increase the contraceptive prevalence rate from 7% in 1995 to 20% by 2000. All functioning health centers and referral hospitals provide birth spacing information and services according to national policy.

6. Ensure that all provincial and district referral hospitals and health centers equipped with basic essential drugs, that all referral hospitals have a qualified doctor and medical assistants and 100 per cent of health centers have qualified nurses and midwives;
7. Reduce the prevalence of tuberculosis with 70 per cent of new cases detected and 85 per cent cure rate of TB smear positives under the short course chemotherapy, and reduce the incidence of malaria with all health centers in high risk malaria areas distributing bed nets;
8. Ensure that 90 per cent of the adult population are aware of HIV-AIDS transmission and prevention ; high risk provinces provide counseling services for peoples with HIV/AIDS ; and by 2000 treatment of STDs according to new protocols incorporated and implemented in all new referral services.
9. Increase health share in the total budget from 4% in 1995 (or 0.7 per cent of GDP) to at least 10 % (2 per cent of GDP) by 2000.

F. Main Development Programs for 1996 - 2000:

The MOH is the major government agency charged with the implementation of the national plan. Recently, the Ministry of Rural Development is responsible for monitoring and managing some rural developments such as water and sanitation, hygien, family food reproduction and education, mainly in the villages. The MOH and the Ministry of Rural Development will work together in order to promote the health care, strategy for supporting health and activity of curative care in communities in the country. Water supply, sanitation and hygiene is the major role of the Ministry of Rural Development. Within the next 5 years the MOH will actively continue the collaboration between Ministries and Institutions where relate to the health activity, and also with the National, International, and None-governmental Organizations for improving the health activities.

There are four mains areas for investment in health development taken into account by the MOH. This demonstrated the priority we had, and improved in previous years. The four main areas are:

- The revitalization of basic health service,
- The priority health service delivery programmes,
- The response to emerging health priorities, and
- Rehabilitation of National Hospitals and extension of provincial blood bank services.

F1 The Revitalization of Basic Health Services

The revitalization of basic health services is the cornerstone and highest priority of the Royale Government and the Ministry of Health; Basic Health Services encompasses all preventive, promotive and curative care, at the district, commune and village level. District level services will be developed and personnel trained to manage government health facilities and services, run the district referral hospital and health centres, implement community based programs, control the district health budget and collect health information. The provincial health department will be responsible for overall management of resources and technical support to implementation at this level, with a clear mandate to promote, implement and support basic health services. Linkages with the provincial rural development department will be established and made operational to find out the most effective strategies for provision of community health services. The implementation of the national health management information system, particularly at the district level will be crucial in the management and monitoring of quality services.

The *"Guide for the strengthening of the district health system"; "Guide to developing operational health districts in Cambodia"* and *"The Guide to preparing health financing scheme (in preparation)"* in Cambodia have been formulated and already widely disseminated by MOH. These guides set the framework for the implementation of health services which MOH intends to rationalize health service development through the distribution of health centres and referral hospitals and their corresponding required health personnel in all of the provinces in Cambodia. Health centers and referral hospitals will be located close to where villages converge. Geographical access is a major criterion in the location section. A minimum package of activities (MPAs) will be made available at every health center and referral hospital.

There will be construction and rehabilitation of a total of 794 health centers and 64 referral hospital throughout the country. New medical equipment, consumable supplies and drugs in support of the minimum package of activities (MPAs) will be guaranteed. Health staff from non-viable commune health centers and district hospitals will be re-deployed in these new structures. They will be given basic skills training based on the MPAs. Planning, management and supervisory skills for the delivery of health care will be strengthened. Some important activities are considered such as census in the coverage zone, daily registration, inventory report, infrastructures and drugs, and support to the community health personnals.

The district health system will also be the focus for the development of health care financing alternatives. This will strengthen the public health system at the commune and community levels by improving its efficiency and mobilizing resources for health care services. Various models will be tested with an operational research component. Credit schemes, discounted coupon prepayment plans, community loan funds, user fees, subcontracting of health services to the private sector, community participation are some of the features of these models. These and others approved schemes will be carefully piloted under the overall advice of an inter-ministerial health financing committee in order to assess their effectiveness and replicability. A MOH technical group under the overall supervision of an inter-ministerial committee will monitor and evaluate these pilots.

While the Ministry of Health (MOH) gears its machinery for district and commune centres strengthening, the Ministry of Rural Development (MRD) will determines the most effective strategies for village level health activities in areas such as, health promotion and health education seminars, preventive health campaigns and community mobilisation, safe water supply installation, maintenance and protection, household latrine construction and health advocacy to utilize the health services at the health centers. The village development communities (VDCs) organized by the MRD could develop into a major planning, management and coordinating group for these activities. The VDCs will be advised by the Commune Development Committee in the health financing alternatives to be introduced.

Revitalizing basic health services would have four support projects, namely: *strengthening basic health service, strengthening health management and planning, infection control and health human resource development.* However, to guarantee the reality of the envisaged support system, capacities at national and provincial level of MOH have to be strengthened. Management and planning capabilities will be enhanced through on the job training, seminars, workshops, continuing education and post-graduate courses. Equipment support mechanisms will also be provided. The national health information system (HIS) recently installed in all provinces will be further developed, particularly its utilization for management action. The transfer of skill in analyzing and processing health data for transformation to health management information at provincial, district and commune levels will be given full attention.

Control of hospital / health centre induced infections or nosocomial infections will be an objective for all hospitals and health centers. Knowledge of infections will be integrated with the capability building activities of the planning and management skills development.

However the human resource development planning requires a longer time frame than the five year national development plan. The Ministry of Health, to achieve the desired quality and quantity of health personnel has therefore set its target for this component for the year 2005. A total of 2,500 doctors, 200 dentists, 460 pharmacists, 5,000 nurses and 2,500 midwives will constitute the total health workforce in ten years from now. To archieve these targets, the following milestones have been set: establishment of a health human resource data base; registration and certification of all health professionals; updating the qualification of all currently employed health staff, at least 10,000 of them, via an integrated system of continuing education; establishment of a central level planning, management and coordination unit. All provinces will have continuing education teams. Continuing education units with teacher training sections will also be constituted. Curricular reforms will be initiated in the major health sciences education institutions, especially the Faculty of Medicine, Pharmacy and Dentistry, the Ecole de Cadre Sanitaire and the Regional Nursing Schools. Relevant teaching/learning materials and trainning packages will be produced. The Minimum Package of Activities (MPA) will be integrated into all the health sciences curricula to guarantee the responsiveness of new health graduates to the needs of the communities they will be serving.

F2. The Expansion of Key National Health Programmes into the district and commune levels

While the integration of basic health services are being installed through the strengthening of the District Health System, certain key national health programs that deal with the prevention and control of the leading causes of morbidity still need to be integrated at district and commune level. These are the following: women and child health, expanded programme on immunization and poliomyelitis eradication, tuberculosis, malaria, dengue haemorragic fever, STD/HIV/AIDS, and cholera. A support programme to all of these is the reform of the pharmaceutical sector for drug and supply management.

* **Women and Child Health:** The national programme will ensure that all health staffs throughout the country will receive regular trainning in the following: maternal health and safe motherhood, birth spacing, breast feeding promotion, care of well child and the sick child, especially in the control of diarrhea diseases and acute respiratory infections, nutrition and health education. National and provincial programme managers skills will be enhanced in policy development and planning, research, monitoring, supervision and evaluation, and training skills development. Birth spacing services, oral rehydration corners, and acute respiratory infections trainning and treatment centers will be established all provincial hospitals. A new National MCH Center will be constructed at the former Phas Nga Ngam Hospital.

* **EPI and Poliomyelitis Eradication:** EPI has made concrete achievement nationwide in recent years. To further increase its coverage, supervisory systems at all levels will be strengthened. Continuous training will be provided at all levels to improve quality of performance. Decentralization will be initiated with the provision of adequate supplies and support at the peripheral level. For poliomyelitis eradication, the aim is to strengthen surveillance systems to ably detect, report and investigate all cases of suspected acute flaccid paralysis without delay. Investments will have to be guaranteed the vaccine supply for all antigens, continuous technical assistance, transport and travel expenses, replacement of cold chain facilities and operations costs for the National Immunization Days.

* **Tuberculosis Control:** The National Center for Tuberculosis (CENAT) is the responsible department in this programme. Activities include: passive case finding, meaning only those with relevant symptoms will be examined by sputum examinations and / or radiological examination. The short course chemotherapy will be used. Improvements will be made in the training and supervision. A national prevalence survey will be conducted to determine the progress in the tuberculosis control.

* **Malaria and Dengue Haemorrhagic Fever Control:** The major focus will be on disease management for provincial and district health staffs in the areas of laboratory diagnostic services, treatment and drug protocols. Support will be provided to preventive health services and vector control through the use of insecticide-treated mosquito nets. Training capabilities will be upgraded through the rehabilitation of the training and research ward at the National Malaria Center.

* **STD/HIV/AIDS Control:** A communication strategy will be developed to increase the awareness of the general population on the prevention and control of STD/HIV/AIDS. Epidemiological surveillance systems will be installed in 8 provinces identified as high risk areas. Services for the treatment of STDs and counseling services for persons with HIV/AIDS will be made available in these provinces. National and provincial programme staffs will undergo training in programme management and planning.

* **Cholera Control:** The aim is to control cholera outbreaks as its earliest stage, within the first 3 days, and prevent its further spread within the first week of its occurrence. National and provincial teams will be trained on surveillance, investigation and control of cholera. District and commune level staffs will be trained in the early recognition and appropriate treatment of cholera. Community participation will be promoted through health education activities.

* **Reform of the pharmaceutical sector:** The drug procurement unit with in the Ministry of Health will work in conjunction with the Central Medical Stores and Essential Drugs Bureau. This is to ensure that adequate supplies of essential drugs, medical supplies are available all times. Legislation and regulations are needed to control the import and sales of drugs and to ensure that only good quality drugs are sold. Regular inspection, sampling and testing of drugs will be conducted. The licensing of pharmacies and registration of pharmacists will also be addressed. Rational drug use will be promoted addressed to physicians, pharmacists, and the general public. Therapeutic guidelines and drug protocols will be updated.

F3 Development of responses to emerging health priorities

Mental health, oral health, eye care and medical care for ear, nose and throat, the elimination of leprosy, biomedical and operations research-these are the new concerns of the Ministry of Health listed for future investments.

All provincial hospitals will have capabilities to handle oral, eye, ear, nose, throat and mental diseases by year 2000. Health education messages will be developed on eye care, oral health, care of the ear, nose and throat and mental health. Schools, health centers, hospital, radio and television will be utilized to promote these messages. Technical guidelines, treatment protocols and training curricula will be developed with the view in mind to integrate these services with the minimum package of activities at health center levels in the future.

For leprosy control, multi-drug therapy will be utilized. Training will be undertaken at provincial, district and commune levels for programme managers and field staffs.

Biomedical and operations research will be enhanced with the increase in resources of the Pasteur Institute and the establishment of the National Public Health Institute. Areas for biomedical researches will be on Dengue Haemorrhagic Fever, entroviruses, HIV/AIDS and vaccine preventable diseases. Epidemiological surveys will be done to assess progress in disease control of tuberculosis, diarrhoeal diseases, HIV/AIDS, poliomyelitis, neonatal tetanus, and measles.

The National Public Health Institute which will be operational by 1998 will concentrate on research into health policy development, health financing and health system reform.

Health education activities are integral with most of the 16 projects. New strategies and the development of health promotion skill need to be coordinated at all level of health services and programs within the country. Therefore, the development of the National Center for Health Education and it network are needed. The project identification is being in process and will be incorporated with the next Public Investment Programme 1997-99.

F4 Rehabilitation of national hospital and extension of provincial blood bank centers

Eight national hospitals will be rehabilitated with renovation and extension of physical infrastructure which include water and drainage systems, supply of electricity and upgrading of equipment. All hospital directors will receive training and technical assistance on hospital management.

