

Appendix J
Telecommunications

**THE STUDY ON
REGIONAL DEVELOPMENT OF
THE PHNOM PENH-SIHANOUKVILLE GROWTH CORRIDOR
IN THE KINGDOM OF CAMBODIA**

Appendix J Telecommunications(ICT Sector)

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APPENDIX J TELECOMMUNICATIONS (ICT SECTOR)

J.1 CURRENT SITUATION OF TELECOMMUNICATIONS

J.1.1 Whole Country

(1) Fixed Phone Service

During the period of Pol Pot era, civil war and following time of confusion, the telecommunication network in Cambodia was seriously damaged and its recovery was forced to be waiting until 1990s. Having faced the technical and budgetary problems, the Ministry of Post and Telecommunication in Cambodia (the MPTC), which is responsible to provide the telephone services, required the technical and financial assistance from foreign countries and/or organizations to reconstruct the network. In terms of international telephone services, the MPTC concluded the Business Cooperation Contract (BCC) with Telstra (Australia) and started to provide the services in 1991. Regarding the domestic telephone services in Phnom Penh, the switching equipments were introduced by the assistance of some countries such as donation of NEC (Japan, 800 lines) in 1995/99, Grant Aid of French Government (6,000 lines) in 1995, and that of Japanese Government (16,800 lines) in 1997/98. The assistance for the transmission lines and access network, on the other hand, were rather delayed then started in 1998. In the provinces except Phnom Penh, the Royal Government of Cambodia (the RGC) planed to use the VSAT donated by UNTAC in 1994 as PSTN. To provide the fixed phone services in the provinces the MPTC established the joint venture company with INDOSAT (Indonesia), the CAMINTEL. The CAMINTEL provides the fixed phone services for the 17 provincial capitals and two cities (Poipet and Sre Amble). In addition, the CAMSHIN, a joint venture company between the MPTC and Shinawatra (Thailand), provides the WLL telephony services in the 8 provinces.

In 1999, Optical Fibers (OF) of 570km in total was laid down between Thai-Cambodia border and Vietnam-Cambodia border as the National Backbone assisted by the Government of German¹. The MPTC, after the completion of the OF, expanded the services to the several major cities along the transmission line in 2000. In 2001, the MPTC established the RSU (Remote Service Unit: 2,000 lines) in Siem Reap and started to provide the fixed phone service (the transmission line was leased from the mobile phone

¹ From the Thai-Cambodia border along the National Road No.5 (through Sisophon, Bat Dambang, Pursat, and Kampong Chhnang) to Phnom Penh and along the National Road No.1 to Vietnam-Cambodia border. The total cost was amounted 10 million US\$. The transmission line is STM-1 but recently the traffic has increased then it plans to expand to STM-4.

company at the initial stage). In parallel with the RSU, the MPTC started to lay down OF between Sisophon and Siem Reap and completed until the end of 2002.

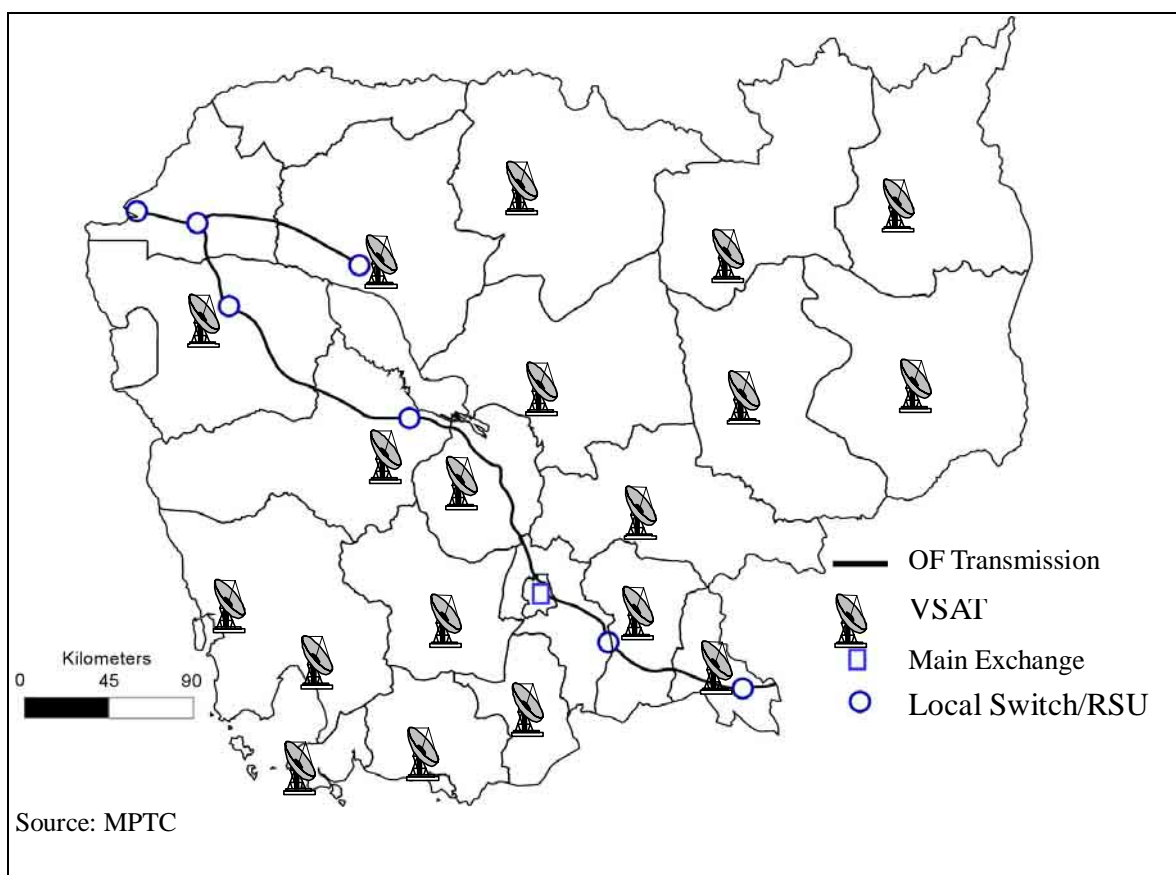


Figure J-1 Fixed Phone Transmission and VSAT

The fixed phone (including WLL) services in Cambodia are provided to the 18 provinces out of 24 provinces however the subscribers are 33,494 lines then the telephone density remains quite low. In addition, 84% to the total or 28,207 subscribers concentrate in Phnom Penh.

Table J-1 Number of Fixed Phone Subscribers by Year and Province

Province / Year	1997	1998	1999	2000	2001
Banteay Mean Chey	59	80	162	388	447
Bat Dambang	202	433	640	908	975
Kampong Cham	145	291	417	561	584
Kampong Chhnang	48	72	136	194	226
Kampong Spueu	38	43	86	114	130
Kampong Thum	94	104	140	148	150
Kampot	58	91	193	193	195
Kandal	0	0	0	0	0
Kaoh Kong	100	95	129	154	165
Kracheh	103	124	176	181	201
Mondol Kiri	0	0	2	2	0
Phnom Penh	18,200	21,615	24,253	24,448	26,185
Preah Vihear	0	0	2	2	0
Prey Veang	37	36	41	298	192
Pousat	92	117	183	258	271
Rotanak Kiri	67	82	127	165	164
Siem Reab	131	443	617	813	927
Krong Preah Sihanouk	174	441	561	585	581
Stueng Traeng	90	117	138	145	145
Svay Rieng	89	116	193	274	294
Takaev	117	128	177	286	284
Otdar Mean Chey	0	0	0	0	0
Krong Kaeb	0	0	0	0	0
Krong Pailin	0	0	0	0	0
TOTAL	19,844	24,428	28,373	30,117	32,116
MPTC Annual Report	19,844	23,772	27,706	30,877	33,494

Note: The total numbers of subscribers by Annual Report are different from the summation of provinces.
Source: MPTC

(2) Mobile Phone Service

In 1992, two joint venture companies with the MPTC started to provide the mobile telephone services. The CAMINTEL, joint venture with CP Group in Thailand, provided the services in Phnom Penh area with AMPS Analogue system (800 Mhz) and the CASACOM, that with the Samart in Thailand, in the whole country with the NMT Analogue system (900 Mhz). In 1996, there were three service providers for the mobile telephone service with analogue system and 23 thousand subscribers².

From the year of 1997, the mobile phone services market entered a new stage. The RGC issued the licenses for three new comers: the CamGSM, joint venture company among the MPTC, the Royal Millicom in Sweden and a local company, launched the services with digital GSM system in 1997, the CAMSHIN, providing fixed telephone services with WLL, renewed a contract

² The Tricelcam was the third providers but in 1999 exit the market because of the poor business results. There were 3,580 subscribers in 1998.

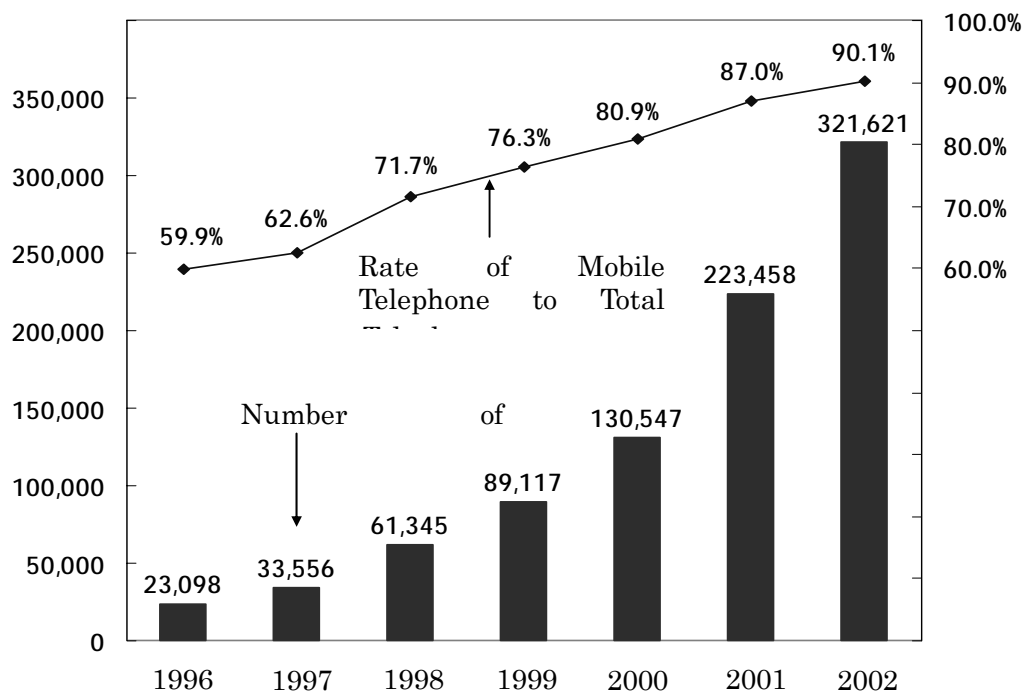
and started to provide the digital DSC system in 1998, and the CASACOM, providing the analogue mobile telephone services, launched the digital mobile telephone services in 1999. The quinquepartite structure; 2 analogue and 3 digital providers structure in the mobile telephone services were ready.

Table J-2 Mobile Phone Service Operators and Subscribers (2001)

Operator	Year*	Services	Subscribers	Investor
CamGSM	1996/4	GSM900Mhz	130,116	MPTC Royal Millicom
	1997/3	E10B		
CAMSHIN	1997/3	DSC1.8Ghz	42,150	MPTC Shinawatra(Thai)
	1998/4	DX220		
CASACOM	1992/10	NMT900Mhz	2,854	MPTC Samart(Thai)
	1992/11	DX220		
	1996/6 1999/4	GSM900Mhz DX220	47,587	
CamTEL	1992/8	AMPS800Mhz	751	MPTC CP Group(Thai)
	1992/10	EMX500		
	2001/6 - -	GSM900/1800Mhz - -	-	
S Telecom	2002/1	CDMA800Mhz	-	SK Telecom(Korea)
	-	-		

*: Upper: Date of Licensing, Lower: Date of Operation
Source: MPTC

During a past decade, the number of subscribers has been increasing dramatically; there were 23 thousand subscribers in 1996 (the end year of the analogue services era), then 89 thousand subscribers in 1999 (the initial year of the “quinquepartite” era). The number of subscribers accelerates to increase and exceeds 100 thousand subscribers in 2000 and 223 thousand in 2001 then 321 thousand subscribers in 2002 respectively. The rate of mobile telephone subscribers to the total exceeds 90% in 2002 and is the highest rate in the world.



Source: MPTC

Figure J-2 Trend of Mobile Telephone Subscribers

In parallel with increasing the number of subscribers, all the providers, except the CAMINTEL, expand their service areas and result to provide the services in all the provincial capital cities and the areas along with the major road.

In addition to the 4 mobile telephone service providers, the RGC issued the licenses for two more companies. One is the CAMINTEL and the other the SK Telecom in Korea. In the end of 2002, there is no service provision by the companies.

(3) International Service

The BCC of international services between the MPTC and Terstra was terminated in 2000 then all the business including equipment was transferred to the MPTC. In the same year, the RTI³ entered the international service then two companies have been providing the international gateway services.

³ The RTI is established as a joint venture company between the MPTC and Royal Telecom International Co., Ltd. (Sweden). The access number is "007".

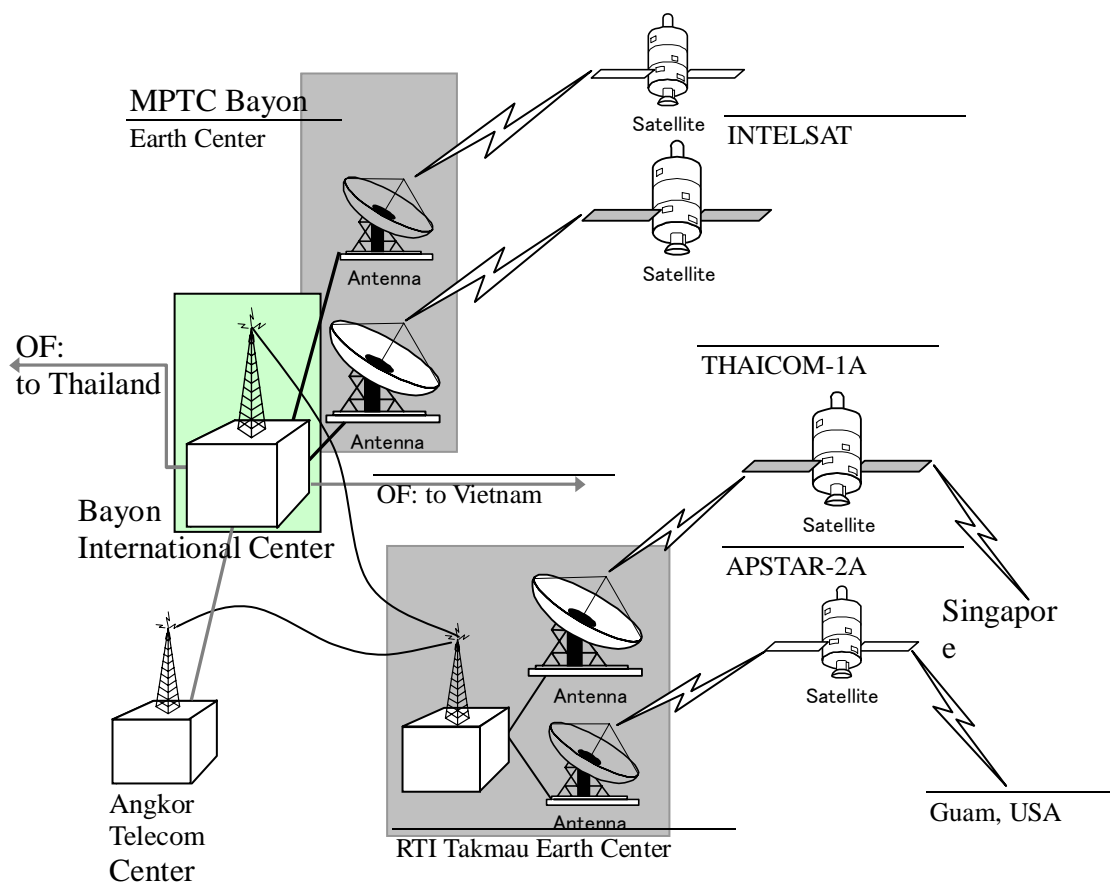


Figure J-3 International Gateway

The volume of international traffic is on the increase and the rate of in-coming to out-going becomes larger: 2:1 in 1994, 3:1 in 2000, and 4:1 in 2001 (in-coming traffic volume is 4 times to that of out-going). On the other hand, it is said that to use the VoIP (Voice over Internet Protocol) and to individually introduce the satellite system, both are prohibited, become popular and result to decrease the legal international traffic⁴.