For the blood banking and transfusion programme, 25 blood transfusion centers in all provinces and cities will be operational within three years to ensure safe blood in sufficient quantity to support hospital services requiring blood transfusion. Technical skills of the staff of blood transfusion centers and equipment will be upgraded as well as the continuous provision of consumable laboratory supplies and testing kits for HIV/AIDS, syphilis , malaria, Hepatitis B and C. Social mobilization and advocacy campaigns for voluntary blood donation will be conduced periodically.

However, for the purposes of the next Public Investment Programme 1997-99, the blood transfusion activities will not be part of the programme to rehabilitate the national hospitals.

G. PLANNED PUBLIC INVESTMENT 1996- 2000:

It is estimated that a level of public investment of US$ 240.9 millions will be required to support the four priority programme areas including 16 programs of health investement. Besides this capital expenditure such as construction and equipment , the investment programme itself includes half the country's requirements in drugs. At present about 70 per cent of the country's drug supply is funded through external agencies. It is envisaged that this share will decline over time and average 50 per cent during plan period. The largest investment will be for the revitalizing health services (48 per cent), followed by the delivery of the priority health service (30 per cent) and the response to emerging priorities (6 per cent) The rehabilitation of national hospitals and extension of provincial blood banks will absorb the remaining 16 per cent of the proposed investment programme.

The prospective of this program is that it will be depended on the absorption capacity of the MOH in obtaining the succesfully program actions. But for ensuring some modifications of financial planning, US$220 million is the number suggested in 1996-2000.

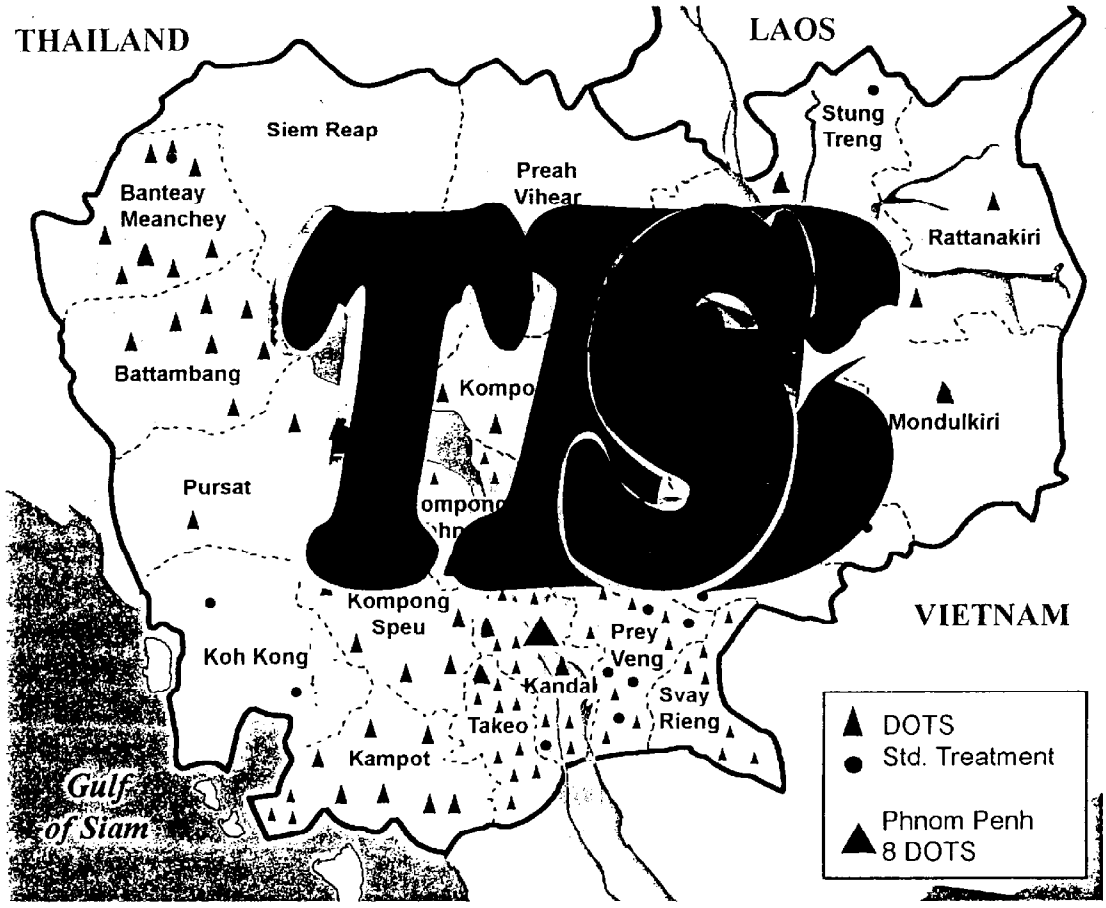
Table 16.1: Health Investment Project** 1996 - 2000 (US$ in Million)

Programs	1996-98	1996-2000
* Revitalization & development of health infrastructure	63.6	112.6
* The Expansion of Key National Health Programmes into the district and commune levels	59.7	80.8
* Development of responses to emerging of health priorities	11.7	24.7
* Rehabilitation of National Hospitals and extension of provincial blood bank centers	15.8	22.8
Total :	150.8	240.9

**: Construction, materials, research and training, etc....

ព្រះរាជាណាចក្រកម្ពុជា ៩៧

របាយការណ៍ស្តីពីជំងឺរបេង

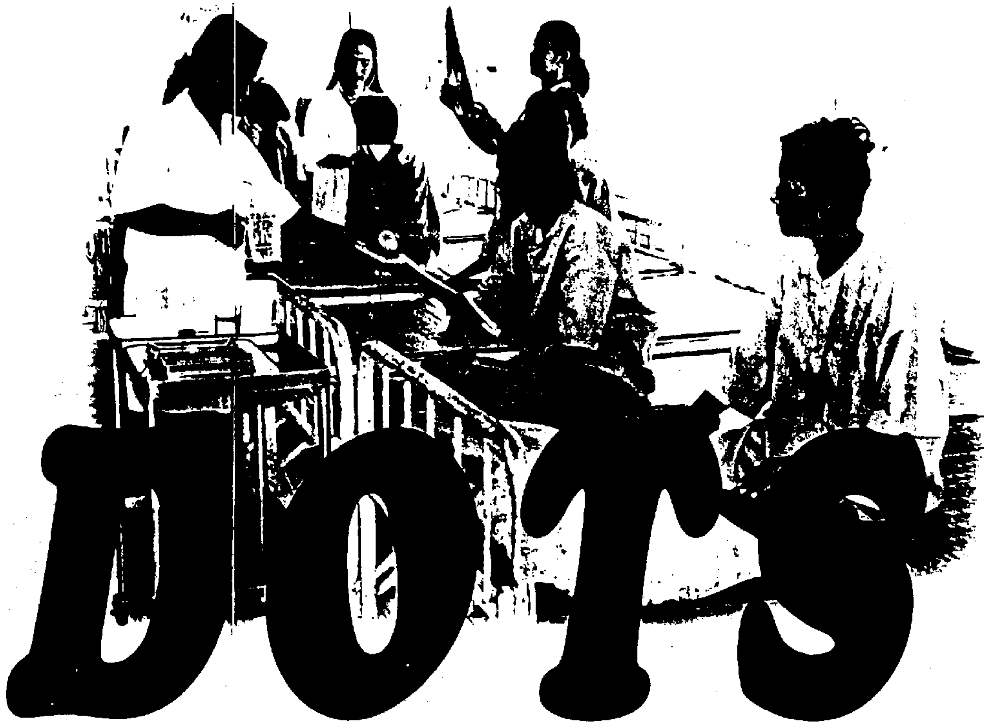


KINGDOM OF CAMBODIA 97

TUBERCULOSIS REPORT

TABLE OF CONTENT

Annexes :



WIDELY

មាតិការឿង

WHAT IS DOTS ?

DOTS is "Directly Observed treatment with short course chemotherapy " that mean every morning the patient takes drugs or injection in front of the health staff responsible.

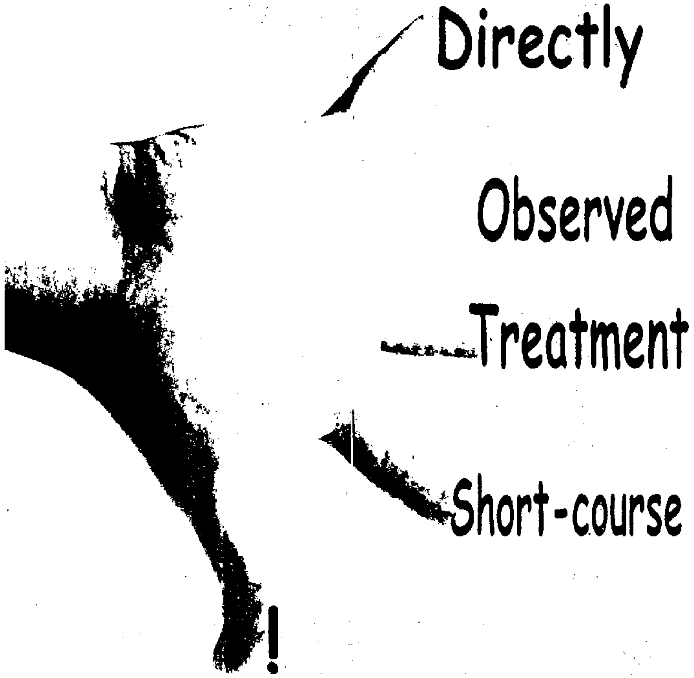
Why does the World Health Organization request to all Tuberculosis programme to apply DOTS ? Because it is a very useful strategy in the result of Tuberculosis treatment.

The main importance of DOTS are :

- To cure more patients. When DOTS was not implemented the cure rate is perhaps 50% , but after DOTS has been applied, the cure rate has been increased to 85% or more.
- To cut the source of transmission of TB bacilli. If it is not like this , one TB patient with smear positive might spread to friends-family or their colleagues in average of 10 to 15 peoples.
- To stop the resistance one or more TB drugs. The treatment of others strategies could create drug resistance.
- The treatment is cost effective.
- It is easy to apply in the community. It is unnecessary to hospitalize and without insertion of new techniques, so any health facilities even the health center can apply.

More than 10 years ago, there are perhaps 70 countries which start to apply DOTS and now can get a good result. Last year, there are more than 1 million patients received the treatment by DOTS.

In Cambodia DOTS has been implemented since 1994 step by step and at the end of 1997 , the district- province and municipality 115 among 130 have been applied. The National Anti-Tuberculosis Programme make effort to get success (100%) in the applying of DOTS.



អ្វីដែលហៅថាដូតស៍ ?

ដូតស៍ជាពាក្យអង់គ្លេសមានន័យថា "ការព្យាបាលដោយមានការត្រួតពិនិត្យផ្ទាល់" គឺជារៀងរាល់ព្រឹក អ្នកជំងឺរបេងត្រូវបានទទួលការលេប-ចាក់ថ្នាំនៅចំពោះមុខបុគ្គលិកសុខាភិបាលទទួលខុសត្រូវ ។

ហេតុអ្វីបានជាអង្គការសុខភាពពិភពលោកស្នើសុំឲ្យគ្រប់កម្មវិធីជាតិកំចាត់ជំងឺរបេងទាំងអស់ឲ្យ អនុវត្តន៍ដូតស៍ ?

- ព្រោះជាយុទ្ធវិធីមួយដែលមានអត្ថប្រយោជន៍យ៉ាងខ្លាំងក្នុងលើលទ្ធផលនៃការព្យាបាលជំងឺរបេង ។ អត្ថប្រយោជន៍សំខាន់នៃការអនុវត្តន៍ដូតស៍មាន :
  - ធ្វើឲ្យអ្នកជំងឺបានជាសះស្បើយច្រើន ។ មិនទាន់អនុវត្តដូតស៍ អត្រាជាសះស្បើយមានប្រហែល ៥០% តែក្រោយអនុវត្តដូតស៍ អត្រានេះឡើងរហូត ៨៥% ឬលើស ។
  - បំបាត់ប្រភពចម្លងនៃមេរោគរបេង ។ បើពុំដូច្នោះទេ អ្នកជំងឺរបេងវិជ្ជមានម្នាក់អាចចម្លងទៅមិត្តភ័ក្រ្ត បងប្អូនក្នុងគ្រួសារ ឬអ្នករួមការងារ ជាមធ្យម ១០ ទៅ ១៥នាក់ក្នុងមួយឆ្នាំ ។
  - ជៀសវាងភាពស៊ាំឱសថរបេងមួយមុខ ឬច្រើនមុខ ។ ការព្យាបាលតាមយុទ្ធវិធីផ្សេងៗអាចនាំភាពស៊ាំ ។
  - តម្លៃព្យាបាលថោក តែតម្លៃប្រសិទ្ធភាពខ្ពស់ ។
  - ងាយស្រួលអនុវត្តនៅក្នុងសហគមន៍ ។ មិនចាំបាច់សំរាកពេទ្យ ហើយក៏គ្មានបញ្ចូលបច្ចេកទេសថ្មីអ្វី គ្រប់ប្រព័ន្ធសុខាភិបាលនៅពេលមណ្ឌលសុខភាពអាចអនុវត្តបាន ។

ជាង១០ឆ្នាំកន្លងទៅ មានប្រទេសជិត៧០ ដែលបានចាប់ផ្តើមអនុវត្តដូតស៍ ហើយនិងកំពុងទទួលលទ្ធផល ។ កាលពីឆ្នាំទៅ មានអ្នកជំងឺជាង ១លាននាក់បានទទួលការព្យាបាលតាមវិធីដូតស៍ ។

នៅកម្ពុជា ការអនុវត្តដូតស៍បានចាប់ផ្តើមពីឆ្នាំ១៩៩៤ ជាជំហានៗ ។ ចុងឆ្នាំ១៩៩៧ មន្ទីរពេទ្យស្រុក-ខេត្ត-ក្រុង ចំនួន១១៥ ក្នុងចំនួន១៣០ ។ កម្មវិធីជាតិនឹងខិតខំគ្របដណ្តប់ការដូតស៍ឲ្យបាន ១០០% នៅពេលខាងមុខ ។

"Only DOTS can stop Tuberculosis "

"DOTS is a symbol of open hand of the health staff to give the drugs to patients and follow them till they swallow into their abdomen every morning "

« មានតែវិធីដូតស៍មួយគត់ដែលអាចកំចាត់ជំងឺរបេងបាន »

« ដូតស៍ជានិមិត្តរូបនៃបាតដៃលារបស់បុគ្គលិកសុខាភិបាល ជូនឱសថរបេងទៅអ្នកជំងឺ និងពិនិត្យតាមដានរហូតគាត់លេបចូលក្នុងពោះជារៀងរាល់ព្រឹក »

EPIDEMIOLOGY

Tuberculosis is still a dangerous disease in the public health, and is the priority number one of the Ministry of Health.

1- PREVALENCE OF THE DISEASE

A survey done to find the rate of spreading of Tuberculosis between 1981 and 1989 showed that there are 393 patients with smear positive among a population of 86,377. It means that the prevalence is 455 among 100,000 inhabitants (455/100,000).

A small survey carried out by the Immigration Organization Mondial (IOM) in 1995, has shown almost the same prevalence, 426/100,000.

This number assumed that there are still many Tuberculosis cases which did not receive the treatment before. The number of new cases (Incidence) is 215 cases among 100,000 inhabitants or 215/100,000. In 1997, the detection of Tuberculosis is 15,184 cases it means 124/100,000 of incidence rate.

In total, even the detection and treatment are good result, the number of Tuberculosis still remain high (≈ 40% do not receive the tuberculosis treatment). With the infection of HIV increasing promptly, the Tuberculosis infection is also increased and causes high rate of Tuberculosis mortality. *(Table 1)*

2- ANNUAL RISK INFECTION (ARI)

A tuberculin test has been carried out in Phnom Penh in 1997 among 3187 children from 5-9 years old by using vaccine test 2TU/0.1ml of PPDRT23. The result of this survey shows annual risk infection of 1.1% (ARI=1.1%). *(fig.1)*

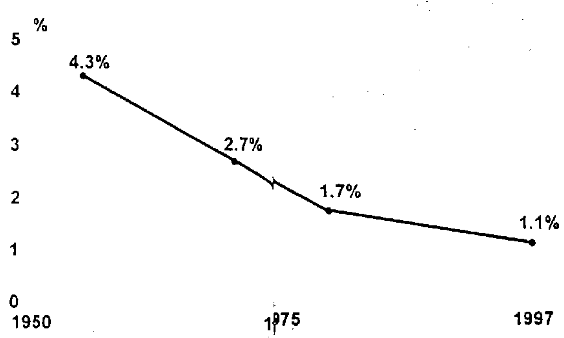
3- TUBERCULOSIS INFECTION AND AIDS

Tuberculosis and AIDS put together lead to kill the patient more promptly. When the patient has Tuberculosis bacilli and of HIV virus, Tuberculosis become worse because the Human Immunity is deficient.

According to the study done by the World Health Organization, Tuberculosis is the first cause of dying of the patients who have HIV virus (1/3).

The spread of HIV infection is the main factor of Tuberculosis development in Cambodia. A survey done of find HIV virus by blood examination, on the tuberculosis patient with smear positive, through the whole country in 1997 showed that among 1035 TB patients to be 5,2% positive (equal to 3,9% in 1996) It increased 1.33 times if comparing to 1996. *(Table 2)*

Annual Risk Infection Cambodia-Phnom Penh 1955-1997



អេពីដេមីសាស្ត្រ

របេងនៅតែជាជំងឺគ្រោះថ្នាក់មួយក្នុងសុខាភិបាលសាធារណៈនៅឡើយ ហើយគឺជាជំងឺអាទិភាពទីមួយរបស់ក្រសួងសុខាភិបាល ។

១- អត្រាឆ្លងរាលដាលនៃជំងឺ (ប្រេវ៉ាឡង់)

ឆ្លងតាមការអង្កេតរកអត្រារាលដាលនៃជំងឺរបេងក្នុងចន្លោះឆ្នាំ ១៩៨១និង១៩៨៩ បានបង្ហាញឱ្យឃើញថា មានករណីវិជ្ជមានបេកានៅក្នុងកំហាកចំនួន ៣៩៣នាក់ ក្នុងចំណោមប្រជាជន ៨៦.៣៧៧នាក់ ។ មានន័យថា អត្រាប្រេវ៉ាឡង់ចំនួន៤៥៥ ករណីវិជ្ជមានបេកាក្នុងចំណោមប្រជាជន ១០០.០០០នាក់(៤៥៥/១០០.០០០) ។ ការអង្កេតតូចមួយដែលធ្វើតាមរយៈអង្គការអន្តោប្រវេសន៍ (IOM) នៅឆ្នាំ១៩៩៥ ក៏បានបង្ហាញនូវតួលេខនៃប្រេវ៉ាឡង់មានចំនួនប្រហាក់ប្រហែលគ្នានេះដែរគឺ ៤២៦/១០០.០០០ ។ តួលេខនេះអាចឱ្យយើងសន្និដ្ឋានបានថា យើងមានសល់ករណីរបេងភាគច្រើនដែលមិនបានព្យាបាលពីមុនមក ។ អត្រាប្រេវ៉ាឡង់នេះអាច បញ្ជាក់នូវករណីរបេងថ្មី (អាំងស៊ីដង់) ដែលមានចំនួន ២១៥នាក់ក្នុងចំណោមប្រជាជន ១០០.០០០នាក់ ឬ ២១៥/១០០.០០០ ។ នៅក្នុងឆ្នាំ១៩៩៧ កន្លងមកនេះ ការស្រាវជ្រាវនៃករណីរបេងថ្មីទាំងអស់មាន១៥១៨៤ ពោលគឺអត្រាស្រាវជ្រាវអាំងស៊ីដង់មាន ១២៤/១០០.០០០ ។ សរុបមកយើងឃើញថាថ្វីបើការស្រាវជ្រាវ ព្យាបាលបានលទ្ធផលគួរជាទីពេញចិត្តយ៉ាងណាក៏ដោយ ក៏បរិមាណនៃជំងឺរបេងនៅតែមានសេសសល់ថែមទៀត (≈ ៤០%) ដែលពុំទាន់បានទទួលការព្យាបាល ។ រួមផ្សំនឹងការកើនឡើងយ៉ាងឆាប់រហ័សនៃអត្រាចម្លង HIV ទៀតនោះ យើងឃើញថាអត្រាជំងឺរបេងក៏កើនឡើងខ្ពស់ទៅតាមនោះ ដែលជាហេតុធ្វើឱ្យអត្រាស្លាប់នៃជំងឺរបេងក៏នៅតែច្រើនដែរ ។ *(តារាង ១)*

២- គ្រោះថ្នាក់នៃការចម្លងប្រចាំឆ្នាំ (ARI)

ការអង្កេតតេស្ត ទុយប៊ែរគុយលីន នៅក្រុងភ្នំពេញក្នុងឆ្នាំ ១៩៩៧ ធ្វើទៅលើកុមារអាយុ ពី ៥_៩ឆ្នាំ ចំនួន៣.១៨៧នាក់ ដោយប្រើវ៉ាក់សាំងតេស្តប្រភេទ 2TU/0.1ml នៃ PPDRT23។ លទ្ធផលនៃការអង្កេតនេះបង្ហាញថា គ្រោះថ្នាក់នៃការចម្លងប្រចាំឆ្នាំ : ARI= 1.1% ។ *(រូបភាព ១)*

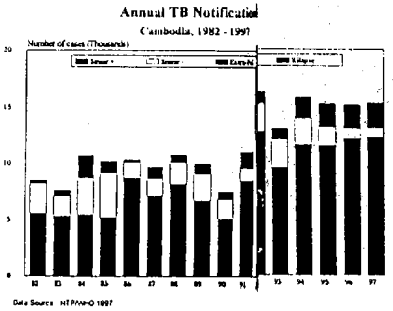
៣- ជំងឺរបេង និង HIV/AIDS.

របេង និង អេដស៍ រួមគ្នាជាប្រភេទជំងឺមួយដែលអាចឱ្យស្លាប់យ៉ាងរហ័សបំផុត ។ នៅពេលដែលអ្នកជំងឺមានរោគរបេងផង ហើយមានផ្ទុកវីរុស HIV ផងនោះ ជំងឺរបេងក្លាយជាហេតុភាពខ្លាំងក្លាបំផុតដោយប្រព័ន្ធការពារក្នុងខ្លួនអ្នកជំងឺនោះចុះខ្សោយ ។ តាមការសិក្សារបស់អង្គការសុខភាពពិភពលោកបានឱ្យដឹងថា ជំងឺរបេងគឺជាមូលហេតុដែលនាំឱ្យអ្នកជំងឺដែលមាន HIV ស្លាប់ច្រើនជាងគេ គឺមាន ១ ភាគ ៣ ។ ការឆ្លងរាលដាលនៃមេរោគ HIV គឺជាកត្តាសំខាន់ ក្នុងការវិវត្តន៍នៃជំងឺរបេងនៅកម្ពុជា ។ ការអង្កេតរកមេរោគ HIV តាមរបៀបពិនិត្យឈាមទៅលើអ្នកជំងឺរបេងវិជ្ជមានបេកានៅទូទាំងប្រទេសក្នុង ២ត្រីមាសឆ្នាំ១៩៩៧ បានបង្ហាញថាក្នុងអ្នកជំងឺ ១០៣៥នាក់ ត្រូវជា ៥.២% (ស្មើនឹង ៣.៩% ក្នុងឆ្នាំ ១៩៩៦) ។ វាកើនឡើង ១.៣៣ដង បើប្រៀបធៀបទៅនឹងឆ្នាំ ១៩៩៦ ។ *(តារាង ២)*

CONTROL ACTIVITIES

Case finding

In 1997 , 15184 new cases of TB were detected. Smear positive tuberculosis cases and cases of Extra Pulmonary were noted to increase in number since 1992. In 1997 the number of new cases of TB smear positive are 12,278, 93% of annual planing and the number of TB smear negative are 706 cases ; this figure is lower than last year.
(Table 3) (fig.2)



Diagnosis

The method for case finding of tuberculosis cases used by the programme is based on identification and examination of self-reporting suspects , who attend the general health services institutions, through the patients who have been educated by TB staff . Direct smear examination is an important policy of NTP in diagnosing TB. X-ray facilities are available in Phnom Penh and in the major provincial hospital.