Table J-3 Trend of International Traffic Volume

	1996	1997	1998	1999	2000	2001*
Out Going	6.9	6.8	7.4	7.3	9.6	6.4
In Coming	15.5	16.2	17.9	23.7	29.2	24.4

*: MPTC data. Unit: million calls times minute
Source: MPTC

(4) Tariff

The initial cost of fixed phone in MPTC has been decreasing year by year and results US\$210 in 2001. On the other hand, that of CAMINTEL, which provides in the provinces, amounts US\$300 including a connection fee and IDD Deposit. In addition the cost, the monthly fee is charged; US\$8 per

⁴ The MPTC estimates around 30% of international traffic escape to the VoIP.

month in the MPTC and US\$7 and US\$10 per month in CAMINTEL. The rate for a call of the MPTC is US 1 cent per minute within a same network (local call). For the long distance call, the tariff rate is free from a distance but different Phnom Penh – Province and inter-provinces. The tariff structure in CAMINTEL is as same as that of MPTC.

Table J-4 Tariff Rate of Local & Long Distance Call in 2002 (MPTC)

Local Call				LD (MPTC)		LD (Other)		
MPTC	Camintel	Camshin	Mobile	PP-Pro	Pro-Pro	PP-Pro	Pro-pro	Mobile
1	5	5	12	8(06-18) 5(18-06)	10(06-18) 5(18-06)	10	10	12

Note: LD (MPTC): Long Distance Call within MPTC Network. LD (Other): Long Distance call to other companies. PP: Phnom Penh, Pro: Province, 06: AM 6:00. 18: PM 6:00

Unit: US Cent per minute

Source: MPTC

A rate for an international call remains still high although the MPTC tries to decrease its rate. In 1998, for example, the rate for a call to the neighboring countries such as Thailand, Lao PDR, and Vietnam was US\$3.2 per minute then in 2002 it decreases to US\$1.35 per minute to same area. The issue, therefore, is that the tariff rate of international call remains still quite high than that of domestic call (both local and long distance call). Having been trying to rebalance the tariff between domestic and international call, the MPTC meets with strong opposition since the rebalancing should result to raise the domestic tariff.

Table J-5 International Telephone Tariff (MPTC)

	1998/1	1999/3	2000/3	2001/3	2002/4
Thailand, Lao, Vietnam	3.2(-20%)	2.6(-20%)	1.68(1.35)	1.5(1.35)	1.35(1.05)
Other Asian Region	3.4(-20%)	2.8(-20%)	1.82(1.46)	1.6(1.44)	1.44(1.15)
Others	3.8(-20%)	3.1(-20%)	2.03(1.63)	1.8(1.62)	1.62(1.30)

Note: () Weekend Reduction, Unit: US\$/minute

Source: MPTC

Under the acute competition, the mobile phone companies prepare the several tariff-package to attract the subscribers. The initial cost except the handset is US\$15 in case of prepaid-card usage. The price of handset ranges from US\$80 to US\$200 so the initial cost is rather expensive than that of fixed phone when the subscribers select the expensive handset. The rate for a call is more expensive than that of fixed phone. The fee within a same network at peak times, for example, is the range from US24 – 27 cents per minute. The rate for an IDD call in the Mobitel is a tariff of the MPTC international call tacking on US33 cents per minute.

Table J-6 Tariff Rate of Mobile Phone (Mobitel Cellcard)

CellCard		\$5	\$10	\$20	\$50
Daily Fee		27c	27c	27c	27c
Within Net	Peak (0700-1200 & 1400-2100)	27c	26c	25c	24c
	Lunch (1200-1400)	20c	20c	20c	20c
	Off Peak (2100-2300)	12c	12c	12c	12c
	Off Off Peak (2300-0700)	3c	3c	3c	3c
Across Net	Local Peak (0700-2100)	30c	29c	26c	26c
	Local Off Peak (2100-0700)	20c	20c	20c	20c
	Long Distance Peak (0700-2100)	35c	35c	35c	35c
	Long Dist. Off Peak (2100-0700)	25c	25c	25c	25c
IDD Calls		MPTC+33c	MPTC+33c	MPTC+33c	MPTC+33c

Note: This tariff is valid from 2001/10/18. Regarding IDD, MPTC price are shown in above table.

Source: Mobitel

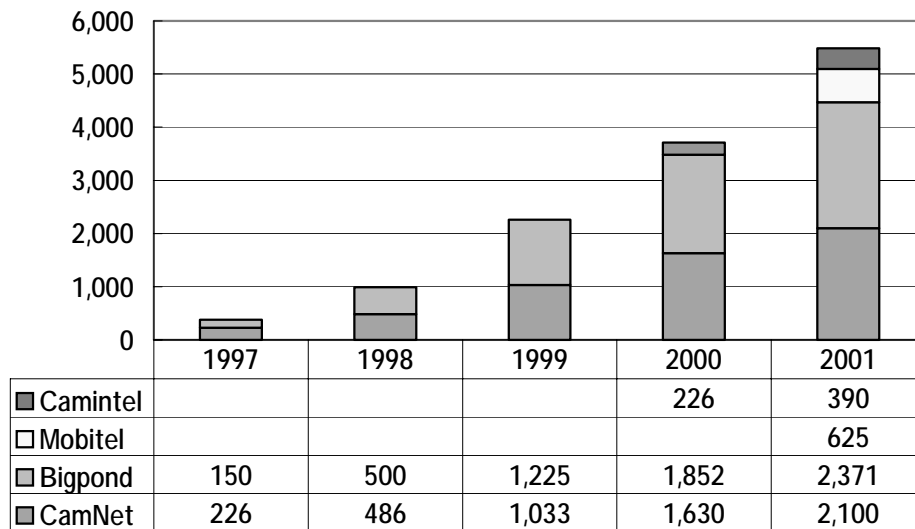
(5) Internet

In 1997, the Internet services began to be provided in Cambodia. The CAMNET under the MPTC was the first ISP (Internet Service Provider) in Cambodia and launched the services assisted by the International Development Research Center (IDRC, Canada) technically and financially. At the same time, the Bigpond under the Telstra started to provide the Internet services then two ISPs had been providing the services till 2001. The number of subscribers in 1997 was estimated as 376.

In 2001, there are 4 ISPs in Cambodia; the Telesurf under Mobitel and the CAMINTEL⁵ were newly issued the licenses. The total number of Internet subscribers remain low, 5,486 subscribers, but it expands around 15 times during the period from 1997 to 2001.

The contents of services are e-mail services, Internet access services, web-hosting services, etc.

⁵ The CAMINTEL started to provide the services in 2000 as second-tier service provider.



Source: MPTC

Figure J-4 Number of Internet Subscribers

Before the year 2000, the provision of services was limited in the Phnom Penh area then the service area has been expanding to the several major cities. The CAMINTEL, 390 subscribers in 2001, mainly provides its services for provinces such as Siem Reap (111 subscribers), Bat Dambang (87 subscribers), Sihanoukville (62 subscribers), and so on.

The Internet tariff remains still high but the ISPs prepare the several options. The CamNet, for example, offers three types of services; 1) Dial-up Access Services, 2) Leasing Lines, and 3) Broad Band Radio Access Services. Additionally the Dial-up Access Services are divided into 5 options. The most costless option in the Dial-up Access Service is as follows: 1) US\$30 for Registration Fee (in common with all the options) and 2) US\$9 for Monthly Fee with 3 hours of free usage. In case of the Leased Line Service as well as the Broad Band Radio Access Services the prices are offered by the bandwidth.

Table J-7 Tariff Rate of CamNet Internet Services

1) Dial-up Access Services

Services' Types	Registration Fee	Monthly Fee	Free Use per Month	Extra Usage per Hour
Option 1	US\$30	US\$15	6 H	US\$2.40
Option 2		US\$30	13 H	US\$2.20
Option 3		US\$90	45 H	US\$1.80
Option 4		US\$180	100 H	US\$1.50
Option 5		US\$9	3 H	US\$2.80

2) *Leased Line Services*

Speed	Registration Fee	Monthly Fee	Local & Maintenance
64 Kbps	US\$300	US\$1,300	US\$170
128 Kbps		US\$2,300	
256 Kbps		US\$3,500	
512 Kbps		US\$6,500	
1 Mbps		US\$20,000	

3) *Wireless Broadband Access Services*

Speed	Installation Fee	Monthly Fee	Equipment*
64 Kbps	US\$50	US\$30	US\$25
128 Kbps		US\$140	
256 Kbps		US\$250	
512 Kbps		US\$500	
1 Mbps		US\$3,000	
1.5 Mbps		US\$4,200	
2 Mbps		US\$6,000	

*: To be charged per month for 40 months.
Source: MPTC

J.1.2 Telecommunications in Study Area

(1) Greater Capital Area (Phnom Penh and Kandal)

All the fixed phone providers (the MPTC, CAMINTEL, and CAMSHIN) provide the services for Phnom Penh Municipality. The 84 % of fixed phone subscribers to the total are concentrated into Phnom Penh Municipality aforementioned. On the other hand, there is no fixed phone service provision in Kandal. The MPTC plans to provide the fixed phone services in Kandal by using the Rutel System of 360 subscribers in 2005. The mobile phone services are provided almost all area in the Greater Capital Area.

(2) Intermediate Area

A major player of the fixed phone services in the Area has been the CAMINTEL. The CAMSHIN launched the services in Takaev from the year 2000. The number of subscribers in the Area counts 774 lines and its tele-density (a number of main lines per 100 habitants) remains low of 0.03 in 2001. The mobile phone services are provided in the Area along with the National Road Number 2, 3, and 4 and in Koah Kong.

(3) Sihanoukville

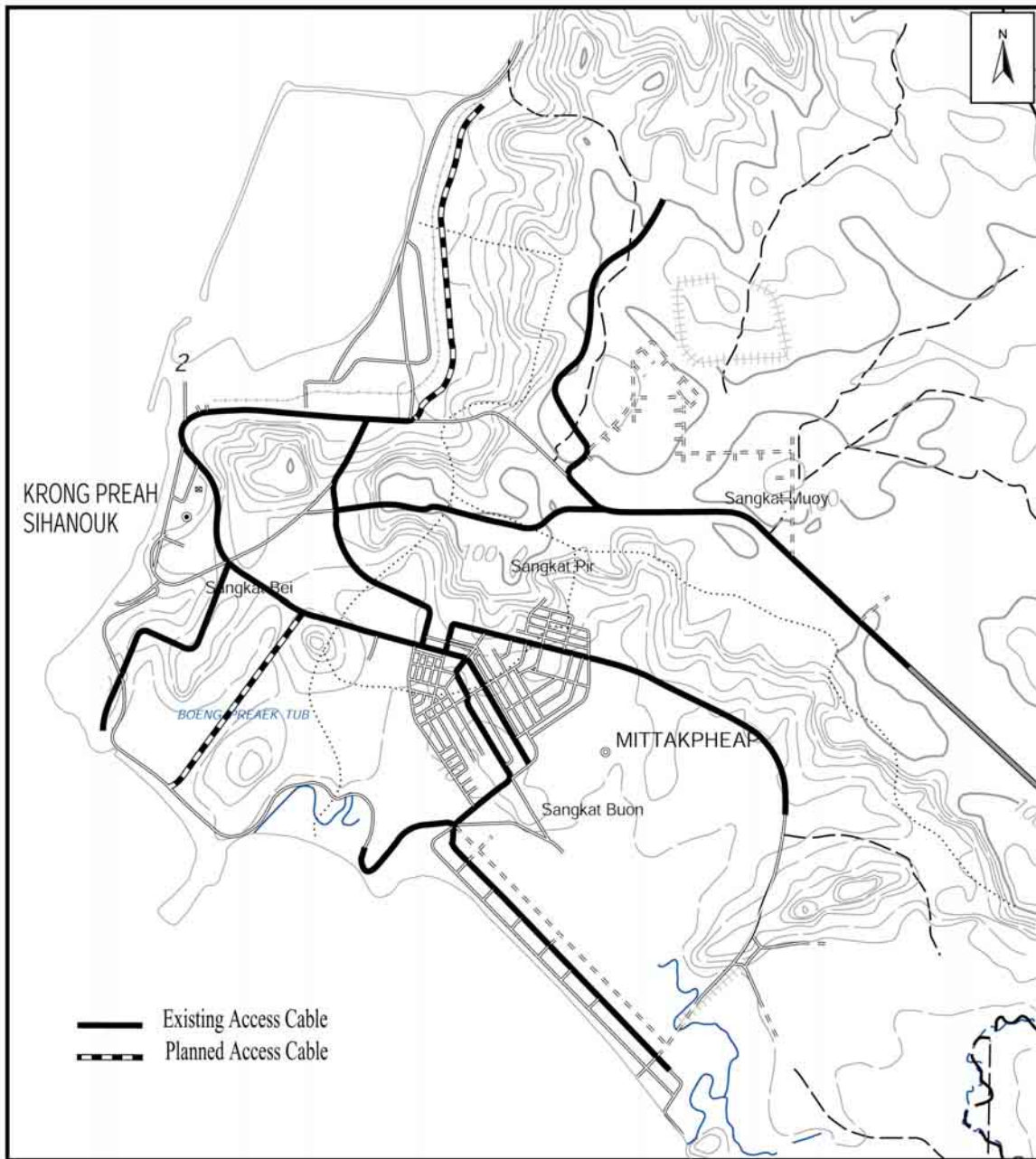
The CAMSHIN and CAMINTEL provide the fixed phone services in Sihanoukville and the subscribers are 581 lines. The tele-density is 0.3 exceeding the National average slightly. The mobile phone services are provided in Sihanoukville.

Table J-8 Trend of Fixed Telephone Lines in Study Area

	1997	1998	1999	2000	2001
Greater Capital Area	18,200	21,615	24,253	24,448	26,185
Phnom Penh	18,200	21,615	24,253	24,448	26,185
Kandal	0	0	0	0	0
Intermediate Area	313	357	585	747	774
Kampong Spueu	38	43	86	114	130
Kampot	58	91	193	193	195
Kaoh Kong	100	95	129	154	165
Takaev	117	128	177	286	284
Sihanoukville	174	441	561	585	581
TOTAL	18,687	22,413	25,399	25,780	27,540

Source: MPTC

The CAMINTEL installed the access network in Sihanoukville, which is illustrated as follows.



Source: CAMINTEL

Figure J-5 Access Network in Sihanoukville

J.2 REVIEW OF TELECOMMUNICATION DEVELOPMENT PLAN

The MPTC submitted the Telecommunication Development Plan to the SEDEP II. The major point of the Plan is summarized as follows.

(1) Goal

Preparing a telecommunication system to be a public service with efficient and capable according to the scope of telecommunication development, including strengthening of the administration structure and skill in order to ensure on service providing with effectively from the city down to the rural.

(2) Objectives

- 1) Prepare and expand its posts and telecommunication networks to cover the capital of Phnom Penh and the provincial and other main districts together with some main rural areas through out the country.
- 2) To promote installation of modern equipments in order to improve more quality of Posts and Telecommunication
- 3) To promote private investment policy in the field of posts and telecommunication to be more efficient and progress as requested.
- 4) To increase density of phone using:
 - Increase up to 1.19 per 100 person through out the country, which equal to 162 800 Telephones.
 - Increase up to 5.8 per 100 persons in Phnom Penh, which equal to 68 700
- 5) To improve human resource training, especially technical skills on telecommunication, informatics and management in order to catch up development of Posts and Telecommunication.

(3) Tasks

- 1) To provide public services such as telephone, faxing, scanning and sending picture etc.
- 2) To conduct servicing, business and providing fast communication for both local and international communication.
- 3) To link local phone lines with the regional and global lines.
- 4) To provide telecommunication services to all types of people in the society.

(4) Action Plan

To improve the capacity of Transmission Signal through optical fiber from Cambodia-Thai border to Cambodia-Vietnam border by using STM-1 (155 Mbit/s) to SMT-4 (622 Mbit/s) in order to response to the need.

To expand 5 places RSU and Outside Plant including Prek Phnouv, Chraing Cham Res, Chbar Ampov and Rousey Village (Steung Mean Chey-O Bek Ka Oum).

Increase to phone capacity within the coverage and existing outsides coverage areas in Phnom Penh.

To install coverage area in various provinces including Siem Reap, Kampong Thom and Kmapong Cham.

Prepare the national backbone by using optical fiber or digital microwave link system:

- Kampong Cham, Kandal, Kampot, Takeo and Sihanouk Ville along the national road number 6, 7, 2, 3 and 4, which consists of 410 km.
Kampong Cham, Siem Reap, Banteay Meanchey along the national road number 6 and 7, which consists of 345 km.
- Prepare the extension system of Kampong Cham, Kratie, Steung Treng and to Laos border.

Expand the capacity in the international context by using satellite and optical fiber.

Connect line with neighboring countries through optical fiber, which increasing the quality of conversation.

Operating the data communication system in all main provinces.

Determine the importing materials based on the rule and regulation of the telecommunication.

To install the Ring System in order to ensure a regular services within the optical fiber line.

Strengthening on management, issuing license and monitor all radio stations and telecommunication in all provinces through out the country.

To establish National Radio Regulation Authority

To determine the National Frequency Allocation Table from 10 GHz to 275 GHz.

Scanning provincial map into computer in order to use as means of measurement and FH expanding.

Based on the Plan, the National Backbone Lines except the MW are illustrated as follows.

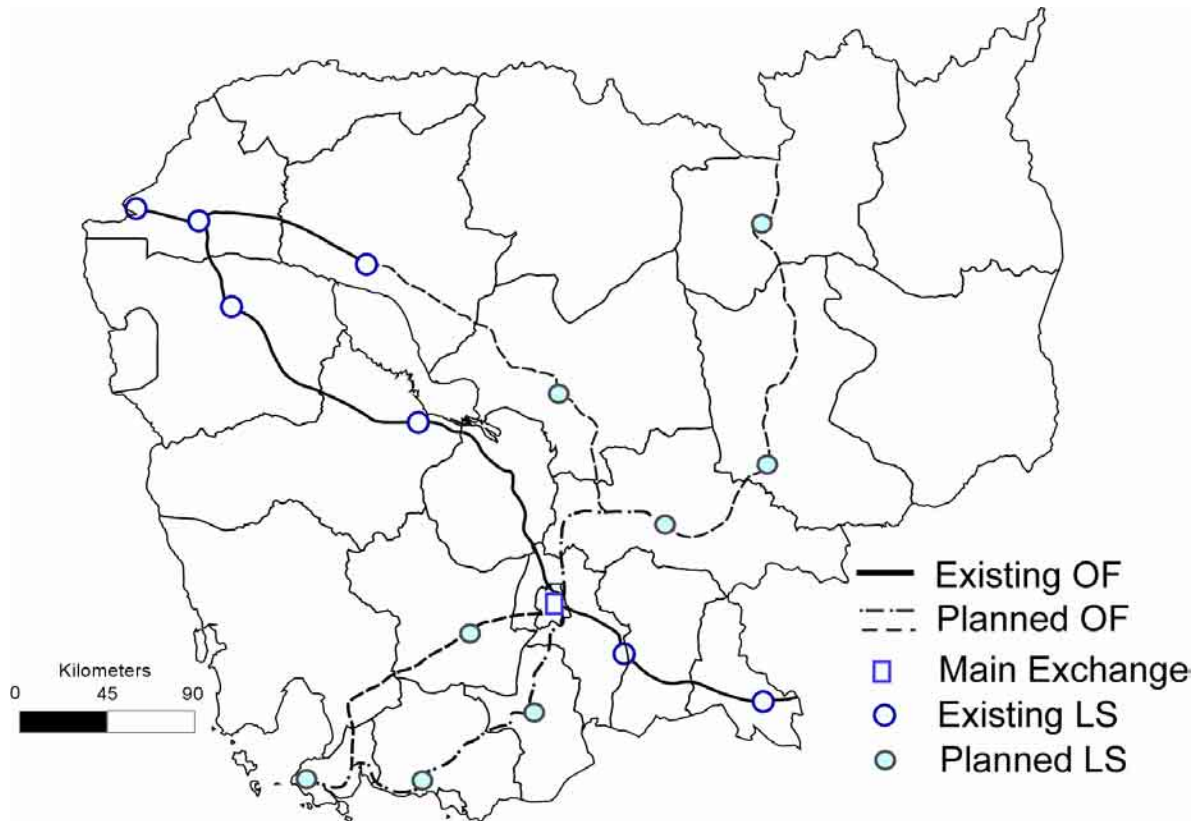


Figure J-6 National Backbone Lines

J.3 PROJECTION OF TELECOMMUNICATION DEMAND

J.3.1 Projection by MPTS

In 1998, the MPTC conducted the Telecommunication Development Plan (TDP-98) targeting the year 2003 following the Telecommunication Master Plan by ITU/UNIDO. In 2000, at the time to conduct the 2nd National Social and Economic Development Plan (SEDP II), the MPTC reviewed the TDP-98 and newly submitted the 5-year Plan (2001-2005). In order to estimate the telephone demand in 2015, the 5-year Plan, which includes the target of telephone density in 2005, should be reviewed.

There is no description of the projection method so it is impossible to review the methodology. The estimates or targets consist of the population, number of subscribers by types of telephones (fixed and cellular), that of fixed lines in Phnom Penh, and manpower planning of MPTC.

(1) Population

The MPTC forecasts the population of 13,573 thousand in 2005. On the other hand, the population in 2005 projected by the Study Team following the methodology of the National Institute of Statistics (NIS) is 14,425 thousand so

the difference between two projections counts 852 thousand.

Table J-9 Population Projection by MPTC and Study Team

	2001	2002	2003	2004	2005
MPTC Projection	12,301	12,607	12,921	13,243	13,573
Population*	13,084	13,407	13,738	14,078	14,425
Difference	783	800	817	853	852

Note: Unit: 1,000, *: Projection by the Study Team
Source: MPTC and Study Team

The MPTC, in addition to the whole country, estimated the population in Phnom Penh and in other regions in order to target the expansion of the telephony services to the whole country, which concentrated in Phnom Penh. The Projection, however, assumed that the spatial distribution of population of population would be stable then the growth rate is same in all regions or in other word there is no social demographic shift. The NIS, on the other hand, assumed that the social migratory movement would occur to especially move population to Phnom Penh then the growth rate resulted the heterolytic growth.

(2) Subscribers⁶

In terms of the total number of the subscribers, the actual performance exceeded the estimates already in 2001. The estimates by the MPTC are characterized as to be under estimate of the mobile telephone expansion and over shooting the fixed telephones. In other word, the mobile telephone subscribers were much-faster-than-expected expansion between 2000 and 2001⁷. For the fixed phones, since there were 30,877 subscribers in 2000 and 33,494 subscribers in 2001, the increment subscribers recorded only around 2,600 lines but the MPTC expected to increase around 21 thousand lines in total. The difference between the actual figure and projection is attributable to the overestimation of the regional fixed phone services where the MPTC started to provide services in 2001.

⁶ The procedure of projection or decision of target is considered as follows: 1) the tele-density (main line) in the target year is presumed as 1.0, 2) the number of fixed phone subscribers are calculated by using the projected population, 3) the increment of mobile phone subscribers is assumed to be a same as the actual performance from 1998 to 2000 (34,600 subscribers in average).

⁷ The increment between 2001 and 2002 exceeded also 90,000 subscribers therefore the difference enlarged in 2002. Additionally, the actual mobile phone subscribers in 2002 exceeded the projection in 2005.

Table J-10 Projection of Number of Telephones by MPTC

	2001	2002	2003	2004	2005
Whole Country	208,900	261,400	316,400	373,400	431,400
Fixed Phones	52,700	70,200	90,200	112,200	135,200
Mobile Phones	156,200	191,200	226,200	261,200	296,200
Phnom Penh (Fixed Phones)	37,700	45,700	53,700	61,700	69,700
Provincial (Fixed Phones)	15,000	24,500	36,500	50,500	65,500

Source: MPTC

J.3.2 Projection of Telecommunication Demand in 2015

The volume of data telecommunications has been increasing explosively in the world. It suggests that in the telecommunications the voice communication, which has been playing the leading role, will be taken over by the data communications. The changing the major player should influence a concept of the telecommunications network. Under the situation of the technological change, the promising network in the whole country should be discussed but it is far beyond the frame of the Study⁸. The projection of the telecommunication demand in 2015 is conducted focusing on the telephone demand. The procedure of the projection is shown as follows.

⁸ The study of the long-term network plan (2015) should be conducted.

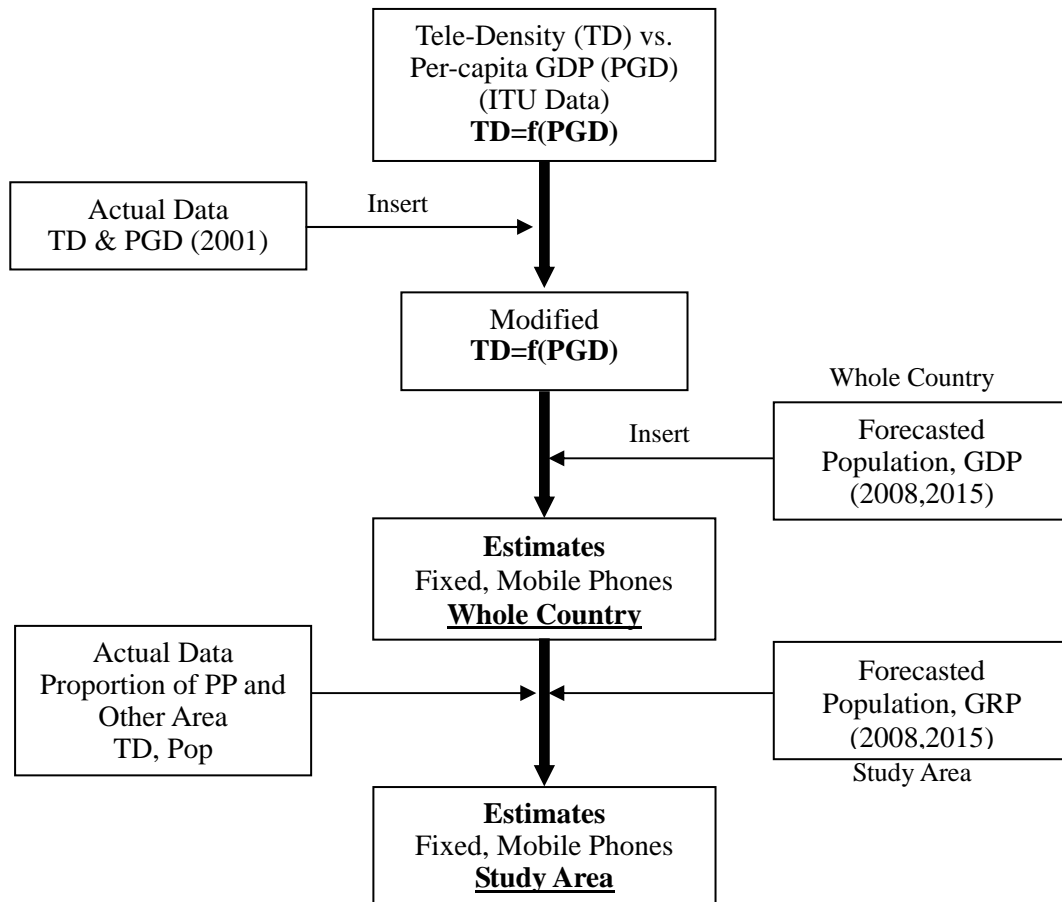


Figure J-7 Procedure of Telecommunication Demand

(1) Whole Country

Based on the ITU data in 2001 (cross section data of 185 countries and regions), a function between a tele-density (a number of telephone per 100 habitants) and an income (per-capita GDP) is estimated. The formulation is summarized as follows.

$$\ln(\text{TD}) = -4.387 + 0.937 \times \ln(\text{PGDP}) \quad (1)$$

(-16.7) (27.8)

TD: Tele Density (Number of Phones per 100 habitants)

PGDP: Per-capita GDP (US \$)

ln: Natural Logarithm

R²: 0.809 (Determination Coefficient)

(): t-value

The determination coefficient of the formulation-(1) results 0.8, and the function coefficients are significant (at least the coefficients of the valuable are

not null). Before the projection, the partial test is conducted: to insert the actual figure of the income to the formulation-(1) and compare the actual tele-density to calculated one. Accordingly the estimates exceeds the actual, the formulation should be shifted downward to correspond to actual figure. The formulation using the projection is as follows.

$$\ln(\text{TD}) = -4.500 + 0.937 \times \ln(\text{PGDP}) \quad (2)$$

Firstly the tele-density is calculated to insert the per-capita GDP in the target year, 2008 and 2015. Secondly the number of telephones is obtained by the tele-density and forecasted population⁹. The obtained telephone demand includes both fixed and mobile. To apply the rate of the mobile and fixed telephone in 2001, the telephone demand by the type is calculated. The results are tabulated as follows.

Table J-11 Projection of Telephones, Whole country

	2001	2005	2008	2015
GDP/Capita (US\$)	251	372	409	562
Population (thousand)	13,084	14,425	15,521	18,091
Tele-Density (per 100)	1.96	2.84	3.10	4.18
Number of Telephones	256,952	409,000	481,000	756,000
Rate of Fix/Mobile	0.8696	0.8696	0.8696	0.8696
Mobile	223,458	356,000	418,000	657,000
Fixed	33,494	53,000	63,000	99,000

Source: Study Team estimates.

(2) Study Area

Based on the projection, the telephone demand in the study area is estimated. To apply the same method in case of the whole country is one thing and to formulate the distribution function is another. Under the some assumption, the Study Team adopts the combination of said two methods.

Because of the shortage of available data for the regional subscribers of mobile phone, the distribution function should be focused on the fixed phone.

The concentration of the fixed phones to Phnom Penh has been reducing gradually, from 92% in 1996 to 84% in 2001. If the trend continues, the concentration rate to Phnom Penh will be 72% in 2008 and 60% in 2015 respectively. In this case, the number of fixed phone subscribers in Phnom Penh will be around 44 thousand in 2008 and 59 thousand in 2015 presuming 63 thousand (2008) and 99 thousand (2015) in the whole country.

When the formulation used by the ITU data is applied to the region (to insert

⁹ The per-capita GDP and population in 2008 and in 2015 are projected by the Study Team. Please refer to the Chapter 5.

the per-capita GRP in the Greater Phnom Penh), the projection of the subscribers are 31 thousand (2008) and 52 thousand (2015) respectively¹⁰.

In 2015, the estimates of 52 thousand lines in Greater Phnom Penh is adopted since the transmission lines constructed into the whole country and the regional structure of telephone usage will fit to the ITU-data-based formulation. In 2008, on the other hand, the trend of decentralization is applied. In the same manner, the number of subscribers in the rest of two regions is estimated.

As previously stated, there is no data on the provincial mobile users so the regional breakdown of mobile phone subscribers is difficult¹¹. In order to grasp the situation of telephone usage, the number of the mobile phone subscribers in the Study Area is calculated under the assumption that the subscribers depend on the income.