According to the official policy chest X-ray examination is just a factor of the 4 factors for treating TB smear negative.

The 4 factors are (After 20-30 days on different general antibiotics to exclude possible infections with other bacteria) :

1/- The symptom still exist or becomes severe

2/- Ineffective of symptomatic treatment

3/- 9 times of spatum examination with smear negative.

4/- Chest X-ray show lesion lead to TB suspect.

សកម្មភាព

ការស្វាងរកជ្រាបដំបូងរបេង

ក្នុងឆ្នាំ១៩៩៧ ជំងឺរបេងត្រូវបានស្រាវជ្រាវរកឃើញ ចំនួន ១.៥១៨៤ ករណីថ្មី ។ ចាប់ពីឆ្នាំ១៩៩២មក ចំនួនជំងឺរបេងសួតថ្មីដែលមានបេក្ខភាពវិជ្ជមានតែក្នុងកំហាក និងជំងឺរបេង ត្រៀសួតបានកើនឡើងនៅពេលដែលចំនួនជំងឺរបេងសួតថ្មី រវាងវិជ្ជមានបេក្ខភាពនៅក្នុងតំហាកត្រូវគានចំនួនដូចគ្នា ។ ក្នុងឆ្នាំ១៩៩៧ ចំនួនជំងឺរបេងសួតថ្មីដែលមានបេក្ខភាពមាន ១.២២៧៨ករណី ស្មើនឹង ៩៣% នៃផែនការប្រចាំឆ្នាំ ចំនួនរបេងសួតថ្មី រវាងវិជ្ជមានបេក្ខភាពមាន៥០៦ ទាបជាងឆ្នាំកន្លងមក ។ *(តារាង ៣)(រូបភាព ២)*

វោគវិនិច្ឆ័យ

របៀបស្រាវជ្រាវរកជំងឺរបេងដែលកម្មវិធីជាតិបានអនុវត្ត គឺតាមរយៈការបង្ហាញខ្លួន និងការពិនិត្យផ្នាល់មកដែលឱ្យអ្នកជំងឺដែលបានមកពិភ្យាបសេវាសុខាភិបាលខុទៅ ដោយគាត់មានការសង្ស័យលើខ្លួនគាត់ផ្ទាល់តាមរយៈអ្នកជំងឺ ដែលបានទទួលការរៀបរំពីបុគ្គលិកវោទ្យ ផ្នែកជំងឺរបេង ។ ការពិនិត្យកំហាកផ្នាលជានយោបាយសំខាន់ របស់កម្មវិធីជាតិក្នុងការរកឃើញវិធីថ្មី ។ ឱ្យសាស្ត្រមានតេទីក្រុង ភ្នំពេញ និង ខេត្តធំៗ មួយចំនួន ។ ក្នុងគោលនយោបាយរបស់កម្មវិធី ជាតិ ឱ្យសាស្ត្រជាកត្តាមួយក្នុងកត្តាទាំង៤ សំរាប់ព្យាបាលជំងឺរបេង សួតបេក្ខភាពវិជ្ជមានប៉ុណ្ណោះ ។

កត្តាទាំង៤មានមាន (ក្រោយការព្យាបាលតាមរោគសញ្ញា រយៈពេល ២០_៣០ថ្ងៃ) :

១_ រោគសញ្ញានៅមានដដែល ឬក្លាយជាធ្ងន់ជាង

២_ ការព្យាបាលតាមរោគសញ្ញាគ្មានប្រសិទ្ធិភាព

៣_ ពិនិត្យកំហាក ៩ដង : វិជ្ជមានបេក្ខ

៤_ រូបថតសួតមានស្នាមចាប់អារម្មណ៍ ចាបេកពីបេក

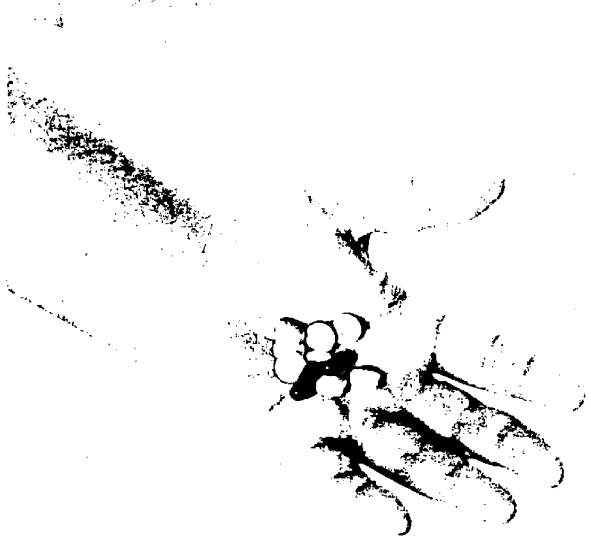
Chemotherapy

In 1994, the DOTS strategy was gradually introduced district by district. Some 23% of 120 tuberculosis centers were using the short-course regimens. The percentage increased to 57% in 1995 and 90% by end 1996. In 1997 The NTP opened to more TB unit. Among the 130 TB units country-wide, 115 of them apply DOTS.

The programme decentralized tuberculosis treatment from the provincial to the district level. In 1993 only 43% of the cases were treated at district level, against 85% in 1997. This is more conform with the population distribution.
(Table 4)

Two third of patients are admitted during the intensive phase for DOTS, the last third of the patients are receiving the intensive phase of treatment on a daily ambulatory basis.

On a pilot basis in Phnom Penh, the CENAT and Mean Chey Health Center with the support of WHO, Servants and MSF/F, have started mid 1996 a daily home delivery of intensive phase drugs for a small number of patients. Perspectives of extension are important if successful.



ការព្យាបាល

ក្នុងឆ្នាំ១៩៩៤ យុទ្ធសាស្ត្រព្យាបាលតាមរបៀបជួតស៊ីបានត្រូវដាក់ឱ្យប្រើប្រាស់ជាបណ្តើរៗពីស្រុកមួយទៅស្រុកមួយទៀត ។ ការព្យាបាលដោយរូបមន្តរយៈពេលខ្លីដោយត្រួតពិនិត្យផ្ទាល់ មាន ២៣% ក្នុងចំណោមបណ្តាញបេះចំនួន ១២០ ។ អត្រាបានកើន ៥៧% ក្នុងឆ្នាំ១៩៩៥ និង ៩០% នៅចុងឆ្នាំ១៩៩៦ ។ ក្នុងឆ្នាំ១៩៩៧នេះ កម្មវិធីជាតិបានពង្រីកមន្ទីរពេទ្យព្យាបាលរបេងបន្ថែមបានទៀត ហើយអត្រារមនុវត្តជួតស៊ីបាន ១១៥ ក្នុងចំណោមបណ្តាញរបេង ១៣០ ។ *(មើលតារាង៤)* កម្មវិធីជាតិបានធ្វើឱ្យមជ្ឈការក្នុងការព្យាបាលជំងឺរបេងពីថ្នាក់ខេត្តរហូតដល់ថ្នាក់ស្រុក ។ នៅឆ្នាំ១៩៩៣ អ្នកជំងឺរបេងដែលបានទទួលការព្យាបាល នៅថ្នាក់ស្រុកមានត្រឹមតែ ៤៣% ប៉ុណ្ណោះ តែដល់ឆ្នាំ១៩៩៧ នេះអត្រានេះបានកើនឡើងរហូតដល់៨៥% និងកើនលើងឡើតទៅតាមចំនួនប្រជាជន ។ *(តារាង៤)* ការព្យាបាលតាមរបៀបជួតស៊ ២/៣ នៃអ្នកជំងឺរបេងត្រូវនៅសំរាកពេទ្យក្នុងវគ្គដំបូងនៃការព្យាបាល និង១/៣ ទៀតអ្នកជំងឺដែលនៅជិតត្រូវបានមកឈេបថ្នាំជាប្រចាំរាល់ព្រឹកនៅផ្ទែកព្យាបាលមិលក្នុងមន្ទីរពេទ្យ ។ នៅភ្នំពេញ មជ្ឈមណ្ឌលជាតិ និងមណ្ឌលសុខភាពស្រុកមានជ័យបានចាប់ផ្តើមសាកល្បងរមនុវត្តពីការកំណាលឆ្នាំ១៩៩៦ និងកំពុងបន្តការសាកល្បងនេះ ចំពោះអ្នកជំងឺរបេងមួយចំនួនដែលកំពុងទទួលការព្យាបាលក្នុងវគ្គដំបូងដោយបានរមនុវត្តការចែកចាយថ្នាំរាល់ផ្ទះអ្នកជំងឺជារៀងរាល់ថ្ងៃ ហើយទៅមែរនាគត កម្មវិធីនេះនឹងត្រូវរមនុវត្តយ៉ាងខ្លំខ្លាយប្រសិនបើការងារនេះទទួលបានជោគជ័យ ។

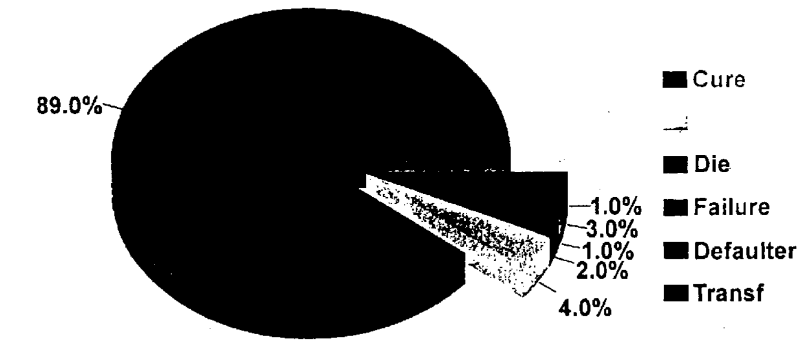
Case holding

The results of treatment are available for 6076 new smear positive cases who started on Cetagory I treatment during the first three quarters of 1996. During that period of the total 6076 cases, 89% was declared cured, 4% completed treatment without a smear result, 2% died, 1% remained positive (failure), 3% defaulted and 1% was transferred out.

During first three quarters of 1996, 449 relapse cases who started on Category II, were registered. During that period of the total 449 cases, 86% was declared cured, 5% completed treatment without a smear result, 4% died, 1% remained positive (failure) 4% defaulted and 1% was transferred.

During first three quarters of 1996, 266 cases in the group failure and treatment after interruption who started on Category II, were registered. During that period of the total 266 cases, 46% was declared cured, 37% completed treatment without a smear result, 8% died, 2% remained positive, 3% defaulted and 4% was transferred out.