Table J-12 Number of Telephones

		Number of Fixed Phones	Tele-Density (Fixed)	Number of Mobile Phones	Population
2001	Phnom Penh*	28,207	1.18	-	2,386
	Mid Area**	774	0.03		2,315
	Sihanoukville	581	0.31		187
	TOTAL	29,562	0.60		4,888
2008	Phnom Penh	39,800	1.36	330,000	2,937
	Mid Area	6,700	0.25		2,704
	Sihanoukville	3,000	1.20		249
	TOTAL	49,500	0.84		5,890
2015	Phnom Penh	52,200	1.49	452,500	3,511
	Mid Area	10,800	0.35		3,121
	Sihanoukville	4,900	1.54		318
	TOTAL	67,900	0.98		6,950

Note: Unit of population: 1000. Number of Mobile Phones is only reference. *: Phnom Penh and Kandal,

** :Takaev, Kampong Spueu, Kaoh Kong, and Kampot

Source: MPTC (2001), Study Team estimates (2008, 2015).

J.3.3 Priority Project in Telecommunication Sector

To satisfy the demand of telephones in the Study Area, the priority is given to construction of the backbone line (OF, STM-4) from Phnom Penh to Sihanoukville through Kandal, Takaev, and Kampot.

The Access Network in Kandal, Takaev and Kampot will be established after the completion of the OF. In Sihanoukville, on the other hand, the Access Network is existing and planned to be expanded. When the OF is laid down between Phnom Penh and Sihanoukville, the service provider such as CAMINTEL shall use the transmission line on a contract base to keep the communication quality.

¹⁰ The latter projection indicates that the decentralization of telephony services until 2008 will progress rapidly then re-centralization of that to Phnom Penh will occur. This trend is rather unrealistic.

¹¹ Since the place of the registration is sometimes different from that of usage, the provincial data is not collected.

In Cambodia, the number of Mobile Phones has been increasing rapidly and exceeds that of fixed phones. In the Study area, this trend will be followed. In this case, the urgent issue is to construct the transmission line.

The priority transmission line is illustrated as follows.

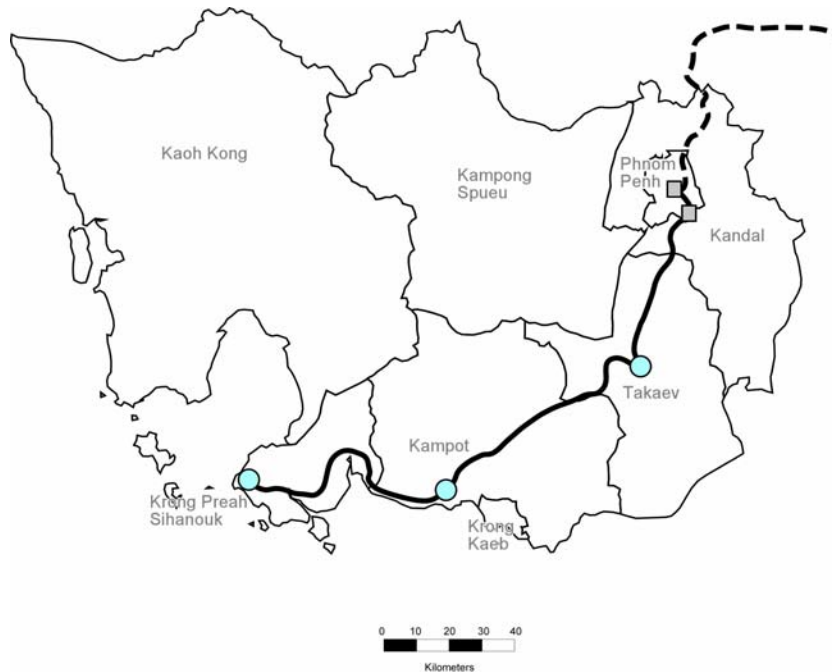


Figure J-8 Priority Transmission Line in Study Area

J.4 INFORMATION TECHNOLOGY

J.4.1 Current Situation of IT

It is only a short history for computer to penetrate every fields of the society. The Internet, for example, of which the subscribers explode globally has only a decade and more history¹². At least in the past decade, it is characterized as to be in a time to rapidly change of technology. In such a volatile situation, the developing country including Cambodia stands at a crossroad: one for catching up the advanced country or becoming a front runner, and the other for magnifying the digital divide or being left behind. To tend toward the former way, firstly the current situation of the IT in Cambodia is discussed then the key issues and a proposed project are identified.

The IT will be classified as follows to easily grasp the situation in Cambodia.

¹² The Internet opened to the private sector and individuals in 1990.

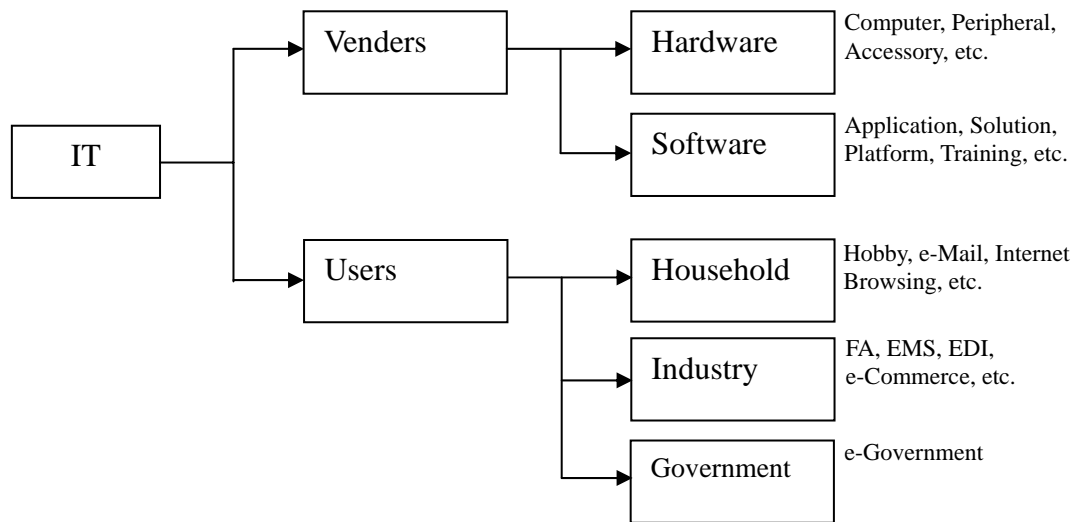


Figure J-9 Classification of IT by Vender and User

(1) Venders

The Venders are divided into two groups: One is the hardware vender including the industry from parts and components production of ICT to assemble the computers and its sales. The other is the software vender including the software development, system solution, education / training for IT, and so on.

The hardware vender in Cambodia is quite limited to PC assembler and sales. There are few parts and components producers.

The software vendors are slightly large in number than that of hardware. The major business of them is to install the small LAN, to be business solution (including the Web-page creation), and to provide the training services. The software development remains a primitive stage.

(2) Users

The Users are classified as a Household, Industries (including commerce and finance), and Government.

In the Household, the PC is the major and to be utilized as hobby, e-mail, the Internet browsing, and so on. In Cambodia, the PC in the Household is unfamiliar since the disposal income of average citizens remains lower to the price of PC.

For the industries, there are several steps to utilize the IT. The first step is to introduce the IT to the business management such as accounting, labor management, human resources management, and so on. The second step is to utilize the IT in the production process including the inventory management¹³.

¹³ Obviously the usage of the IT is different by the business category. In fact there is no production process

The third step is the EDI (or e-Commerce). Additionally the third step is divided into two categories, namely the closed EDI and open EDI. The former is the concluding system within the fixed members (such as the parent company and subsidiaries) therefore the protocol is adjusted before the business operation. The latter is opened to the various business organizations so there are many things to be regularized such as the interface among the companies, the security, the digital certification, and so on¹⁴. In Cambodia, except the FDI, the business usage of the computer remains in the initial stage. In the FDI, there are samples of the using computer to production process (or initial stage of the EDI)¹⁵. Regarding the e-Commerce, the RGC prepares the sub-decree (draft) of the Electric Commerce to enhance the activities. It is a trend for e-Commerce to become common in the world so to tackle the enhancement of the e-Commerce by the RGC is no wonder. In this case, the priority should be given to develop the telecommunication network.¹⁶

The Government is also the big user of the IT. Day by day, the Government output the various documents and collects the data and information to smoothly govern the society. The most of them will be digitalized as the database and be disseminated to the citizens. It may be the first step to establish the e-Government. In Cambodia, almost of all the Ministries open the Web sites and some install the LAN. The Inter-Ministries network will be installed by the assistance of the Government of Korea.

in the sales, logistics, finance, and so on. However, all the business “produce” the goods and/or services to provide the users.

¹⁴ It is rather called as e-Commerce. On the other hand, the e-Commerce are categorized as 1) B to B, 2) B to C, 3) C to C, and 4) B to G (B: Business, C: Consumer, and G: Government) therefore the open EDI is the B to B type of e-Commerce.

¹⁵ The information about the marketing, design, and material procurement corrected by the head quarter and about the design and pattern generated by the Korean company is sent to the factory in Cambodia through the Internet.

¹⁶ In case of Korea, the e-Commerce is exploded by the popularization of Broad-band Network.

J.4.2 Issues

(1) Market is premature.

There is no authorized data on the working CPU but it is estimated as around 50 thousand PC in Cambodia. In addition, the usage of PCs installed in the business and government offices is limited to documentation mainly.

Limitation of installed hardware and of usage such as documentation causes that the domestic market of software is limited. Incentives for the development of software, therefore, remain small.

(2) Human Resources Development

The University of Royal Phnom Penh (URP) established the IT Faculty and Special Course for IT to cope with so-called IT era. The IT Faculty provides around 30 graduates and the Special Course around 350 certificates per year. In addition, there are some IT Training Institutes in Phnom Penh, which provide the courses to raise the IT literacy such as MS Word/Excel etc. not to train the professional IT engineers.

It indicates that the IT especially Software industry falls in a vicious circle as illustrated below.

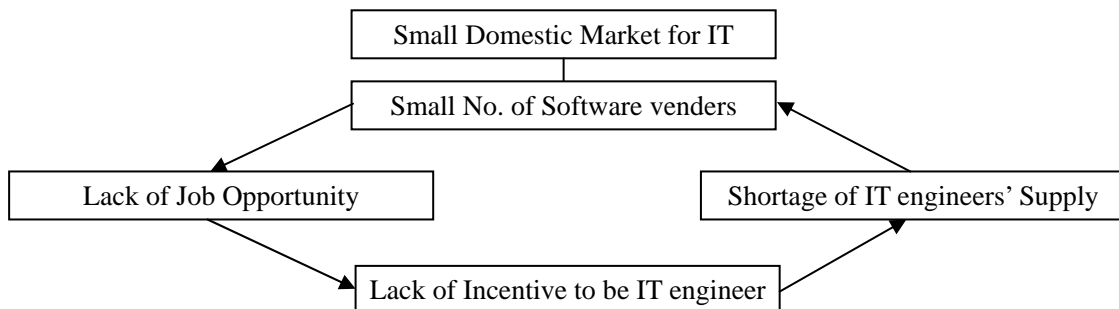


Figure J-10 Vicious Cycle in the IT Industry

Under these situations, the IT engineers are divested of the opportunity to upgrade their skills: lack of OJT opportunity and of professional training institutes.

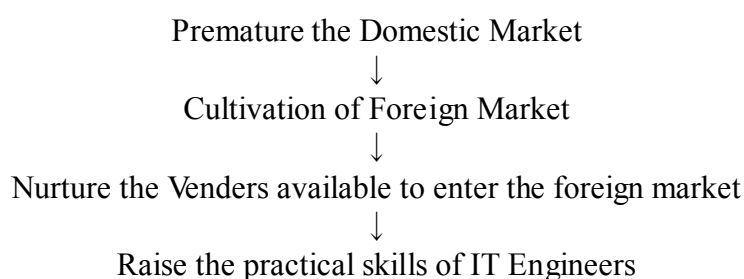
(3) IT Infrastructure

The fusion of IT and Telecommunications is progressing dramatically in the world. The Telecommunication network stands the core infrastructure for the IT. In the Study Area except Phnom Penh, IT infrastructure remains underdeveloped. In Phnom Penh, the basic infrastructure has been developing through the foreign assistance such as Improvement of Telecom in Phnom Penh City.

J.4.3 Strategy

There are several approaches to develop the IT and adoptive targets are as follows: enhance the hardware industry, concentrate to the software industry, enlarge the domestic market, promote export-oriented companies producing hardware and/or software, and so on. To enhance the hardware industry and to promote export-oriented companies producing hardware will be accessed at another chapter however to nurture the software industry will be recommended.

The most important thing to achieve the target of software industry development is to cut off the sluggish circle mentioned above. It is recommended to nurture the IT engineers who can work at foreign market.



The software industry has some advantages to be enhanced in the developing country: small initial investment, foot-loose location condition, etc. The key factor is HRD.

Target: Nurture the professional IT Engineers

- Strategy:
1. Introduce the IT Skill standards
 2. National Examination for IT based on the IT Skill standard
 3. Mutual Recognition of IT Skill Standard
 4. OJT at foreign companies

J.4.4 Priority Project

Project Name	Nourishment of Qualified IT Related Human Resources (1000 IT Engineer Project)
Backgrounds	Although the IT experts and engineers are graduating from the IT faculties of Royal Phnom Penh University and Cambodia Technology of Institute, their IT capability is unspecialized and uncertified. The nourishment of IT experts and engineers, who have a certain standard of technology qualified by formal certification, is necessary.
Project Purposes	Nourishment of qualified IT experts and engineers, who have a certain standard of technology, to cope with the increasing IT specialist demand from the private and government sector.
Target Year (Project Period)	Short and medium term (2008)
Beneficiaries	IT engineers and experts/ IT industries

(Target Group, Target Area)				
Activities	Introduction of IT technology qualifying examination through Scheme of the Asia Common IT Skill Standard/ Practical Training Education/Training material development by Khmer Language			
Executing Organization	MOC, The National Information Communications Technology Development Authority (NiDA)			
Outputs(Results)	Increase of number of qualified IT engineers and experts (1000 Engineer /5year) Upgrade of the integrated IT technology of Cambodia Acceleration of the IT development in the governmental service Benefit to the IT development in the private sector			
Inputs (Project Cost)	US\$1million (3 Years)			
Finance	Grant Aid			
Implementation Schedule	Activity	2003	2004	2005
	Arrangement of Organs	■		
	Training Facilities (C/S system)	■		
	Instructors' Training	■	■	■
	Fundamental Engineers Train.	■	■ ■ ■	■ ■ ■ ■
	Software Developers' Train.		■ ■ ■	■ ■ ■
	Application Engineers' Train.	○	○ ○	○ ○
	Cambodian Skill Standards			■ ■ ■ ■
	FE Examination			
	On the Job Training (Abroad)			
Evaluation (Including Results of IEE)				
SW of EIA (if necessary), Mitigation for Impacts				
Location Map	Phnom Penh			
Project Image Photo etc.	Description of IT Engineers			

Appendix K
Rural Development/Social Dimensions

**THE STUDY ON
REGIONAL DEVELOPMENT OF
THE PHNOM PENH-SIHANOUKVILLE GROWTH CORRIDOR
IN THE KINGDOM OF CAMBODIA**

Appendix K Rural Development/Social Dimensions

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APPENDIX K RURAL DEVELOPMENT/SOCIAL DIMENSIONS

This appendix describes situations, issues, and necessary development strategy and projects regarding to the rural areas in Cambodia as well as in the Growth Corridor Area, with focusing on livelihood of the rural areas. A detailed study on the livelihood of villages in the Growth Corridor Area was conducted through applying the Rapid Rural Appraisal. Most of this appendix covers the result and analysis. Based on the analysis, strategies and projects for the development of the rural area are recommended.

K.1 RURAL SOCIETY

K.1.1 HDI for Cambodians in rural areas

The Human Development Index (HDI) for Cambodia at 0.517 was one of the lowest in the world, and third lowest from the bottom in 12 Asian countries, only followed by Lao P.D.R. and Bangladesh. HDI for Cambodians living in rural areas at 0.500 was lower than that for Cambodians in urban areas at 0.604.

K.1.2 Economic Situations

The most current and reliable national data on socio-economic situations at household level in Cambodia is the Cambodia Socio-Economic Survey (CSES) 1997, and this date classified Cambodians into three groups by the place of living, Phnom Penh, Other Urban Areas, and Rural Areas. The CSES revealed that 36.1 per cent of the total population in Cambodia lived below the poverty line. Of which the Rural Areas was the highest percentage, 40.1 per cent, followed by the Other Urban Areas, 29.9 per cent, and those living in Phnom Penh, 11.1 percent. Among these poor households, farmers 1 household accounted for 44 per cent, the highest occupational group. In contrast, poor households headed by government officials accounted for 18 per cent.