The results of treatment are also available from 618 were smear negative tuberculosis cases started on Category III treatment during first three quarters of 1996. During that period of the total 618 cases, 92% completed treatment, 4% died, 0% remained positive, 2% defaulted and 2% was transferred out. *(Table 5)*



ការតាមដានជំងឺ និងលទ្ធផលនៃការព្យាបាល

ក្នុងឆ្នាំ១៩៩៦ រយៈពេលបីត្រីមាសដំបូងមានអ្នកជំងឺរបេងស្មើរវិជ្ជមានថ្មីចំនួន ៦០៧៦នាក់ ត្រូវបានព្យាបាលតាមរូបមន្តប្រភេទទី១ ហើយលទ្ធផលទទួលបានមាន៨៩% ជាសះស្បើយ, ៤% បានបញ្ចប់ការព្យាបាលដោយពុំបានធ្វើការពិនិត្យកំហាក, ២% ស្លាប់, ១% បរាជ័យក្នុងការព្យាបាល, ៣% លះបង់ការព្យាបាល និង ១% ត្រូវបញ្ជូនចេញ ។

ក្នុងរយៈពេលបីត្រីមាសដំបូងឆ្នាំ១៩៩៦ នេះដែរ មានចំនួនករណីលាប់ ៤៤៩ បានចុះក្នុងបញ្ជី ហើយត្រូវបានទទួលលទ្ធផលក្រោយការ ព្យាបាលដោយរូបមន្តប្រភេទទី២ មាន ៨៦% ជាសះស្បើយ, ៥% បញ្ចប់ការព្យាបាល ៤% ស្លាប់, ១% បរាជ័យក្នុងការព្យាបាល, ៤% បោះបង់ការព្យាបាល, និង១% បញ្ជូនចេញ ។

ក្នុងរយៈពេលបីត្រីមាសដំបូងឆ្នាំ១៩៩៦ ករណីអ្នកជំងឺបរាជ័យ និងបោះបង់ការព្យាបាលមានចំនួន២៦៦ បានចុះបញ្ជី ហើយត្រូវបានទទួលលទ្ធផល ក្រោយការព្យាបាលដោយរូបមន្តប្រភេទទី២ មាន ៤៦% ជាសះស្បើយ, ៣៧% បញ្ចប់ការព្យាបាល, ៨% ស្លាប់ ២% បរាជ័យក្នុងការព្យាបាល, ៣% បោះបង់ការព្យាបាល, និង ៤% បញ្ជូនចេញ ។

អ្នកជំងឺរបេងស្មើរអវិជ្ជមានបេកាចំនួន ៦១៨ករណីត្រូវបានព្យាបាលដោយរូបមន្តប្រភេទទី៣ ។ រយៈពេលបីត្រីមាសដំបូងឆ្នាំ១៩៩៦ លទ្ធផលទទួលបានមាន ៩២% បញ្ចប់ការព្យាបាល, ៤% ស្លាប់, ២% បោះបង់ការព្យាបាល, និង ២% បញ្ជូនចេញ ។ *(តារាង ៥)*

Training and supervision

In 1997, NTP permitted all Provincial TB coordinator to conduct TB training course, attended by 20 medical staffs and 20 laboratory technicians, to run 10 more TB units at new district level, which increased from 120 (1993-1996) to 130. NTP arranged 2 workshops for provincial supervisor attended by 50 participants and 4 refreshment courses for laboratory technicians, in Kandal, Phnom-Penh, Kg Cahm, and Battambang, each course took place for 3 days with 12 participants. Central and provincial staff participated in a number of training sessions, visits and conferences abroad (Japan, Vietnam, Lao, Philippines, Australia, Thailand, China, Malaisia.

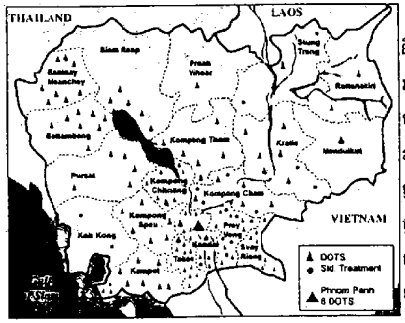
Supervisory visits guarantee the quality of the program's application allowing weaknesses to be identified and corrected. Supervision was conducted by 8 central teams of one medical officer and one laboratory staff for 130 TB units. The total number of supervision days by the central staff is 219.

At provincial level, the provincial TB coordinator and the provincial laboratory staff visit all tuberculosis centers once monthly using the available transport of the provincial health direction.

At district level, some district supervisors visited health centers monthly to quarterly.

All provincial coordinators have been meeting at the national level to discuss the progress of implementation with CENAT 2 times in 1997. At the provincial level, most tuberculosis supervisors meet monthly at the provincial health office.

ការបណ្តុះបណ្តាល និងការងារអភិបាល



ក្នុងឆ្នាំ១៩៩៧ កម្មវិធីជាតិបានអនុញ្ញាតឲ្យបណ្តា ខេត្តនានា តាមតំបន់រៀបចំវគ្គបណ្តុះបណ្តាលបុគ្គលិកថ្នែក ដែលសាស្ត្រចាន់ចំនួន ២០នាក់ និងថ្នែកមន្ទីរពិសោធន៍បាន ចំនួន២០នាក់ សំរាប់ឱ្យរំលើរ ការការងារបេងស្រុកចំនួន១០ ថែមទៀត ដែលពីឆ្នាំ១៩៩៣មកទល់ ឆ្នាំ១៩៩៦ មានតែ១៣០ ។ វគ្គសិក្ខាសាលាអ្នកអភិបាលថ្នាក់ខេត្តចំនួន ២លើក ដែលមានសិក្ខាកាមចូលរួមចំនួន ៦៨នាក់ ។ វគ្គបំប៉នបន្ថែម ថ្នែកមន្ទីរពិសោធន៍ ធ្វើនៅខេត្តកណ្តាល, ភ្នំពេញ, កំពង់ចាម, ស្វាយរៀង, និងបាត់ដំបង ក្នុងវគ្គនិមួយៗមាន រយៈពេល ៣ថ្ងៃ និងមានសិក្ខាកាមចំនួន ១២នាក់ ។ ជាមួយគ្នានេះ បុគ្គលិកទាំងថ្នាក់កណ្តាល, ទាំងថ្នាក់ខេត្ត បានចូលរួមវគ្គបណ្តុះបណ្តាលទស្សនកិច្ច និងការប្រជុំផ្សេងៗនៅក្រៅប្រទេសចំនួន ១១នាក់ (ប្រទេសជប៉ុន, ប្រុតណាម, ហ្វីលីពីន, អូស្ត្រាលី, ប្រទេសថៃ, ប្រទេសចិន, ម៉ាឡេស៊ី, ឡាវ) ។

ការចុះអភិបាលរបស់ថ្នាក់កណ្តាល នានាបានគ្នូរពុណភាព នៃការអនុវត្តតាមកម្មវិធីជាតិ ដោយចម្ងល់បញ្ហាញនូវចំណុចខ្វះខាត និងធ្វើការកែតំរូវ ។ ក្នុងឆ្នាំ១៩៩៧ ការចុះអភិបាលរបស់ថ្នាក់កណ្តាលបានរៀបចំជា ៨ក្រុម ដែលក្នុង១ក្រុមៗមានជាជួបជុំ៩នាក់ និងអ្នកបច្ចេកទេសមន្ទីរពិសោធន៍១នាក់ ។ ក្រុមអភិបាលទាំង ៨នេះបានមកធ្វើការតាមបណ្តាបេងនានាចំនួន១៣០ ។ ចំនួនសរុបថ្ងៃដែលបានចុះ អភិបាលក្នុងឆ្នាំ១៩៩៧ នេះបានតែ២១៩ថ្ងៃ ។

នៅតាមថ្នាក់ខេត្ត អ្នកទទួលបន្ទុកកម្មវិធីរបេងថ្នាក់ខេត្ត និងអ្នកបច្ចេកទេសមន្ទីរពិសោធន៍ថ្នាក់ខេត្តបានចុះអភិបាលការងារ របេងតាមបណ្តាញនានារបស់ខេត្ត ១ដងក្នុង១ខែ ដោយប្រើប្រាស់មធ្យោបាយរបស់មន្ទីរសុខាភិបាលថ្នាល់ ។ នៅតាមថ្នាក់ស្រុកអ្នកទទួលខុសត្រូវថ្នែកជំងឺ របេងបានចុះអភិបាលនៅតាមមណ្ឌលសុខភាពរាល់ខែ ឬរាល់ត្រីមាស ។ អ្នកទទួលបន្ទុកកម្មវិធីរបេងថ្នាក់ខេត្ត បានជួបពុំគ្នានៅថ្នាក់ជាតិ ដើម្បីពិភាក្សាការរៀបចំបណ្តាញជាមួយនឹងមជ្ឈមណ្ឌលជាតិបាន២ដងក្នុងឆ្នាំ១៩៩៧ ។ នៅថ្នាក់ខេត្ត អ្នកទទួលបន្ទុកជំងឺរបេងមួយភាគធំ បានជួបពិភាក្សាជាមួយអស់លោកសុខាភិបាលខេត្តជារៀងរាល់ខែ ។

Laboratory activities

Since the programme started, the microscopic sputum examination is considered as the basic of pulmonary tuberculosis.

In the first 9 months 1997, the total of examined slides is 81047 including 55,326 of diagnosed slides and 7478 of the first positive slides. This is estimated to be about 39% of all suspect patients coming for diagnosis (this high rate is notable). If comparing with 1996, the first slides positive is increased about 8% (1996: 31%, 1997: 39%). The total number of diagnosed slides is 55,326 (1st slides: 19174; 2nd slides: 18,272; 3rd slides: 17,880) (table 6). This data, confirms that about 93% of suspect patients had 3 sputum examinations.

To improve the laboratory works and make more accurate the result of sputum examination in tuberculosis diagnosis, the programme has encouraged quality control by recheck in the examined slides which are sent from districts-provinces or collected directly by the central supervisor when they go for supervision. In 1994, 1615 of rechecked slides are 2.4% of all examined slides. In the first 9 months 1997, the number of rechecked slides are 9642 among 70198 of all examined slides collected from the whole country, it equal to 13.9% (increase more than 11% comparing to 1994). The result of the quality control is 4% of false positive, 5% of false negative, it means 91% of sensitivity and 98% of specificity (table 7).

The supply of materials and reagents to all laboratories in the whole country faced some difficulties following the delay of the arrival of the chemicals.

In the beginning of 1997, the programme introduced the sputum examination by fluorescence microscope in the laboratory at the National Anti-Tuberculosis Center (CENAT) after training all laboratory staffs. In April, the programme try to prepare the culture media for tuberculosis bacilli by step and in December the end of year, the inoculation of tuberculosis bacilli is done step by step (first for the negative sputum and later by the positive sputum). The programme hope that in June 1998, the routine work of sputum culture examination will be done at CENAT laboratory.