Economic disparity between the rural and urban areas was found to be large. The CSES 1997 found that the lowest per capita expenditure decile in rural areas spent 16,583 Riels monthly, while the decile of the same category in Phnom Penh spent 40,638 Riels. The national average was 17,243 Riels (**Table K-1**)

Table K-1 Average Monthly Expenditure Per Capita Expenditure by Per Capita Expenditure Deciles and Stratum, Cambodia 1997.

Per Capita Expenditure Deciles	Cambodia		Rural		Phnom Penh		Other Urban	
	Value Riels	%	Value Riels	%	Value Riels	%	Value Riels	%
All Deciles	57,944	100.0	45,045	100.0	140,296	100.0	77,432	100.0
1st Deciles	17,243	3.0	16,583	3.7	40,638	2.9	20,632	2.7
2nd Deciles	23,419	4.0	22,308	4.9	56,490	4.1	29,211	3.8
3rd Deciles	27,741	4.8	26,022	5.8	69,272	4.9	34,632	4.5
4th Deciles	31,974	5.5	29,715	6.6	81,482	5.8	40,376	5.3
5th Deciles	36,724	6.3	33,334	7.4	94,161	6.7	46,918	6.0
6th Deciles	43,124	7.4	38,062	8.4	109,510	7.8	53,480	6.8
7th Deciles	51,105	8.8	44,270	9.9	131,183	9.3	62,474	8.2
8th Deciles	62,701	10.8	52,531	11.6	154,635	11.0	77,143	10.0
9th Deciles	83,964	14.5	65,506	14.5	192,862	13.7	111,367	14.6
10th Deciles	201,599	34.8	121,932	27.2	469,292	33.8	299,865	38.3

Source: National Institute of Statistics, Ministry of Planning, Report on the Cambodia Socio-Econ Survey 1997, P.41.

Cash income has been increasingly essential in even rural life, as a result, poor rural households are faced with difficulty in leading a decent life.

World Food Program, which conducts food security projects for the poor in Cambodia, identified Seim Reap, Preah Vihear, Kampong Thom, Pursat, Kampong Chhnang, Ratanakiri, and Mondokiri provinces as the provinces in a severe poverty state¹ in an attempt to set their target area for 2001.²

K.1.3 Main Economic activities

The CSES 1997 revealed that main economic activities of the surveyed households was agriculture; agriculture was the first main economic activities for two third of the households. Similarly, estimation of GRDP in the rural area in 2000 by the Growth Corridor Study Team found that the staple industry in the rural area was the primary industry, producing 48 per cent of the GRDP of the rural area. Within the primary industry, a group of cropping, raising livestock and poultry produced the largest value, although the income generating from these activities is generally low.

K.1.4 Agriculture³

The main crop produced in Cambodia is rain-fed rice, and most farmers cultivate this for their own household consumption. Techniques applied in agriculture in Cambodia are primitive with some exceptional cases, and only a little agricultural in-puts are used. Generally, irrigation systems have not been adequately developed except some areas. Due to these, the agricultural productivity is low,

¹ A poverty profile study conducted by JBIC identified from CSES 1997 that Siem Reap, Prey Veng, Banteay Meanchey, Kampong Thom, Kampong Chhnang province had higher ratio of the poor people to the total population of each province.

² The target was set through using mainly their field staff knowledge, CSES 1997, and the national census 1998.

³ Various aspects of agricultural in Cambodia and the Growth Corridor Study area were described in a more detailed manner in the supporting report for the Primary Industry of the Growth Corridor Study.

for example, the rice production in paddy was 2.32 ton/ha in the year 2000/2001 and 2.42 ton/ha in 2001/2002⁴.

As responses to the low productivity, extension activities have been conducted by various organizations such as MAFF, donors, and NGOs, however, following issues were found through past experiences of the extension activities. The techniques and approaches applied by the past extension activities often have huge gap from what most farmers wanted to master or apply to the problems they were facing in their generation-persistence extensive agricultural activities. Namely, the applied techniques and approaches were sometimes too sophisticated for the farmers to apply. Even if they master the techniques and approaches, continuing to apply them is sometimes difficult.

K.1.5 Land holding

It was found through the CSEC 1997 that average land holding in the village surveyed was 0.3 ha per person. The agriculture land availability was found to be higher in poorer villages where the soil fertility and coverage by irrigation were lower. It was also found that the land with higher fertility had been under much pressure to be subdivided⁵. Cambodian traditional land inheritance system, which is an equal inheritance among all children including women and younger ones of the household head, thus, results in decreases of land holding per household between generations.

K.1.6 Natural resource exploitation

Large portion of Cambodian rice-producing households depend on natural resources such as forest and wetland, in terms of economy and nutrition⁶. Because of this, it was estimated that thousand of people lost their jobs in the logging industry while alternatives were limited, and small business relating to logging activities closed, due to the government logging ban in 1999⁷.

K.1.7 Food Security

Some of households could not achieve the subsistence level of production due to shortage of land, lower soil fertility, lower level of inputs, and other conditions such as weather changing year to year. After consuming rice produced by their own household, farmers sell animals to earn cash to buy rice, or borrow rice or cash from neighbors, relatives, NGOs and moneylenders.

⁴ The Growth Corridor Study Team, THE STUDY ON REGIONAL DEVELOPMENT OF THE PHNOM PENH-SIHANOUKVILLE GROWTH CORRIDOR IN THE KINGDOM OF CAMBODIA INTERIM REPORT, 2002, P.4-14.

⁵ Ministry of Planning, Cambodia, CAMBODIAN HUMAN DEVELOPMENT REPORT 1999: VILLAGE ECONOMY AND DEVELOPMENT, 1999.

⁶ UNICEF and American Friends of Service Committee (AFSC) – Cambodia, ON THE EDGE OF THE FOREST, BY THE SIDE OF THE ROAD: People Dependent on Forest Resources in Koah Kong Province, SCVCS REPORT 3, 2000, P. 4.

⁷ UNICEF and American Friends of Service Committee (AFSC), Ibid., P. 3.

K.1.8 Rural credit

Rural credit facilities by NGOs and the government are imperative in Cambodia as loans from private moneylenders bears high interest rates as high as 20 to 30 per cent monthly and require farmers to mortgage their land. NGOs have disbursed credit services in rural areas US\$ 15 million for 200,000 borrowers (11 percent of the total households) by June 1998, and a further US\$10 million credit were supplied to rural households through other sources such as private moneylenders, friends, and relatives⁸. Approximately 90 NGOs have conducted rural credit⁹. The government has been supporting Rural Development Bank (RDB).

It should be noted that although the micro rural credit contributes to meet the urgent needs of rural residents, it does not necessarily bring in substantial improvement in the rural life. Credit in the form of lending rice, animals such as pigs and chicken to farmers have a tendency to fail due to a chronic shortage of rice production and inappropriate levels of production skills such as preventive skills of animal sickness. The borrowers are often unable to pay even the interests.

K.1.9 Village infrastructure¹⁰

Village infrastructure has been improved by the government, donors, and NGOs, although future improvement is necessary. It was found that the infrastructure improvement has contributed to reduction of poverty through increases in their access to economic activities, health services, education of life of the rural residents¹¹.

(1) Rural Road

Information on the current situations of rural road is limited; but rural road conditions are regarded to be improved. The CSES 1997 revealed that 81 per cent of villages has access to a road automobiles can pass. Ministry of Rural Development in charge of rural road development has a plan to make an inventory of rural road for future.

⁸ Ministry of Planning, Review of Progress in the 1990s and Action Programme for 2001 – 2010, P. 50.

⁹ ADB, Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Cambodia for the Rural Credit and Saving Project, March 2000, P.6.

¹⁰ Figures in this section were extracted from The General Population Census of Cambodia, Report 4, P.32, published by National Institute of Statistics, Ministry of Planning in 1998.

¹¹ Chim Charya, Srun Pithou, So Sovannarith, John MacAndrew, Nguon Sokuhtea, Pon Dorina and Robin Biddulph, Cambodia Development Resource Institute in collaboration with the Ministry of Rural Development, Learning from Rural Development Programmes in Cambodia, Working Paper No.4, 1998, Teng You Ky, Pon Dorina, So Sovannarith, and John MacAndrew, Cambodia Development Resource Institute in collaboration with the Ministry of Rural Development with fund from the United Nations Children's Fund, The UNICEF/Community Action for Social Development Experience: Learning from Rural Development Programmes in Cambodia, Working Paper 9, 1999, John Tracey-White and Robert Petts, Intech Associates in association with the Center for Advanced Study, STUDY INTO THE SOCIO-ECONOMIC IMPACT OF THE LOCAL DEVELOPMENT FUND/LOCAL PLANNING PROCESS 1996-2000, 2001.

(2) Safe-Drinking Water

People's access to safe-drinking water in rural areas in Cambodia is limited; the most recent national census in 1998 found it only at 23.7%. Majority of people drinks water from dug well (43.4%), or spring, river, stream, lake, pond and rain (30.4%).

(3) Sanitation

Access of Cambodians to sanitation facilities is severely limited, particularly in the rural area. This has caused diarrhea, intestinal parasite diseases, and other diseases.

(4) Lighting and Fuels for cooking

The main source for lighting for rural areas in Cambodia was kerosene, about 86.1 per cent of households used it, and only 6.3 per cent of used electricity generated by power plants. About 94.3 per cent of households in the rural areas used firewood as fuels for cooking.

Box: A NGO health education promoting people's access to sanitation facilities

A NGO project in villages in Kampong Cham province encouraged families there to construct a toilet for their family use. The NGO conducted health education about sanitation, family planning, use of toilets, etc. during its twelve sessions. After the health awareness of the people has been raised, they started to conduct different activities for protecting and increasing their health including construction of toilets. For construction of toilets, only half of the cost of a toilet bowl, US\$20 was subsidized by the NGO. This made them to prepare additional money to complete the construction. Some family applied wood boards to the wall but did not make the roof, but some better-off family applied tiles to the wall, have the roof and even a bathing space. This case indicates that in the villages are not very poor, awareness raising about use of toilets and subsequent provision of subsidy fund for their toilet construction are highly effective for promotion of toilet use of the villagers.

K.1.10 Social Services

(1) Education

Limited access, high repetition, low attendance and completion, and wide gender gaps in basic education are remaining as challenges. For further detailed information on education in the Growth Corridor Study Area, please refer to the section for the Human Resource Development in this report.

Higher poverty rate was found among the households of which the heads have had no formal education or had not finished primary education. This group accounted for four-fifths of the poor. The lower level of education should have brought in diseases such as diarrhea, other preventable infectious diseases, particularly those of children, poisoning by agricultural pesticides, and delay of undergoing medical treatment.

(2) Health

Most of basic health indicators for the Cambodians such as infant mortality, maternal mortality, are among the worst in South East Asia (**Table K-2**). Main causes of death and illness of Cambodians are infectious diseases such as diarrhea and vaccine preventable diseases.¹² HIV/AIDS is also a national threat.¹³ Lack of basic knowledge about health, nutrition, and sanitation has been deteriorating health of the adults and children.

Table K-2 Basic Health Index for Cambodia and other Asian Countries

	Average life expectancy at birth	Infant Mortality	Children Under 5 Years Mortality	Maternal Mortality	Total Fertility Rate	Annual Gross Population Rate
Cambodia	53	104	165	470	4.6	2.7
Vietnam	68	31	42	160	2.6	1.9
Thailand	69	30	37	44	1.7	1.0
Lao P.D.R.	53	96	116	650	5.7	2.7

Note: Infant Mortality=per 1,000 live births, Children Under 5 Years Mortality=per 1,000, Maternal Mortality=per 100,000 live births.

Source: UNICEF 2000.

Access to health services is severely restricted by physical scarcity of health facilities and health staff, particularly in rural areas.¹⁴ The lower quality of the health services also decreases in uses of the public health services by the people. Only 12.5 per cent of people have access to the government health facilities, 22 per cent to private health facilities, 37.4 per cent to private drug stores, and the

¹² Main causes of death are diarrhea, acute respiratory infections, dengue fever, vaccine preventable diseases, and those of illness are acute respiratory, diarrhea, malaria.

¹³ The HIV prevalence rate was 2.8 per cent in a population group age of 15 to 45 years old in 2000. The government issued the "100 % condom use" degree in order to induce 100 per cent condom use in the commercial sex. The prevalence rate decreased from 1998 to 2000 (The Cambodian Daily, September 10, 2002, P.1) through increases in use of condoms, but transmission has been increasingly occurring within family, from a husband to the wife (Ibid., P.12).

¹⁴ The Health Centers, frontline health facilities, have been established per 10,000 people, and referral hospitals for covering 10 to 15 Health Centers. This setting was introduced under the Health Sector Reform started in 1996.

rest 30.5 per cent dose not have any access.¹⁵ In worse, the cost of health services often becomes a heavy burden on the people. More than half of people living in rural areas needed to use their savings in order to undergo medical treatment.¹⁶

Box: HIV/AIDS and Commercial Sex Workers

Commercial sex was widely spread in the Cambodian society. For example, in 300 km of the National Road No.5 connecting Phnom Penh and the Thai boarder, 99 brothels, places for the so-called “direct prostitution,” were found¹⁷. In addition to brothels, there found Karaoke Bars, guesthouses, nightclubs, and even some restaurants having “Beer Girls”, which provided the so-called “indirect prostitution”. Commercial Sex Workers (CSWs) are vulnerable against HIV/AIDS due to their less access to health services. This is because health workers in the areas where the CSWs are working feel less responsibility towards them, and because hostility or indifference from the people of the community to them.¹⁸ Additionally, their high mobility hinders their access.¹⁹ However, the decree of “100 % Condom Use ” has improved the situation, hence increased recognition of CSWs as beneficiaries of health services by the local health staff.

K.1.11 Collective activities by farmers

Producer organizations such as cooperatives are normally regarded as beneficial to individual producers including poor rural farmers, since they realize economy of scale and increases in negotiation powers against others such as middlemen. However, due to the negative, destructive experiences of collective agricultural production units and activities under the Pol Pot regime, Cambodians disgust to formulate groups among them regarding economic profit and loss is persistence²⁰. This is widely recognized by academics, donors, and NGOs. Farmers and craftsmen, therefore, deal with middlemen directly.

Based on this attitude of the people toward collective activities, coordination among farmers about differences in profit and loss emerged by development interventions is highly difficult. For example, as individual farmers obtain different amount of benefits and loss (cost) from an irrigation system, formulation and operation of a maintenance and operation (M & O) group for the irrigation

¹⁵ WHO Cambodia Office.

¹⁶ National Institute of Statistics of Ministry of Planning and Directorate General for Health of Ministry of Health, *Cambodia Demographic and Health Survey 2000*, P.125.

¹⁷ Lee-Nah Hsu and Jacques du Guerry, “Mapping for the health and well-being of mobile sex-workers and the communities they serve”, Research for Sexwork 5”, June 2002, P. 28, <http://www.hiv-development.org/publications/sea-publications.asp>

¹⁸ Lee-Nah Hsu and Jacques du Guerry, *ibid.*, P. 28.

¹⁹ Lee-Nah Hsu and Jacques du Guerry, *ibid.*, P.28.

²⁰ Similar attitudes have been found among not only farmers but also different social groups.

system by farmers has been particularly challenging in Cambodia. Differences in ways of taking water from the irrigation, such as using pumps which requires purchase of gasoline or simply opening the gate of water way manually, have significant implications for them. This emerges strong feeling of inequality among the Cambodian farmers. Coordination and mitigation of the inequality and the feeling of the equality become urgent, but are not easy. If such coordination and mitigation become necessary beyond village borders, the difficulty goes up sharply.

It is concluded from this phenomena that the small-scale irrigation is more appropriate for most of places in rural area since the number of its stakeholders is smaller and the coordination and mitigation are less painstaking than large-scale irrigation systems.

Box: Buddhist pagodas as the development committee

A Buddhist pagoda is regarded as an imperative religious space in a Cambodian village. It is usually built and managed by the villagers. Villagers often donate relatively large amount of money to the pagoda, comparing to their economic situations. They also contribute to the pagoda construction by providing labor. Cambodian villagers at first re-built their own pagodas before other infrastructures under the severe struggle for their survival immediately after the internal conflict in the early 1990s. A pagoda committee for the construction, operation, and maintenance of the pagoda is set up by the villagers. This committee sometimes works as a kind of village committee for collective development activities in the village and as counterpart organization of development programs/projects by donors and NGOs. These functions have been noticed by donors and NGOs.

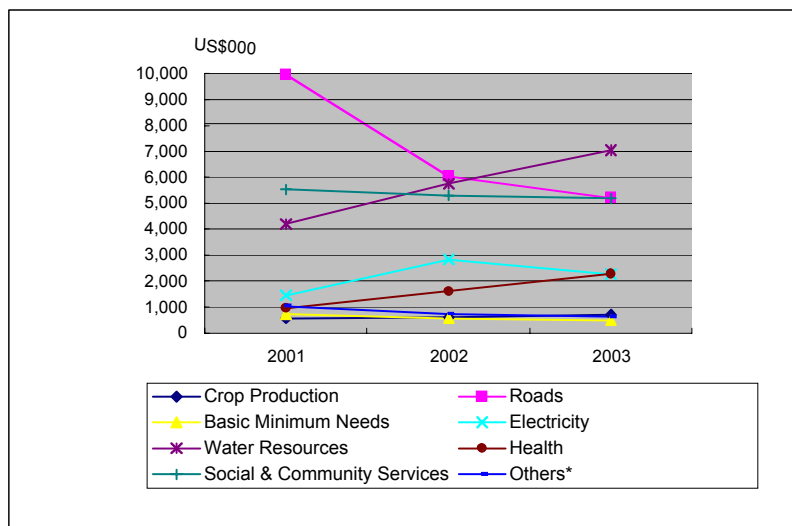
K.2 DEVELOPMENT PROGRAMS IN THE RURAL DEVELOPMENT SECTOR

K.2.1 Government Ministry in Charge and its Main Activities

The government ministry in charge of the field of rural development is the Ministry of Rural Development (MRD) which was established in 1994. It has jurisdiction over development of rural roads, rural water supply including small irrigation system, community development, rural health activities, and rural economic activities. The ministry has been facing shortage of fund and human resources.

The MRD has the Provincial Rural Development Department (PRDD) at the provincial level and the District Rural Development Offices (DORD) at the district level. Bilateral and multilateral donors and NGOs closely work with PRDDs in the actual implementation of the programs and projects.

Larger portion of budget of the MRD has been and will be allocated to the Department of Rural Road and the Department of Rural Water Supply than other departments (**Figure K-1**). The other departments have jurisdiction over establishment of the Village Development Committee (VDC), rural credit, marketing, etc.



Source: Ministry of Planning, SEDP II.

Figure K-1 Budget allocation plan for MRD expressed in SEDP II

K.2.2 Main programs for rural development

(1) Seila

Seila is a national²¹ program for supporting decentralization of planning, financing and implementation as well as for strengthening local governances. It also has an experimental aspect of capacity building of areas of planning, financing and implementation of local governments. Seila has been contributing to consolidation of the cyclical process of development plan such as formulation, prioritization, implementation, monitoring and evaluation of development plans. It also has a significant implication to rural development in Cambodia, because, through implementation of Seila, a number of rural development projects at the commune level have been realized, and relevant government offices were increased their capacity.

Seila began in 1996 in small number of communes in five provinces, and the Seila Task Force was established and consisted of seven line ministries. Seila expanded to cover 509 communes in 12 provinces in 2001, prior to the commune election, and resulted in covering more than one-third of the rural communes and half of the provinces.²² It aims to cover at 1,216 communes in 18 provinces in 2005.

²¹ There have been occasional misunderstandings that Seila is a donor program and Seila is a rural development program.

²² Royal Government of Cambodia, Socio-Economic Development Priorities and the Official Development Assistance Needs, 2001, P. 37.

In the first phase of Seila from 1996 to 2000, Village Development Committees (VDC) and Commune Development Committees (CDC) had been established to reflect ideas and opinions of residents. These committees, together with District and Provincial Governments underwent capacity building, and conducted PRA, formulated development plan, and prioritized their development plans.

Along with the Commune Elections in 2002, reconceptualization of Seila program was carried out to make it as an aid mobilization and coordination framework to support for decentralization and deconcentration of the Government.²³ MRD stopped establishing VDC and CDC tentatively based on the nature of the decentralization that authority to be provided the Commune Council as the central administrative. However, the VDCs, if they are existing in the target provinces of Seila program, have been facilitated in the process of the Local Planning of Seila. Additionally, villagers' organizations having similar functions to the VDC's have been often established in projects and programs by donors and NGOs.

BOX: Donor supports for Seila

Donors have supported Seila and used the framework of Seila to implement their programs in different manners; some donors has supported by sector-wise. For example International Fund for Agricultural Development (IFAD), AusAID, and FAO have supported the agriculture sector, through loans, an agricultural extension project (Cambodia and Australia Extension Project: CAAEP), and technical assistance, respectively. IFAD and GTZ are supporting in the field of rural development. As GTZ is working mainly with PRD, it is collaborating with MRD as the Programm Supporting Unit.

(2) The Social Fund of the Kingdom of Cambodia (SFKC)

SFKC was established in 1995 and providing funds for rehabilitation and reconstruction of social and economic activities. The World Bank disbursed a loan to the SFKC of US\$45 million, and the United States and the OPEC (the Organization of Petroleum Exporting Countries) provided additional support to this. In total, the amount of the SFKC is US\$55 million. Aiming at reducing poverty through channeling fund effectively to the poor, the SFKC, have been used for mainly small scale infrastructure development, such as construction of classrooms, wells, latrines, dikes, irrigation facilities, bridges, health facilities, and water supply facilities. Eligible applicants for the SFKC are community groups, local governments, and Cambodian and international NGOs.

K.2.2.3 Association of Cambodian Local Economic Development Agencies

²³ Royal Government of Cambodia, Socio-Economic Development Priorities and the Official Development Assistance Needs, 2001, P.37.

(ACLEDA)

ACLEDA, which is one of the largest NGO in the field of credit in Cambodia, disburses loans up to US\$4,000 for the promotion of economic activities such self-employment and small to medium size business, having a lending priority on those disadvantaged including female household heads, resettled refugees, and people with disability. Eighty per cent of their borrowers are women.²⁴ ACLEDA conducts a wider range of promotional activities for fostering entrepreneurship and small business including training and establishment of village banks. ACLEDA has been supported by multiple donors.²⁵

K.3 CROSS-CUTTING ISSUES

K.3.1 Gender issues

In Cambodia, access and control to assets and resources do not much differ between women and men. Laboring in agriculture, the main productive activities in gender analysis terms, is not strictly decided by gender. Both women and men often conduct same activities with some exceptions such as plowing by using buffalos and cows, and other machineries is regarded as a men's work, and trading agriculture products, mainly vegetables a women's work. In contrast, reproductive activities in gender analysis terms, such as domestic chores and child rearing are regarded as women's works.

(1) Access to Educations

Women's access to education is largely restricted in Cambodia. A survey conducted by the Ministry of Education, Youth and Sport in cooperation with the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1999 revealed that 45.1 per cent of the female respondents were "Completely Illiterate", while the rate was 24.7 per cent for the male respondents.

Difference between school enrolments of males and females become larger in the lower secondary schools (**Table K-3**). The shortage of number of lower secondary schools particularly in rural areas and security problems against female students hinder women's access to the secondary education.²⁶

Table K-3 Gender Disparities in Education

	None			Primary not Completed			Primary			Lower Secondary			Secondary and Above		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
Cambodia	1.6	1.6	1.7	55.5	48.8	63.4	26.7	29.8	22.9	11.9	14.0	9.5	4.2	5.5	2.6

Note: T=total, M=male, F=Female

Source: National Institute of Statistics, Ministry of Planning, General Population Census of Cambodia Report 7, P.28.

²⁴ <http://www.gdrc.org/icm/country/acleda.html>, 11 September 2002.

²⁵ The donors included UNDP, ILO, UNFPA, CARERE, EU, the Netherlands, etc.

²⁶ Average distance to the nearest lower secondary school is 4.1 km, and the nearest higher secondary school is 8.3 km, Ministry of Planning, CAMBODIAN HUMAN DEVELOPMENT REPORT 1999: Village Economy and Development, 1999, P.22.

(2) Reproductive Health

Women's reproductive health is under threats in Cambodia. The maternal mortality rate in Cambodia of 470 was one of the highest in Asia, and so is the total fertility rate of 4.6.²⁷ The causes are attributed to lower use of reproductive health services relating to safe-motherhood and lower quality of reproductive health services. Most deliveries are carried out at home without support from skilled health staff.

Infection with HIV, which had been once rampant among commercial sex workers and their male clients, is increasingly occurring from husband to the wife due to lower level of condom use in family and the weak negotiation power of wives.

(3) Domestic Violence and Trafficking

Cambodian women suffer from high incidents of domestic violence, forced labor in commercial sex industry, and trafficking. These exploit Cambodian children, also. UN organizations such as UNICEF and NGOs have been conducting activities to improve these issues.

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K.3.2 Migration

Large scale of migration has occurred in entire Cambodia several times for these three decades due to forced movement, refugees from conflicts, and resettlement of refugees afterwards. Very often migration coincided with lose of their assets.

The momentum of migration did not lose largely; the national average of the migration for previous five years of 1998 was 31 per cent in the national population census in 1998. The largest reason for the migration at the time of the census was search for employment²⁸. Inflows of people in urban areas for looking for jobs have been increasing recently, particularly in and suburbs of Phnom Penh city and Sihanoukville. Some of them have ended up working as daily-wage workers, or not having jobs, and living in squatter areas. But some of farmers migrated to urban areas due to their loses of land.

K.3.3 Vulnerable groups

Cambodia has experienced three decades of warfare and conflicts, and social

²⁷ National Institute of Statistics of Ministry of Planning and Directorate General for Health of Ministry of Health, Ibid., P.125.

²⁸ National Institute of Statistics, Ministry of Planning, The General Population Census of Cambodia, Report 4, 1988.

turmoil in the 1990s such as the return of refugees and the internal displacement of the people. Economic social changes have been occurred by the economic liberalization. Under these circumstances, very poor, disabled persons, female household heads, and land-less farmers have been generally regarded as vulnerable. They easily fall into severe poverty, are marginalized, or exploited. The government regards following people as vulnerable people and estimated their number (**Table K-4**). The Ministry of Social Welfare, Labour, and Veteran Affairs and the Ministry of Women’s and Veteran’s Affairs²⁹ are in charge of providing services for these people. However, the ministries have been facing lack of fund and human resources, thus, official supports for the group are limited. NGOs have been providing services, supplementing the weak governmental capacity.

Table K-4 Estimated Numbers in Various Vulnerable Groups

Group	Number (1999)
Child Workers	673,083
Disabled People	169,000
Commercial Sex Workers	Unknown
Child Commercial Sex Workers Phnom Penh	5,000
Child 5-13 working +25 hours /week and not at school	65,000
Child soldiers	5,000
Child without carers	2,500
Street children Phnom Penh	1,000
Children in conflict with the law	178
Drug addicts	80

Source: SEDP II, P.108

Marginalization of people with disabilities in the socio-economic spheres has been often recognized³⁰. It was estimated that there were approximately 30,000 to 40,000 amputees in the country and they are mostly men in the age group between 19 and 35 years old.³¹

Among the female-head households in Cambodia, poverty incidents are high. Main reason for their poverty is shortage of male adult labor forces in their households³², and higher dependency rates by their children. Increased vulnerability of female-headed households has been recognized as they are being easily targeted for deception in the present Cambodian society experiencing large level of socio-economic changes.

²⁹ The Ministry of Women’s and Veteran’s Affairs once played an important role as an implementing agency of donors’ various projects and programs for women’s income generation, etc. Donors such as UNICEF collaborated with the ministry. However, the ministry came to put more emphases on its function as the national machinery to promote gender equality and women’s empowerment, thus, decreased its function of implementing programs and projects.

³⁰ The World Bank, South Asia and Mongolia Country Unit, East Asia and Pacific Regional Office, Cambodia Country Assistance Strategy, 2000, P.72

³¹ *Ibid.*, P.72.

³² However, studies found that if the female household head is in her forties and above, the household is often not in severe poverty due to having her grown-up children as work force.

K.3.4 Landless farmers

The Mekong River Commission estimated that landless-farmers in Cambodia counted for 24 per cent of rural households.³³ Most of farmers conduct subsistence agriculture in rural Cambodia, therefore, if they become land-less, their food-security would be threatened, and their poverty would be exacerbated.

Several reasons are cited for farmers' losing their land including urgent needs for cash for medical costs, default of repayment to moneylenders, forced move resulted from encroachments and by powerful officials and rich people with uncertainty of legal aspects of land titles. Complicated and highly costly land titling procedures, high population growth rates, and internal displacement also make farmers landless.

K.3.5 Land Issues

Magnitude of issues relating land title in Cambodia is very large, and uncertainty in land ownership may as well, delay in the progress of development plans, as well as affect the life of the people therein. Conflicting interests over land ownership are often seen among farmers, the urban poor, different level of government officials, businessmen, and so forth. Disputes over land titles, land encroachment and forced move of residents have been occurred and resulted in increases in numbers of landless farmers. The World Bank indicated that "(t)here are suggestions that state agents such as military and political connected people have dispossessed people of their land³⁴" and that "(t)he poor and less educated lose in the process because they do not have the access to money and power needed to defend their rights.³⁵"

The issues are, and tend to intensify with plans and rumors of development involved land. They have delayed the progress of development plans and affected the life of the people pertinent to, hence losses in time and finance for the developer and voluntary/involuntary relocation for the latter.

GTZ analyzed that "(t)he overriding problem in the land sector is the lack of land tenure security in a post-conflict situation³⁶" The World Bank further analyzed that the main reason for the problem is "uncertainty about where boundaries of land under the control of various state entities or private individuals lie³⁷," and that "(a)s for public land, apparently the state does not know the amount, location and boundaries of the land that full under it; obviously, much of it would not surveyed,

³³ So Savannarith, Real Sopheap, Uch Utey, Sy Rathmony Brett Ballard, and Sarthi Acharya, Cambodia Resources Development Center, *Social Assesment of Land in Cambodia*, Working Paper No.20, P. 12.

³⁴ The World Bank, Rural Development and Natural Resources Sector Unit, East Asia and Pacific Region, PROJECT APPRAISAL DOCUMENT ON A PROPOSED CREDIT IN THE AMOUNT OF SDR 19.3 MILLION (US\$24,3 MILLION EQUIVALENT) TO THE KINGDOM OF CAMBODIA FOR A LAND MANAGEMENT AND ADMINISTRATION PROJECT, 2002, P.5

³⁵ *Ibid.*, P.5

³⁶ GTZ project sheet, "Land Management Project".

³⁷ *Ibid.*, P.5.

mapped or titled, either.³⁸ This has led to land disputes even between different ministries, because “The Ministry of Agriculture, Forestry and Fisheries has responsibility for the management of the forestry land and wetlands. The Ministry of Economy and Finance’s State Property Department has responsibility for administration of state immovable properties³⁹”. The World Bank also pointed out, as reasons for the land issues, the “lack of government capacity to resolve disputes through either the courts or land dispute resolution⁴⁰” as well as “lack of transparency of the dispute resolution process⁴¹”.

The RGC established the Ministry of Land Management, Urban Planning and Construction in 1999 to be responsible for the sphere of land management, and its provincial/municipal departments implement land registration, administration of land transaction, etc. However, due to limited capacity of the ministry, implementation of land registration has advanced sluggishly.

Having recognized the seriousness of the land issues, some of bilateral and multilateral donors and NGOs⁴² began to conduct projects to responding them.

BOX: Demobilization: increases in people of vulnerable group

The Cambodian government has a plan to demobilize 15,000 soldiers in the fiscal year 2004/2005. Most of them are middle-aged and above and having physical issues such as diseases. Present government plan is that soldiers would receive \$240 in cash and a motorbike, a sewing machines, food and other daily miscellaneous which cost \$1,200 in total.