សកម្មភាពនៃមន្ទីរពិសោធន៍

តាំងពីចាប់ផ្តើមកម្មវិធី ការពិនិត្យកំហាកឃើញមីក្រូទស្សន៍នៅតែបានចាត់ទុកជាគ្រឹះនៃការរកមើលជំងឺរបេងសួត ។

នៅត្រីមាសទី១ឆ្នាំ ១៩៩៧ ចំនួនឡាមដែលពិនិត្យទាំងអស់មាន ៨១០៤៧ ក្នុងនោះមានឡាមស្រាវជ្រាវចំនួន ៥៥៣២៦ ឡាម ដែលមានឡាមវិជ្ជមានចំនួន ៧៤៧៨ ឡាម គិតទៅប្រមាណជា ៣៩% នៃអ្នកសង្ស័យទាំងអស់ដែលបានមកស្រាវជ្រាវ (នេះគឺជាអត្រាវិជ្ជមានដែលខ្ពស់គួរឱ្យកត់សំគាល់) ។ បើប្រៀបធៀបរវាងឆ្នាំ ១៩៩៦ អត្រាឡាមវិជ្ជមានបានកើនឡើងប្រមាណ ៨% (១៩៩៦ មាន ៣១% ១៩៩៧ មាន ៣៩%) ។ ចំនួនឡាមដែលស្រាវជ្រាវទាំងអស់ដែលមាន ៥៥៣២៦ ឡាម (ក្នុងនោះឡាមវិជ្ជមានមាន ១៩១៧៤ ឡាម. ឡាមទីពីរមាន ១៨២៧២ឡាម. ឡាមទីបីមាន ១៧៨៨០ ឡាម) ដូចនេះបង្ហាញថាប្រមាណ ៩៣% នៃអ្នកសង្ស័យម្នាក់បានធ្វើការពិនិត្យកំហាកចំនួនបីដង (មើលតារាង ៦) ។

ដើម្បីពង្រឹងការងារមន្ទីរពិសោធន៍ ឱ្យកាន់តែប្រសើរនោះ ពោលគឺដើម្បីធ្វើឱ្យការពិនិត្យកំហាកនៅតែមានប្រសិទ្ធិភាពខ្ពស់ក្នុងការរកមើលជំងឺរបេងនៃជម្ងឺរបេង កម្មវិធីបានជំរុញការងារត្រួតពិនិត្យគុណភាពដោយត្រួតពិនិត្យឡាមដែលពិនិត្យហើយសារឡើងវិញ ។ ឡាមទាំងនេះទទួលបានពីការផ្ញើមកពីស្រុក-ខេត្ត ឬប្រមូលផ្តាំល់ដោយអ្នកត្រួតពិនិត្យថ្នាក់កណ្តាលដែលចុះទៅរកភិបាលនៅតាមខេត្ត-ស្រុក ។ នៅឆ្នាំ ១៩៩៤ ការត្រួតពិនិត្យសារឡើងវិញចំនួន ១៦១៥ ឡាម គឺ ២.៤% នៃចំនួនឡាមដែលបានពិនិត្យទាំងអស់ ។ នៅឆ្នាំ១៩៩៧ ពាក្រាំមួនដែលបើមឆ្នាំចំនួនឡាមដែលបានត្រួតពិនិត្យម្តងទៀតមានចំនួន ៩៦៤២ឡាម ក្នុងចំនួន ៧០១៩៨ គឺស្មើនិង ១៣.៩% (កើនឡើងជាង ១១% បើប្រៀបធៀបទៅនឹងឆ្នាំ ១៩៩៤) ។

លទ្ធផលនៃការពិនិត្យឡើងវិញគឺ ៤% នៃកំហុសវិជ្ជមាន, ៥%នៃកំហុសវិជ្ជមាន, ស្របទៅនឹង ៩១% នៃ SENSEFIVITY និង ៩៨% SPECIFICITY(មើលតារាង ៧) ។

ការត្រប់ត្រង និងចែងចែករសំភារៈ-ប្រតិករមន្ទីរពិសោធន៍តាមបណ្តាញស្រុក-ខេត្ត-ក្រុង ជួបនិងបញ្ហាខ្វះជាការយឺតយ៉ាវក្នុងការទទួលសំភារៈ-ប្រតិករជាដើម ។

នៅដើមឆ្នាំ ១៩៩៧ កម្មវិធីបានបញ្ចូលការពិនិត្យកំហាកដោយមីក្រូទស្សន៍ Fluorescence នៅមន្ទីរពិសោធន៍នៃមជ្ឈមណ្ឌលជាតិកំចាត់ជម្ងឺរបេង បន្ទាប់ពីបានវគ្គបណ្តុះបណ្តាលបុគ្គលិកមន្ទីរពិសោធន៍ទាំងអស់ ។ នៅខែមេសា កម្មវិធីបានរៀបចំសាកល្បងធ្វើថ្នាលបណ្តុះមេរោគរបេងជាបន្តបន្ទាប់ ហើយនៅខែធ្នូនាចុងឆ្នាំ ការសាកល្បងបណ្តុះមេរោគក៏បានចាប់ផ្តើមធ្វើជាបន្តបន្ទាប (ជាដំបូងចំពោះកំហាកវិជ្ជមាន និងមន្ទាប់មកចំពោះកំហាកវិជ្ជមាន) ហើយនិងសង្ឃឹមថា នៅខែមិថុនា ឆ្នាំ១៩៩៨ ខាងមុខនេះ និងរៀបចំធ្វើការងារបណ្តុះមេរោគរបេងជាប្រចាំនៅក្នុងមន្ទីរពិសោធន៍នៃមជ្ឈមណ្ឌលជាតិកំចាត់ជម្ងឺរបេង-ហង់សិន ។

RESEARCH

Drug resistance of Mycobacterium tuberculosis

Since June 1996, the Pasteur Institute in Phnom Penh, in collaboration with CENAT, has studied the resistance of Mycobacterium tuberculosis and by the end of the second quarter of 1997, the following results had been obtained. The primary purpose of the study is to identify primary resistance of Mycobacterium tuberculosis.

Tests have been carried out in respect of 103 new smear positive patients who had not taken TB drugs before. The sample included male and female patients from a range of occupations and all were more than 15 years old. Three sputum samples for each patient were analysed at the laboratory of the Pasteur Institute.

Of the 103 patients, 100 were confirmed as positive, 1 was negative and in 2 cases slides were contaminated. Of the 100 positive cases, 97 were confirmed with Mycobacterium tuberculosis, 1 was confirmed as Mycobacterium avium intracellulare and in 2 cases it was not possible to complete the analysis.

The test for drug resistance among the 97 cases showed
- 17 streptomycin
- 12 isoniazid
- 2 pyrazinamide
- 2 para-aminosalicylic acid
- 2 rifampicin
- 0 ethambutol
- 4 streptomycin + isoniazid
- 1 rifampicin + isoniazid
- 1 streptomycin + isoniazid + para-aminisalicylic acid
- 1 streptomycin + isoniazid + pyrazinamide.

Of the 103 patients, 13 (12.5%) were HIV + Their ages were 20 - 39 years.

ការសិក្សាស្រាវជ្រាវ

ភាពស៊ាំនៃមេរោគរបេងធន់នឹងឱសថរបេង

វិទ្យាស្ថានប៉ាស្ទ័រភ្នំពេញសហការជាមួយមជ្ឈមណ្ឌលជាតិកំចាត់ជំងឺរបេងបានសិក្សាពីភាពស៊ាំនៃមេរោគរបេងដែលចាប់ផ្តើមពីខែមិថុនា ឆ្នាំ១៩៩៦ រហូតសំរេចបានជាលទ្ធផលនៅត្រីមាសទី២ ឆ្នាំ១៩៩៧ ។ គោលបំណងសំខាន់នៃការពិសោធន៍ គឺស្វែងរកភាពស៊ាំបឋមរបស់មេរោគរបេង ។

អ្នកជំងឺរបេងថ្មីបេកាវិជ្ជមានចំនួន ១០៣នាក់មិនថាស្រី ឬប្រុស មិនប្រកាន់មុខរបរតួនាទីដែលមានអាយុលើសពី១៥ឆ្នាំ និងមិនដែលទាន់ប្រើថ្នាំរបេងពីមុនមកសោះ ត្រូវបានជ្រើសរើសយកមកសិក្សា ។ កំហាក ៣កំប៉ុងចំពោះអ្នកជំងឺម្នាក់ត្រូវបានបញ្ជូនទៅពិនិត្យនៅមន្ទីរពិសោធន៍នៃវិទ្យាស្ថានប៉ាស្ទ័រ ។

ក្នុងចំណោមកំហាកអ្នកជំងឺទាំង ១០៣នាក់ មាន ១០០នាក់វិជ្ជមាន ១នាក់អវិជ្ជមាន និង ២នាក់មិនអាចយកជាការបាន ។ ក្នុងចំណោមកំហាកវិជ្ជមានទាំង ១០០ មាន ៩៧ជាបេការរបេង (Mycobacterium tuberculosis) . ១ជាមេរោគរបេងរបស់សត្វមាន់ (Mycobacterium avium intracellulaire) និង ២បានបាត់បង់នៅពេលធ្វើ repiquages ។

ក្នុងចំណោមមេរោគរបេងទាំង៩៧ គេបានធ្វើតេស្តរកភាពស៊ាំនឹងឱសថរបេង ដែលមានលទ្ធផលដូចតទៅ :

- ១៧ ស៊ាំនឹងឱសថ S
- ១២ ស៊ាំនឹងឱសថ H
- ២ ស៊ាំនឹងឱសថ Z
- ២ ស៊ាំនឹងឱសថ PAS
- ២ ស៊ាំនឹងឱសថ R
- គ្មាន ស៊ាំនឹងឱសថ E
- ៤ ស៊ាំនឹងឱសថ S+H
- ១ ស៊ាំនឹងឱសថ R+H
- ១ ស៊ាំនឹងឱសថ S+H+PAS
- ១ ស៊ាំនឹងឱសថ S+H+Z

ចំពោះរបេង និងហ៊ីវវិជ្ជមាន ក្នុងចំណោម ១០៣ករណី វិជ្ជមានមេការរោគ ១៣នាក់ (១២.៥%) ក្នុងនោះភាគច្រើនមានអាយុពី ២០ - ៣៩ឆ្នាំ ។

Tuberculin survey in Phnom Penh

A tuberculin survey was completed between November 1996 and July 1997. 3187 school children between the ages of 5 and 9 were randomly selected for the survey. Of these children, 2567 (80.5%) had not received BCG vaccination. The Tuberculin 2TU in 0.1ml of PPD DT 23/Twin 80 test was used and induration was measured 3 days after the test.

Subjects were considered to be infected if the induration was equal to or more than 10mm. The prevalence of infection was calculated as 8.14%. However, if 14mm and the mirror image technique is used for the calculation, the prevalence is 5.82%. Therefore ARI is 0.8% based on the mirror image technique, or 1.1% if 10mm is considered the cut-off point.

The formula used to calculate ARI was $R = 1 - (1-P)^{1/A}$ where R = ARI, A = average age = 7.5 years and P = prevalence.

ARI equals an incidence rate of 61 new smear positive patients/100,000 population or 6100 in the entire country.

ការអង្កេតតេស្តទុយប៊ែគុយលីននៅភ្នំពេញ

ការអង្កេតតេស្តទុយប៊ែគុយលីនបានចាប់ផ្តើមនៅវិច្ឆិកា ឆ្នាំ១៩៩៦ និងបានបញ្ចប់នៅខែកក្កដា ឆ្នាំ១៩៩៧ ។

កុមារា កុមារីក្នុងវ័យសិក្សាដែលមានអាយុពី ៥_៩ឆ្នាំចំនួន ៣១៨៧នាក់ត្រូវបានជ្រើសរើសដោយចៃដន្យយកមកធ្វើការអង្កេត ។ ក្នុងចំណោមកុមារា កុមារីទាំងនោះមាន ២៥៦៧នាក់ (៨០.៥%) មិនទាន់បានចាក់ថ្នាំការពារ បេសេហ្សេ ។ ទុយប៊ែគុយលីន ២ តេអ៊ុយអិញ ០.១ម.ម ប៉េប៉េដេអេតេ ២៣ / ទ្វីញ ៨០ ត្រូវបានយកមកប្រើប្រាស់ក្នុងការធ្វើតេស្ត ។ ការវាស់ទំហំប្រតិកម្មត្រូវធ្វើឡើងនៅថ្ងៃទីបីក្រោយការធ្វើតេស្ត ។ បើសិនជាទំហំប្រតិកម្ម > ១០ម.ម ត្រូវបាន ទុកថាបានការ អត្រាប្រេវ៉ាឡង់នៃជំងឺត្រូវបានគណនាឃើញស្មើនឹង ៨.១៤% ។ តែបើសិនជាយកត្រឹម ១៤ម.ម mirror image technique និង ត្រូវបានយកមកគណនា គឺស្មើនឹង ៥.៨២% ឬស្មើនឹងអាអែរអ៊ី គឺស្មើនឹង ០.៨% បើសិនជា mirror image technique ត្រូវបានយកមកគណនា អត្រាប្រេវ៉ាឡង់ និងស្មើ១.១% បើសិនជា ១០មម ត្រូវបានជ្រើសរើសជា (Cut-off point) ចំណុចបែងចែករវាងអ្នកឆ្លង និងអ្នកមិនទាន់ឆ្លងជំងឺ ព្រោះ :

$R = 1 - (1-P)^{1/A}$

R = ARI (អាអែរអ៊ី)

A = អាយុមធ្យម = 7,5 (ពី ៥ ទៅ ៩ឆ្នាំ)

P = ប្រេវ៉ាឡង់

ARI នេះត្រូវស្មើនឹង អត្រាកើតថ្មីរបស់ ៦១ ជំងឺរបេងថ្មីបេកា (+)/១០០,០០០ប្រជាជន ឬមានអ្នកជំងឺរបេងថ្មី (+) ៦,១០០នាក់ ក្នុងទូទាំងប្រទេស ។

Delay in start of treatment

On the personal initiative of a member of staff, a survey was carried out involving patients hospitalised at CENAT in Phnom Penh. 35 new smear positive patients were randomly selected. The patients were 22 male and 13 female and were aged between 18 and 76.7 were from Phnom Penh, 7 from Kandal Province, 5 from Kompong Cham Province, 3 from Takeo Province, 2 from Kompong Speu Province, 1 each from Siem Reap, Kompong Chhnang and Svay Rieng Provinces.

The patients were asked about the time that had elapsed between the first onset of symptoms and their admission to hospital. During the interval they had bought drugs at private pharmacies, consulted private medical staff at the commune, district or provincial level, seen a traditional healer or attended another hospital in Phnom Penh. In addition to these steps, one had visited a magician and one had seen a faith healer.

The total delay was found to be from 20 days to more than 2 years. This period included:

delay before taking any action	less than one day to 1 year
delay between taking some action and admission to CENTA	6 days to 2 years
delay between admission and start of treatment	3 days to 24 days

These delays are believed to result from poor health education and the lack of a close relationship between the national programme and the private sector and other hospitals.

ការយឺតយ៉ាវរបស់អ្នកជំងឺ និងគ្រូពេទ្យ

ការអង្កេតការពារជនបុគ្គលត្រូវបានធ្វើឡើងចំពោះអ្នកជំងឺដែលបានមកសំរាកពេទ្យក្នុងមជ្ឈមណ្ឌលជាតិកំចាត់ជំងឺរបេងភ្នំពេញ ។ អ្នកជំងឺដែលត្រូវបានជ្រើសរើសដោយចៃដន្យ គឺជាអ្នកជំងឺរបេងថ្មីបេកា (+) ដែលមានចំនួន ៣៥នាក់ ក្នុងនោះប្រុស ២២នាក់ និងស្រី១៣នាក់ ខេត្តកណ្តាល ៧នាក់ ខេត្តកំពង់ចាម ៥នាក់ ខេត្តតាកែវ ៣នាក់ ខេត្តកំពង់ស្ពឺ ២នាក់ និងខេត្តសៀមរាប, កំពង់ឆ្នាំង, ស្វាយរៀង ក្នុងខេត្ត១នាក់ ។

ការពិភាក្សាអ្នកជំងឺ ការចំណាយពេលរវាងការចាប់ផ្តើមរោគសញ្ញាដំបូងនិងការចូលមជ្ឈមណ្ឌលជាតិកំចាត់ជំងឺរបេង គាត់បានទិញថ្នាំនៅឱសថស្ថានឯកជន ឬពិគ្រោះជាមួយបុគ្គលិកពេទ្យឯកជននៅឃុំ ស្រុក ឬខេត្ត ឬគ្រូខ្មែរ ឬ ក៏ចូលមន្ទីរពេទ្យក្នុងភ្នំពេញ ។ មានអ្នកជំងឺតែមួយនាក់ប៉ុណ្ណោះ ដែលបានទៅជួបគ្រូធ្មប់ និងម្នាក់ទៀតដែលបានទៅជួបគ្រូអាគម ជំនឿលើព្រះ ។

ការពិនិត្យឃើញនៃការយឺតយ៉ាវសរុបមានរយៈពេលពី ២០ថ្ងៃទៅជាង ២ឆ្នាំ ។ តែបើសិនជាគិតពីរយៈពេលដែលអ្នកជំងឺមិនបានធ្វើអ្វី ឬដល់ពេលគាត់ទៅទិញថ្នាំនៅឱសថស្ថានឯកជន ឬទៅជួបគ្រូពេទ្យម្នាក់នោះ មានរយៈពេលតែ ០ថ្ងៃទៅ១ឆ្នាំប៉ុណ្ណោះ ។ រយៈពេលដែលអ្នកជំងឺបានទៅទិញថ្នាំនៅឱសថស្ថានឯកជន ឬទៅជួបគ្រូណាម្នាក់រហូតដល់អ្នកជំងឺបានមកដល់មជ្ឈមណ្ឌលជាតិកំចាត់ជំងឺរបេង ក្នុងអំឡុងពេលពី ៦ថ្ងៃ ទៅ ២ឆ្នាំ ហើយការព្យាបាលបានចាប់ផ្តើមពី ៣ថ្ងៃទៅ ២៤ថ្ងៃ ។

ទាំងនេះសបញ្ជាក់ពីការខ្វះខាត ផ្នែកអប់រំសុខភាពរបស់ប្រជាជន និងខ្វះទំនាក់ទំនង ជិតស្និទ្ធរវាងកម្មវិធីជាតិកំចាត់ជំងឺរបេង និងផ្នែកឯកជន ព្រមទាំងមន្ទីរពេទ្យផ្សេង ។

RESOURCES

Personnel and finance

The total number of people working in the programme throughout the country is [illegible] including 214 medical doctor and medical assistance, and 722 nurses and other support staff.

The Government remains committed to giving special attention to staff who have contact with TB patients and , in 1997, many provinces received a supplementary budget in order to meet the cost of increased salaries. It is hoped that all provinces will be able to implement increased salaries in 1998.

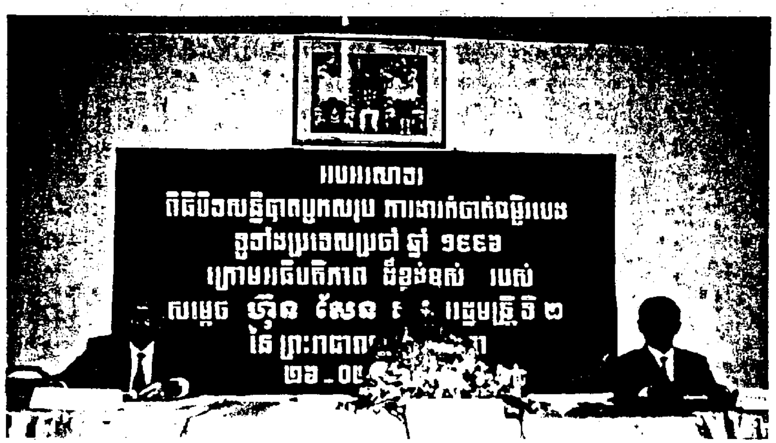
Patients in general medicine and surgery pay the hospital for their treatment but Government policy is that TB patients, many of whom are poor, should not do so. As a result, the income of TB staff remains below that of other staff working in the same hospitals and health centres and careers in general medicine and surgery are more attractive than careers in the TB Programme. This problem will need to be addressed.

The budget of the programme spent in 1997 was 900.000 US$ on drugs, 97.576.776 Riels on salary for Central TB staff and 28.950.000 Riels on food for TB patients at the National Tuberculosis Center.

In 1997, we first received the budget loan from World Bank at amount 2.089 US$ for supervision and 3.204 US$ for one quarterly Seminar.

ប្រភពធនធាន

មនុស្ស និង ថវិកា



[illegible]

Medication, reagents

The drug supply for the programme faced some obstacles in 1997 but received drugs from KfW (Kreditanstalt fur Wiederaufbau) and European Union through Medecins sans Frontieres (France) to the value of 20,000 $US. World Health Organisation decided to provide a budget of 250,000 $US to cover the cost of drugs for all of 1998. Similar problems were experienced with the supply of reagents but were resolved in co-operation with WHO, Medecin sans Frontiere (Netherlands-Belgium) and JICA. However, it was only possible to purchase sufficient materials to meet immediate needs. According to the shortage in 1997, we will prepare buffer stock for each semester in 1998.

The distribution of drugs and reagents is integrated with essential drugs by Central Medical Store in co-operation with the national programme. Decentralisation of TB drugs management was implemented in 1997 in all provinces and provincial supervisors now make calculations based on calculation sheets provided by the TB programme.

Food

Food for TB patients costs more than TB drugs. The national budget for food for patients in CENAT was estimated to be 30,000,000Riel (or 11,111 $US). World Food Programme provides rice (1,768 tons), oil (75 tons), fish (103 tons) and biscuit (8 tons) to 219 projects. This is and increase from 117 projects in

ឱសថប្រតិករ :

ការផ្គត់ផ្គង់ឱសថសំរាប់កម្មវិធីជាតិជំងឺរបេង ១៩៩៧ ជួបការលំបាកខ្លះៗតែយើងបានទទួលឱសថបន្ថែមពី កា-អ្វ-ឌុបបែលយូ និង សហគមន៍អឺរ៉ុបតាមរយៈគ្រូពេទ្យគ្មានព្រំដែនបារាំង អឹម-អេស-អ្វ តំលៃ ២០.០០០ ដុល្លារអាមេរិក ។ អង្គការសុខភាពពិភពលោកបាន សំរេចចិត្តផ្តល់នូវថវិកាចំនួន ២៥០.០០០ដុល្លារអាមេរិកសំរាប់ទិញឱសថរបេងសំរាប់បំពេញបន្ថែមក្នុងការផ្គត់ផ្គង់រហូតដល់ចុងឆ្នាំ១៩៩៨ ។ ការផ្គត់ផ្គង់ប្រតិករមិនខុសពីការផ្គត់ផ្គង់ឱសថឡើយគឺយើងមានការខ្វះខាតជាបន្តបន្ទាប់ក៏ប៉ុន្តែត្រូវបានដោះស្រាយជាបណ្តើរៗដោយសហការ ជាមួយអង្គការសុខភាពពិភពលោក. អង្គការគ្រូពេទ្យគ្មានព្រំដែន (ហូឡង់-បែលហ្ស៊ិក) និងតំណាងអង្គការជាយកា និងផ្គត់ផ្គង់សំភារៈប្រតិករ មន្ទីរពិសោធន៍តែក្នុងករណីចាំបាច់ប៉ុណ្ណោះ ។ យោងតាមការខ្វះខាតក្នុងឆ្នាំ១៩៩៧ យើងនឹងរៀបចំអោយមានស្តុកបំរុងសំរាប់រាល់ត្រីមាសក្នុង ឆ្នាំ១៩៩៨នេះ ។ ការចែកចាយឱសថនិងប្រតិករធ្វើឡើងរួមជាមួយឱសថសារវន្តផ្សេងៗទៀតពីឃ្លាំងឱសថកណ្តាលជាអ្នករៀបចំដឹកជញ្ជូន ដល់បណ្តាញរបេងទូទាំងប្រទេសដោយមានសហការណ៍ជាមួយថ្នាក់កម្មវិធីជាតិទាំងអស់ ។

ក្នុងឆ្នាំ១៩៩៧នេះ យើងបានអនុវត្តវិមជ្ឈការក្នុងការគ្រប់គ្រង និងការស្នើសុំឱសថរបេងដោយអ្នកទទួលបន្ទុករបេងខេត្តនិមួយៗ បានស្នើឡើង ដោយផ្អែកលើទិន្នន័យរបស់ខ្លួន ។