K.4 CURRENT SITUATIONS IN RURAL AREAS IN THE GROWTH CORRIDOR AREA

In the Study Areas of the “Growth Corridor Study”, urbanization of Phnom Penh City has further advanced, this section studying rural development does not include Phnom Penh City as a study subject. But this section include five provinces, Kampong Speue, Kampot, Kandal, Kaoh Kong, and Takev, of which areas are mainly rural areas, and one city, Sihanoukville⁴³ are subjects of study in this paper. The total of the rural population in these areas were approximately 300,000.

There are ethnic minorities in Kampot province; the Cham who are Muslims and

³⁸ Ibid., P.4.

³⁹ Ibid., P.4.

⁴⁰ Ibid., P.5.

⁴¹ Ibid., P.5.

⁴² The Ministry of Planning, Cambodia Human Development Report, 1999, The World Bank, Cambodia Poverty Analysis, 1999, Sik Boreak, Cambodia Development Resource Institute, Land Ownership, Sales and Concentration in Cambodia, Working Paper 16, 2000, etc.

⁴³ Two of the three districts, Pray Nob and Stueng Hav districts of Krong Preah Sihanouk are regarded as rural areas by the municipality, and under the jurisdiction of the Provincial Rural Development Department.

Souch whose number are being estimated to be rather small.

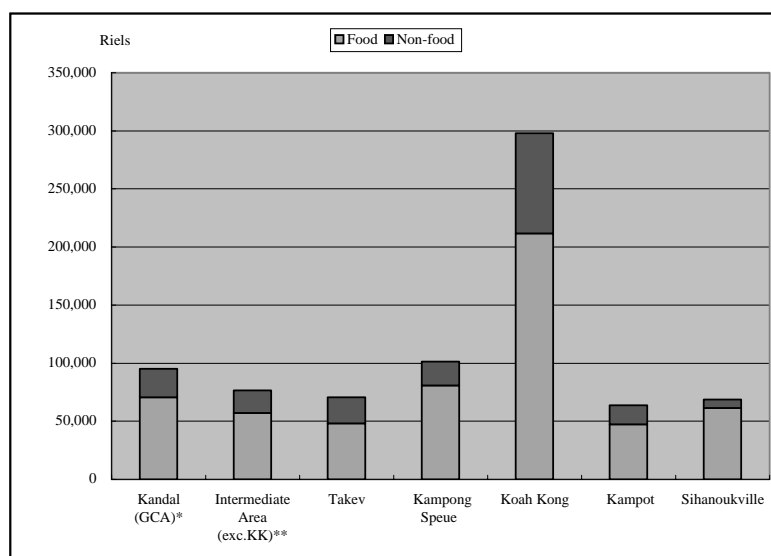
K.4.1 Features of the rural areas

(1) Economic situation

Monthly household expenditure of the five provinces and one city were calculated by the Growth Corridor Study Team from the database of CSES 1997. Those households of which the main economic service was agriculture spend lower amount of money for their living monthly. (Cr.0.66).

(2) Average monthly expenditure

The Growth Corridor Study Team estimated average monthly expenditure per capita of the study area through using database of SECS 1997 (**Figure K-2**). The amount for Koah Kong province was exceptionally higher than other provinces. Excluding this province, Kandal province (the Greater Capital Area) was better-off among other provinces and the city, followed by Sihanoukville. This indicated that the figure for Sihanoukville in 1997 was not particularly higher than other provinces, although urbanization of Sihanoukville is presently being advanced steadily.



Note: Kandal(GCA)*=Kandal (the Greater Capital Area), Intermediate Area (exc.KK)**=The Intermediate Area, but dose not include Koah Kong province.

Source: Estimation by the Growth Study Team based on the database of the CSES 1979.

Figure K-2 Average Monthly Expenditure per Capita Calculated from CSES 1997

Among the provinces in the Intermediate Area except Koah Kong province, the figure for Kampot province was the lowest and that for Kampong Speue province was the highest. This ranking among these provinces agrees with the ranking of each provinces made in the poverty analysis study of by JBIC⁴⁴

⁴⁴ JBIC, *Cambodia Poverty Analysis*, Table 1-3, P.5, 2002.

(3) Economic Activities

The staple economic activity in most of the rural area is agriculture, while fishery is the main one for some locations. The main crop is rice with primitive technology and inputs and without irrigation using. Food security is a persisting issue, particularly in the Intermediate Area.

(4) Food Security

Detailed information about food security in the five provinces and one city are not available. It should be noted that even within a province the level of seriousness of food shortage differs by area, depending on given natural, technological and economic condition. Food security has been an urgent issue in large areas of the Intermediate Area. It should be noted that rice calorie intake covers over 80 per cent of total calorie intake in Kampong Speue and Kandal provinces⁴⁵.

(5) Rural infrastructure

Rural infrastructure is generally weak and needs further improvement. Particularly, the situation in the Intermediate Area requires urgent responses. Among the five provinces and one city, Koah Kong province and Sihanoukville city were slightly better-off than other provinces. Rural roads are one type of infrastructure that awaits improvement and rehabilitation. Nevertheless, the necessary date and criteria for specific actions are virtually non-existence.⁴⁶

(6) Social Services

1) Health

Health status of the people in the rural area requires improvement. Although some health indexes were better than the national average, they were still at such levels that required urgent improvement.

Total cost for receiving medical treatment was expensive compared with their per capita GDP in the Growth Corridor Study⁴⁷. The high transportation cost to receive medical treatments bothers the people in remote areas.

(7) Area-wise Features

Kandal Province (the Great Capital Area)

Large part of southern areas of the province is often damaged by flood, and the population density in these areas is much lower than other parts of the province. On the contrary, in the areas along the National Roads and where factories have

⁴⁵ Ministry of Planning, General Population Census of Cambodia 1998: Analysis of Census Result, Report 1 in Ministry of Planning, SEDP II, P.19

⁴⁶ Data for road rehabilitation exists but criteria of the rehabilitation need further clarification.

⁴⁷ National Institute of Statistics, Ministry of Planning and Directorate General for Health, Ministry of Health, Cambodia Demographic and Health Survey 2000, P.125.

been newly opened, the population has been rapidly increasing.

1) Average Monthly Expenditure

The estimated average monthly expenditure per capita for Kandal Province is the highest among the five provinces and the one city excluding Koah Kong Province (**Figure K-1**).

2) Economic Activities

The high amount of the average monthly expenditure is due to the level of the economic development of the province as a suburb of the capital. Factories have been constructed and operating in areas of this province along the National Roads, and their numbers has been increasing. Along with this, due to population inflows caused by the people who come to work as factory workers, economies in the areas have been flourishing through increases in small business such as food shops and cloth shops for the factory workers. Urbanization has been advancing, too.

However, agriculture, producing mainly rain-fed rice, remains to be the staple industry. Small-sized intensive farming producing vegetables for the Phnom Penh Municipality is growing.

3) Rural infrastructure

Access to basic rural infrastructure such as safe-drinking water and sanitation in Kandal Province is better than the national average of the rural area. Although it was the highest among the five provinces and one city, the access to sanitation, i.e., toilets was only 10.2 per cent⁴⁸. Rural transportation was said to be accommodated by roads and canals, so that residents in rural areas have access to markets for their products⁴⁹

4) Health

Infant Mortality Rate and the Under-Five-Year Mortality for Kandal province were lower than the national average. Twenty per cent of the people in the province needed to borrow money to undergo medical treatment on one hand, 18.2 per cent of them used money from their wage or pocket money on the other hand⁵⁰. This indicates that economic disparity existed among households in the province.

Intermediate Area

This area holds some very poor areas due to topographical settings as well as historical reasons. The southern part of Takaev Province, often suffers from

⁴⁸ National Institute of Statistics, Ministry of Planning, General Population Census of Cambodia 1998

⁴⁹ Interview from an official of Department of Rural Development of Kandal province.

⁵⁰ National Institute of Statistics, Ministry of Planning and Directorate General for Health, Ministry of Health, Cambodia Demographic and Health Survey 2000, P.125.

flood inundation without external access, and generally very poor⁵¹. Kampong Speue Province had been suffered by security issues caused by Khmer Rouge by 1996, so that the external supports for development efforts in this province has come in relatively recently.

Contrary, in an area of Kampong Speue province along the National Road No.4, the number of factories has been increasing. Factory workers came to live there, and the economy in the areas have been flourishing through increases in small business for the factory workers.

1) Average monthly expenditure

Among the provinces in the Intermediate Area, average monthly expenditures per capita for Koah Kong Province was highest, surpassing those of Kandal Province (the Great Capital Area) and Sihanoukville city. The highest amount of Koan Kong Province is attributed to the relatively advanced tertiary industry, particularly the wholesale and retail due to active trading with Thailand.

In contrast, the average monthly expenditure of Kampot Province was the lowest (**Figure K-1**)⁵². In this province, poverty persists in the area surrounded by the National Road No.3 and 4, where the road access is severely limited. The area affected by the Khmer Rouge Army for long time is in harsh poverty.

2) Economic Activities

The main industry is agriculture, and the staple crop is rain-fed rice. The production is often affected by natural calamities such as flood and draught. Kampot province produces variety of agricultural products such as vegetable, pepper, sugar cane, cassava, sweet potato, and fruits. Production amount of some products of the province exceeded those of other provinces in the Study Area in 2000.

In the southeast part of Kampong Speue and Koah Kong provinces, fruit plantations were developed along the National Road No.4, where the population is spare. Fruits like mangos, durians, pineapples, bananas, pepper and oil palm are cultivate there. The plantations provide jobs to the farmers living relatively close to the plantations, paying 5,000 to 6,000 Reils per day.⁵³

In Koah Kong Province, people living in mountainous areas along the National Road No.4 had depended on forests as an income source before the government prohibition against logging. Some of the people had worked for logging companies, others produced charcoals and collected medical plants. Some

⁵¹ The provincial government of Takaev formulated the “Commune Database” defined “poor districts” in the province by setting ten “Poverty Indicators”. They were Bati, Samraong, and Tram Kak Districts.

⁵² Ranking among these provinces agrees with ranking of the ratios of the poor people in the provinces which were calculated in *Cambodia Poverty Analysis* by JBIC.

⁵³ UNICEF and American Friends of Service Committee(AFSC) – Cambodia, Ibid., P.7.

ex-logging workers were said to work in the plantations. In the same province, fishing is one of the largest industries.

Box : Income from logging in Koah Kong province

Before logging ban⁵⁴ by the government, a male worker in Koah Kong province had earned 20,000 Riels per day, US\$ 5 per day for 10-12 days in a month. It was rather high income among people living in rural areas.⁵⁵ But after the logging ban he had to work at 3,000 Riels (US\$ 0.78) per day for transport lumber and charcoal for other people,⁵⁶ thus, his income was decreased.

3) Food security

Food security is still an urgent and critical issue in some areas of the Intermediate Area, particularly in Kampong Speue and Kampot Provinces.

4) Rural infrastructure (Table K-5).

Although the conditions of rural roads in this area have been improved for the last few years mainly by projects by international donors and NGOs, there is still ample room for improvement.

Access to safe drinking water in this area was only 18.1 per cent and lower than the national average in 1998. Particularly, the figures for Kampong Speue and Takev Provinces were less than half of the national average. Access to sanitation, in the Intermediate Area was also worse, except in Koah Kong province.

The main source of lighting in the Intermediate Area was kerosene. However, 26.8 per cent and 16.7 per cent of the population in Takaev and Koah Kong provinces were using electricity generated by the government. These ratios were higher than the national average.

The most used resource as fuels for cooking was firewood in the Intermediate Area, but use of charcoal in Kaoh Kong province was more than ten-time high in other four provinces.

⁵⁴ In regard to the governmental logging prohibition, there have been several forms of the prohibition such as pending of logging under forest concession, cancellation, suspension since the late 1990s.

⁵⁵ UNICEF and American Friends of Service Committee(AFSC) – Cambodia, Ibid., P.6.

⁵⁶ UNICEF and American Friends of Service Committee (AFSC) – Cambodia, Ibid., P.6.

Table K-5 Rural infrastructure

Access to drinking water	Piped Water (1)	Tube/piped well (2)	Dugwell	Spring, river, stream, lake, pond and rain	Bought(3)	Other	Total	% of households with safe drinking water (1)(2)(3)
Cambodia Rural	2.5	15.1	43.4	30.4	6.1	2.5	100.0	23.7
Growth Corridor Area	2.7	8.3	42.8	34.2	11.4	0.7	100.0	22.4
Kandal	4.1	11.9	11.6	54.0	18.0	0.4	100.0	34.0
Intermediary Area	0.9	8.6	44.9	36.5	8.5	0.6	100.0	18.1
Takaev	0.5	10.5	37.1	49.9	0.9	1.1	100.0	11.9
Kampong Spueu	1.4	17.3	35.3	44.0	1.8	0.2	100.0	20.5
Kaoh Kong	0.8	1.3	62.0	6.5	28.8	0.6	100.0	30.9
Kampot	1.0	5.4	45.1	45.6	2.6	0.3	100.0	9.0
Krong Preah Sihanouk*	8.1	3.2	65.8	5.1	16.5	1.3	100.0	27.8
Number of wells Latest data from Ministry of Rural Development as of July 2002**								
	Pump well		Dug well		Combination well		Ponds	
	Good	Broken	Good	Broken	Good	Broken	Good	Broken
Kandal	4	12	12	54	18	0	100	34
Takaev	1	11	37	50	1	1	100	12
Kampong Spueu	1743	427	825	49	34	17	0	0
Kaoh Kong	1	1	62	7	29	1	100	31
Kampot	445	387	0	0	0	0	165	0
Krong Preah Sihanouk*	8	3	66	5	17	1	100	28
Access to Toilets(% of households)								
Cambodia Rural	8.6							
Growth Corridor Area	9.7							
Kandal	10.3							
Intermediary Area	5.6							
Takaev	3.6							
Kampong Spueu	2.8							
Kaoh Kong	10.4							
Kampot	5.6							
Krong Preah Sihanouk*	25.2							
Electricity	City Power	Generator	Both city power and generator	Kerosene	Battery	Other sources	Total	
Cambodia Rural	6.3	0.9	1.4	86.1	3.8	1.5	100.0	
Growth Corridor Area	15.2	1.8	2.8	77.3	2.6	0.4	100.0	
Kandal	7.1	1.0	2.3	80.2	9.2	0.2	100.0	
Intermediary Area	11.7	1.9	3.1	81.6	1.4	0.5	100.0	
Takaev	26.8	0.8	1.2	67.5	3.6	0.1	100.0	
Kampong Spueu	1.6	0.5	0.4	96.7	0.7	0.1	100.0	
Kaoh Kong	16.7	5.3	9.8	66.3	0.6	1.3	100.0	
Kampot	1.8	0.8	1.0	95.7	0.7	N/A	100.0	
Krong Preah Sihanouk*	37.3	2.4	1.8	57.3	0.5	0.7	100.0	
Fuels for cooking	Using Firewood	Charcoal	Kerosene	LPG	Other	Total		
Cambodia Rural	94.3	2.3	1.7	0.5	1.2	100.0		
Growth Corridor Area								
Kandal	97.3	1.2	0.9	0.4	0.2	100.0		
Intermediary Area								
Takaev	96.5	0.7	1.7	0.3	0.8	100.0		
Kampong Spueu	97.0	0.8	1.8	0.3	0.1	100.0		
Kaoh Kong	74.7	21.7	1.6	1.8	0.2	100.0		
Kampot	96.1	1.4	2.0	0.2	0.3	100.0		
Krong Preah Sihanouk*	68.7	27.3	1.7	2.1	0.2	100.0		

Note: Krong Preah Sihanouk* =categorized to only Urban Area in the Census in 1998.

Source: National Institute of Statistics, Ministry of Planning, General Population Census of Cambodia 1988, Analysis of Census Results Report 4, Housing and Household Amenities. **Ministry of Rural Development.