ស្បៀងឧបត្ថម្ភ :

ស្បៀងឧបត្ថម្ភសំរាប់អ្នកជំងឺរបេងមានតំលៃថ្លៃជាងតំលៃឱសថរបេង ។ ថវិកាឧបត្ថម្ភបានមកពីថវិកាជាតិមានប្រមាណ ៣០លានរៀល ត្រូវជា ១១.១១១ដុល្លារអាមេរិក (ដោយគិតតែមជ្ឈមណ្ឌលជាតិប៉ុណ្ណោះ) កម្មវិធីស្បៀងអាហារពិភពលោកបានផ្តល់អង្ករចំនួន ១.៧៦៨តោន ប្រេង ៧៥តោន. ត្រី ១០៣តោន. និង ៨តោន ក្នុង ២១៩គំរោង បើប្រៀបធៀបទៅនឹងឆ្នាំ១៩៩៦ មានតែ១១៧គំរោងប៉ុណ្ណោះ គឺកើនឡើង ៨៦ ភាគរយ ។

បរិមាណអង្ករ. ប្រេង. ត្រី. នេះត្រូវបានបែងចែកតាមរយៈសុខាភិបាលខេត្ត. អង្គការអន្តរជាតិ និងអង្គការក្រៅរដ្ឋាភិបាលដែលធ្វើការ នៅតាមបណ្តាខេត្ត និងស្រុកដែលមានបណ្តាញរបេងទូទាំងប្រទេស ។

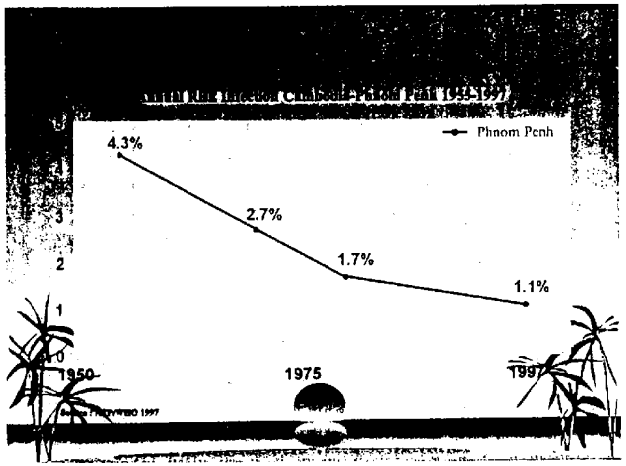


Figure 1 ↑

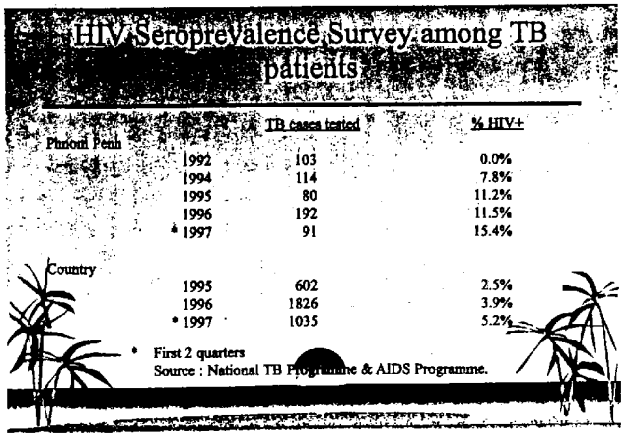
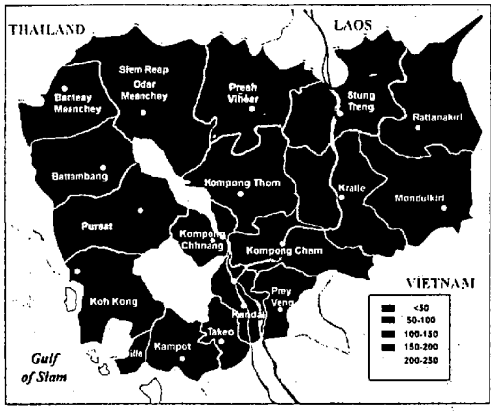


Table 2 ↑



Geographical Distribution of TB Detection rate (per 100,000 inhabitants) in 1997, Cambodia.

Table 1

Prevalence of Tuberculosis

(Active Detection)

PROVINCE	YEAR	POP.	BK+	PREVALENCE (BK+/100000 inhab)
Phnom Penh	1981	1775	6	338
	1983	3607	9	250
	1984	7259	11	152
Kandal (Takmao, Kamp)	1981	4102	18	439
Kandal (Prek kampes)	1982	3160	7	222
Kandal (Kamboi)	1985	2936	0	0
Kandal	1988	3369	10	297
Prey veng (Porpil)	1982	3534	19	538
Prey veng	1989	4575	23	503
Takao (Krani Choeunk)	1983	10261	46	448
Takao (Sophy samroeng)	1984	6955	40	575
Takao	1989	6408	54	843
Kampong chhnang (Langver)	1984	3608	18	513
Kampong chhnang	1989	3120	20	641
Svay Rieng	1985	4578	34	743
Kampong Speu	1989	5324	16	301
Kampong Thom	1989	5500	20	364
Seam Reap	1989	6404	42	656
TOTAL		8637	393	455

Source: National Tuberculosis Programme/ WHO.

DOTS implementationand decentralization from 1993-1997

Year	TB Units with DOTS	Decentralization of case management	
		Province	District
1993	0	57%	43%
1994	23 (120 units)	45%	55%
1995	57 (120 units)	34%	66%
1996	110 (120 units)	30%	70%
1997	115 (130 units)	15%	85%

Table ↑

Results of cohort analysis during 1994-1996, CAMBODIA

	cured	T.over	Died %	Failure	Default	Transver
CAT 1						
1994	69%	16%	3%	2%	7%	3%
1995	85%	6%	2%	1%	4%	1%
1996	89%	4%	2%	1%	3%	1%
CAT 2 relapse						
1994	61%	26%	5%	5%	3%	0%
1995	75%	13%	5%	3%	2%	2%
1996	86%	5%	4%	1%	4%	1%
CAT 2 other						
1994	38%	36%	11%	6%	4%	5%
1995	33%	48%	6%	3%	3%	3%
1996	46%	37%	8%	2%	3%	4%
CAT 3						
1994		84%	7%	0%	4%	4%
1995		88%	4%	0%	5%	3%
1996		92%	4%	0%	2%	2%

Table ↑

Laboratory Activity
Number of sputum examination

Year	Total No of exam.	No of examfor detectio.	No of 1st exam.	No of 2nd exam.	No of 3rd exam.	1st slide (+) rate	No of follow up exam	follow up exam (+) rate
1994	82,329					30%		
1995	121,236	112,621	31,948	28,222	26,236	29%	8,615	3%
1996	141,620	104,396	35,767	33,569	33,015	31%	37,224	2%
1997 (9M)	81,047	55,326	19,174	18,272	17,880	39%	25,721	1.6%

External Quality Control (except CENAT)

Year	Total No of exam.	No of cross checked slide	Cross checked rate	Sensitivity	Specificity	Agreement rate	False Positive rate	False Negative rate
1994	66,606	1,615	2,4%	95%	96%	97%	5%	1%
1995	102,996	4,045	3,9%	98%	95%	96%	6%	2%
1996	122,623	6,358	5,3%	94%	96%	95%	6%	4%
1997	108,062	17,218	15,9%	91%	98%	95%	4%	5%

Internal Quality Control (except CENAT) Table —↓↑

Year	Total No of exam.	No of cross checked slide	Cross checked rate	Sensitivity	Specificity	Agreement rate	False Positive rate	False Negative rate
1994	13,728	122	0,9%	99%	98%	98%	2%	1%
1995	15,640	2,241	14%	99%	99%	99%	1%	1%
1996	15,651	3,025	19%	99%	100%	99%	0%	1%
1997	14,994	2,916	19%	92%	99%	97%	1%	3%

TB ACTIVITIES IN CAMBODIA FROM 1996 TO 1997

Year	Estimated Population	Case detection Smear+ TBP	Smear- TBP	Extra Pulm.	Relapse	TOTAL TB case	Detection rate per 100.000 inhabitants S+ TBP	All forms TBP
1966	6,400,000	457				1,011	7	16
1967	6,600,000	837				2,103	13	32
1968	6,800,000	738				2,454	11	36
1980	5,400,000	571				2,567	11	48
1981	5,650,000	630				1,980	11	35
1982	5,900,000	5,579	2,663	233		8,475	95	144
1983	6,150,000	5,316	1,823	433		7,572	86	123
1984	6,400,000	5,507	3,160	2,007		10,674	86	167
1985	6,700,000	5,235	3,891	1,019		10,145	78	151
1986	7,000,000	8,715	1,295	271		10,281	125	147
1987	7,300,000	7,173	1,406	1,027		9,606	98	132
1988	7,600,000	8,248	1,714	731		10,691	109	141
1989	7,900,000	6,740	2,251	965		9,956	85	126
1990	8,200,000	5,132	1,630	672		7,434	63	91
1991	8,500,000	8,507	990	1,406		10,903	100	128
1992	8,800,000	12,685	2,491	972		16,148	144	184
1993	9,250,000	9,560	2,417	902		12,879	103	139
1994	9,700,000	11,058	2,195	1,319	540	15,112	120	156
1995	9,950,000	11,101	1,465	1,428	805	14,599	118	147
1996	10,200,000	12,163	740	1,477	606	14,986	125	147
1997	10,400,000	12,278	706	1,550	650	15,184	124	146

TB laboratory activity in Cambodia 1993 - 1997

	Total BK slides	% slide 1 pos. Pos. slide 1 / Tot. slide 1	Second slide rate (slide 2 / slide 1)	Third slide rate (slide 3 / slide 1)
1993	6,8828	no data	no data	no data
1994	82,329	30%	[illegible]	[illegible]
1995	121,236	29%	[illegible]	[illegible]
1996	141,620	31%	[illegible]	[illegible]
1997*	81,047	39%	[illegible]	[illegible]

Data source : the first three quarter 97 only

Table ↑

ACKNOWLEDGEMENT

The annual report " DOTS Widely " reflects the effects of the staff of National Tuberculosis Programme involved in case finding and treatment toachieve the goals of the programme and the staff who have carried out research, provided photographe and diagrams and produced the statistics etc...

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សេចក្តីថ្លែងអំណរគុណ

របាយការណ៍ប្រចាំឆ្នាំឈ្មោះ
ការព្យាបាលដោយត្រួតពិនិត្យផ្ទាល់កាន់តែគ្រប់ទិសទីឆ្ពើង
បានសំរេចកើតឡើងដោយស្នាដៃរបស់អ្នកទទួលខុសត្រូវគ្រប់ផ្នែកនៃកម្មវិធីជាតិកំចាត់ជំងឺរបេង លើកពីសកម្មភាពស្រាវជ្រាវ ព្យាបាលទទួលផល និងទិសដៅ ។ សកម្មភាពផ្សេងៗទៀត ដូចជាសកម្មភាពគាំទ្រ ការសិក្សាស្រាវជ្រាវ រូបភាព ស្ថិតិ ។ល។

សូមថ្លែងអំណរគុណ ចំពោះ

អង្គការទស្សនពិភពលោកអន្តរជាតិ (ផ្តល់ ២.៨០០ ដុល្លាអាមេរិក)
វិជ្ជាស្ថានស្រាវជ្រាវរបេងប្រទេសជប៉ុន (ផ្តល់ ៥០០ ដុល្លាអាមេរិក)
និងអង្គការចាយកាជប៉ុន (ផ្តល់ ២២៥ ដុល្លាអាមេរិក)
ដែលបានផ្តល់នូវភាគទានដ៏ថ្លៃថ្លានេះ ។

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