5) Health

While Infant Mortality Rates for Kampong Speue and Kaoh Kong provinces were lower than the national average, that for Takaev province were higher. The rate for Kampot Province, Krong Kaeb, and Sihanoukville⁵⁷ was also higher, but it is difficult to discern which one(s) was(were) of these provinces contributed to making the figure worse as they differed largely in their levels of urbanization. Under-Five-Year Mortality Rates in all provinces in the Intermediate Area were better than the national average.

Table K-6 Infant Mortality and Under-Five-Year-Old Mortality

	Cambodia Rural	The Greater Capital Area	the Intermediate Area			
		Kandal	Takaev	Kampong Speue	Koah Kong	Kampot/Kep/Sihanoukville*
Infant mortality (per 1000 live birth)	95.7	89.2	96	68.3	70.7	100.4
Under-five mortality (per 1000)	126	108.2	118.5	89.5	90.8	124.4

Source: National Institute of Statistics, Ministry of Planning and Directorate General for Health, Ministry of Health, Cambodia Demographic and Health Survey 2000, P.125.

Securing access to health services was financially difficult for the people in some provinces in this area. Transportation costs to undergo medical treatments in the areas were higher than the national average (**Table K-7**). More than 15 per cent of the people of the all provinces in the area needed to borrow money to undergo medial treatments. At maximum, 23.8 per cent of the people in Koah Kong province needed to borrow money. A harsh situation was found about Koah Kong province that 17.9 per cent of the people needed to sell their own assets to undergo medical treatments⁵⁸.

⁵⁷ These one province and two municipalities were grouped into one in the Cambodia Demographic and Health Survey 2000.

⁵⁸ Ibid. P. 39.

Table K-7 Expenditure for Medical Treatment (US\$)

	Cambodia	The Greater Capital Area	the Intermediate Area			Kampot/Kep/ Sihanoukville
		Kandal	Takaev	Kampong Speue	Koah Kong	
First treatment						
Transport	0.8	0.8	0.6	0.8	5.4	1
Health care	15.3	17.7	11.7	14.3	31.4	20.5
Total	16.1	18.5	12.3	15.1	36.8	21.5
Second treatment						
Transport	1.2	1.6	1.6	0.8	3.5	1.8
Health care	12.7	18.3	22.8	7.5	47.2	10.4
Total	13.9	19.9	24.4	8.3	50.7	12.2
Third treatment						
Transport	0.6	*	*	*	*	*
Health care	8.5	*	*	*	*	*
Total	9.1	*	*	*	*	*
All treatments						
Transport	1.2	1.1	1	0.9	1.1	1.6
Health care	18.9	20.6	17.8	15.5	20.6	24.6
Total	20.1	21.7	18.8	16.4	21.7	26.2

Source: National Institute of Statistics, Ministry of Planning, and Directorate General of Health, Ministry of Health, Cambodia Demographic and Health Survey, 2000, P.37.

Sihanoukville

1) *Average Monthly Expenditure*

The average monthly expenditures for Sihanoukville was the second highest, following Kandal Province (**Figure K-2**). However, when it is compared at the provincial level, it becomes the fourth highest, because those for Koah Kong and Kampong Speue Provinces are also higher than it⁵⁹.

2) *Economic Activities*

The two districts regarded as rural areas of the province have different economic characteristics; the main economic activity of Prey Nob district is agriculture, but Stueng Hav fishery. The catch of the fishery of the province surpassed those of all other provinces in 2000.

3) *Rural Infrastructures*

Situations of rural infrastructure in this city were better than the national average as well as those in the Intermediate Area and the Greater Capital Area. For example, 25.2 per cent of the people had access to sanitation facilities, and 37.3 per cent to the electricity generate by the government (**Table K-5**). However, due to recent rapid population growth, extensive efforts in developing infrastructure to catch up the population growth are urgently necessary.

4) *Health*

The infant mortality rate for the group consisted of Sihanoukville, Kampot

⁵⁹ Ranking among these provinces agrees with ranking of the ratios of the poor people in the provinces which were calculated in Cambodia Poverty Analysis by JBIC.

Province, Krong Kaeb was worse than the national average, and exceeded 100 per 1,000 live births which required urgent improvement (**Table K-6**).

K.4.2 Cross-cutting Issues

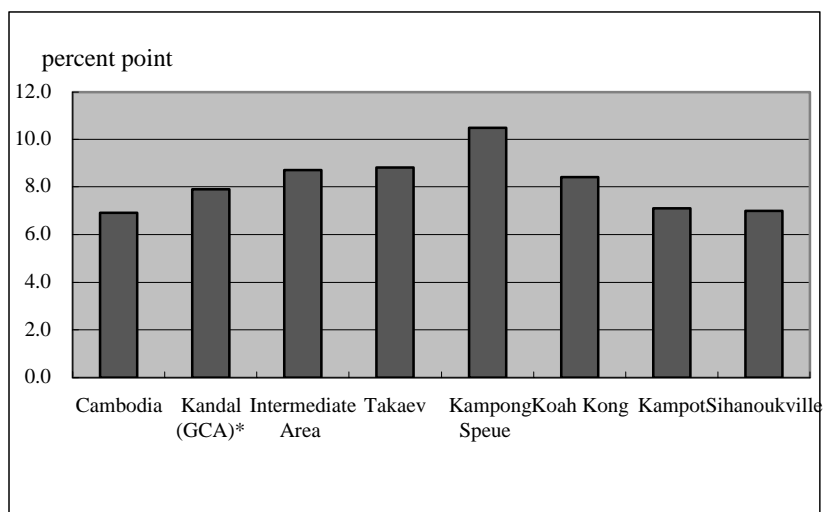
Although the Growth Corridor Area surpasses other areas in Cambodia in terms of economic development, it follows the national average about some vital points in terms of social development.

(1) Gender issues

Gender disparities in education and reproductive health in the Growth Corridor Area need to be tackled.

1) Education

It should be noted that gender disparity regarding finishing primary schools for the five provinces and one city was larger than that at national level (**Figure K-3**).



Note: Kandal(GCA)*=the Greater Capital Area

Source: National Institute of Statistics, Ministry of Planning, General Population Census of Cambodia, Report 7, P.28.

Figure K-3 Gender disparity in Finishing Primary School

2) Reproductive Health

Ratios of teenage-pregnancy of women for the five provinces and one city were higher than the national average. Teenage pregnancy and deliveries often result in danger to the mother's health and life due to their immature physical conditions. This indicates that reproductive health of women in their teens in the Growth Corridor Area was less secured.

(2) Migration

Compared with the national average, larger portion of the population migrated to Koah Kong province and Sihanoukville city, and slightly smaller to Kandal province (The Greater Capital Area). But migration to the other Intermediate provinces was not such active (**Table K-8**). Socio-economic situations of the

recently migrated people have not known in details.

Table K-8 Migrants to the five provinces and the one city

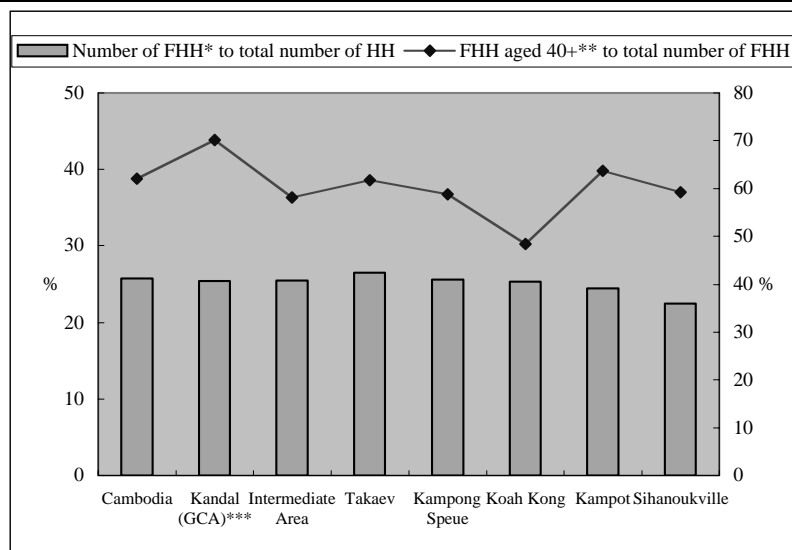
	Cambodia	The Greater Capital Area	the Intermediate Area				Sihanoukville City
		Kandal	Takaev	Kampong Speue	Kampot	Koah Kong	Sihanoukville
Both sexes							
Migrants	31.4	28.5	14.5	24.9	18.1	57.9	52.1
5-year Migrants	10.3	7.3	4.6	8.6	5.4	31.1	19.6
Males							
Migrants	32.4	29.3	17.1	26.7	19.4	59.8	52.4
5-year Migrants	11.5	8.42	5.6	9.9	6.4	33.1	20.6
Females							
Migrants	30.5	27.7	12.2	23.3	16.9	56	51.9
5-year Migrants	9.2	6.2	3.6	7.4	4.5	29	18.7

Source: Ministry of Planning, Population Census Report 5, Spatial Distribution and Migratory Movement, P.29.

(3) Vulnerable groups

Due to the weak capacity of the two ministries in charge of the vulnerable groups as stated above, their departments at the provincial level also face the same problems and provide limited services. For example, one of Provincial Departments of Social Affairs, Labor, Vocational Training, and Youth Rehabilitation provides foods, towels, and some amount of money for 1,000 poor families annually, as almost only one service in a year for the vulnerable people.

In the five provinces and one city, the ratios of female-headed households were close to the national average. In addition, the age of the female heads were mostly higher than 40 years old (**Figure K-4**), this indicates high possibility of their having grown-up children who could support for their livelihood, hence their less severe economic situations than those female-headed households with higher child dependency rates.



Note: FHH*= Female-headed Households, FHH aged40+**= Female Households heads over 40 years old, Kandal (GCA)***=Kandal (the Greater Capital Area)

Source: National Institute of Statistics, Ministry of Planing, General Population Census of Cambodia Report 8, P29.

Figure K-4 Ratios of Female-headed Households and the Female Household Heads over 40 years old

(4) Newly emerged measures for earning cash income

Main manufacturing industry in Cambodia has been the garment industry from the late 1990s, and the industry employs mainly young unmarried female workers under a few years contract. Many of them are said to be from rural poor families around the countries and living in factory dormitories or rent rooms in houses near the factories. The life of such factory workers is not known in the details, except that they can earn certain amount of US dollars per month, approximately US\$45.00, which is the minimum wage for a regular worker in the garment sector.

BOX: Life of garment factory workers

One survey on garment factory workers of three factories in Phnom Penh⁶⁰ conducted by Care International, a well-known international NGO, revealed that most of the surveyed workers had at least a few years of schooling. Wages, working hours, and working conditions varied among the factories. While earning salaries, these workers needed to pay for their every day expenses, it was not clear in the survey how much they actually sent to their families in rural area and how much they saved. Many of them dissatisfied with their wages, working hours and working conditions and wanted to change their works to more better-paid works. The lower level of education, literacy, and skills of workers have made Cambodia less attractive to foreign investors. But, finally the employers have more power in selecting “better workers” from competing Cambodians who want to work for factories.

⁶⁰ CARE International in Cambodia, Sewing a Better Future ? A Report Of Discussion With Young Garment Factory Workers About Life, Work And Sexual Health, August 1999.

Earning US\$45 per month at a garment factory is highly attractive for rural women, since job opportunities for earning cash income in the rural areas are rather limited. This makes some of the poor in rural areas aspire their daughters to work for garment factories and send their salaries back to support the livelihood of their family.

Box: Income from sewing a blouse in rural area

Sewing has been taught in a joint rural development project by the Japanese Government and UNDP in Takaev and Kampong Speue province. The earning of women who finished the sewing course from sewing a blouse is only US\$1.00 to 1.50 per one blouse, if the blouse is sold luckily in retail price about at US\$5.00 to 6.00 under severe competitions with a variety of second-handed blouses retailed at only about 100 Riels, US\$ 25 cents.

(5) Area-wise Features

Kandal province (Greater Capital Area)

Urbanization in the part of the province has accompanied urban social issues such as street children and trafficking of children. RGC and NGOs have been conducting programs and projects for them.

Box: A Cambodian NGO supporting street children and victims of child trafficking

A Cambodian NGO has been provided shelters for street children and victims of child trafficking around the country, having 15 programs and 45 centers for such children. In every center of the NGO, about ten children are living together, and one center is operated by the budget of US\$450 per year. It has two shelters in an area in Kandal province, where economic development has been advancing.

Intermediate Area

The largest gender disparity in finishing primary education existed in Kampong Speue Province, 10.5 per cent points, higher than the national average. The higher disparities in Kampong Speue, Takev, and Kaoh Kong provinces coincide with the higher rates of teenage pregnancy analyzed below. The ratio of teenage-pregnancy for Kampong Speue was much higher, 10.5 per cent, whereas the national average was 5.7 per cent.⁶¹

The migration ratio for Kaoh Kong Province was higher than the national, 58 per cent, (**Table K-8**), hence more than half of the population Kaoh Kong Province

⁶¹ National Institute of Statistics of Ministry of Planning and Directorate General for Health of Ministry of Health Ibid., P.66.

immigrated in the previous five years of 1998. The ratio for Kaoh Kong Province was the third highest in the country, following Pailin (77.4 per cent), which attracted immigration by gem mining and logging, and Phnom Penh city (73.4 per cent) as being the capital. Job opportunities in trading, fishing, and logging in Kaoh Kong province attracted the migrants⁶². In contrast, the migration was less active in the other provinces in the Intermediate Area as stated above.

Sihanoukville

The migration ratio for Sihanoukville, 52.5 per cent was much higher than the national average. Continual expansion of the number of factories and hotels and restaurants, their constructions, and the local fishery have attracted people from the outside to flow in. Rapid population inflows have been occurred particularly in the area near the Sihanokville port.

K.5 DEVELOPMENT ACTIVITIES FOR RURAL DEVELOPMENT IN THE FIVE PROVINCES AND THE ONE CITY

Large number of NGOs, 560 were said to be working in Cambodia⁶³. but the number of NGOs was particularly higher in the most provinces of the Growth Corridor Study, compared with other provinces. Kampong Speue and Takeav provinces were ranked in 2001 as two of the three highest NGO-concentrated provinces in Cambodia⁶⁴ where more than 36 NGOs were working. According to the same date, in Kampot province, 16 to 25 NGOs were working. In Sihanoukville City, 6 to 15 NGOs were working. Only 1 to 5 NGOs were working in Koah Kong province. Anecdotal cases indicated that the provincial government offices collaborating such large numbers of NGOs were facing difficulties in coordinatiing and working with the NGOs, due to their lack of budget and human resources.

Following information includes development programs/project supported by donors and NGOs and was gathered from interviews from officials of PRDD and NGOs in the Growth Corridor Area in 2002 and from Annual Review Reports in 2001 of these areas (**Table K-9**). The inclusion of these activities does not necessarily reflect either their relative scale, or importance.

⁶² This was from an analysis of the population census in 1998 which attributed the gender-unbalanced population increases in the other coastal provinces to the same factors stated above in regards to Kaoh Kong province.

⁶³ JBIC, Cambodia Poverty Analysis.

⁶⁴ Another area where NGOs are concentrated is Phnom Penh Municipality, over 36 NGOs were working in 2001.

Table K-9 Development Programs/Projects for Rural Development by Donor and NGOs (1/2)

Kandal (Greater Capital Area)		Takeo (Intermediate Area)	
ADB	Activities: Loan for rural infrastructure development such as rural road.	Seila	Seila was started in 2001, and the advance of implementation of the program has been smoothly. This is recognized widely. The reasons for the smooth advancement are capable human resources recruited for the program, strong commitment by the Provincial Governor, close cooperation among the relevant provincial departments, close cooperation with districts, active participation of villagers. Activities: Local planning, capacity building, and decentralization
JICA	Activities: Construction of water supply facilities (one pump-well for each of three districts, Mukh Kampul, Koah Thum, and Angk Snul). Study about the water-user organizations has been continued.	ADB	Activities: Loans for rural infrastructure development such as development of road, irrigation, well
CARE International(NGO) and CIDSE (NGO), International Cooperation for Development and Solidarity, NGO) JVC (NGO, Japan International Volunteer Center)	Activities (CARE): Construction and repair of rural roads which were damaged by flood Activities (JVC): Promotion of sustainable organic agriculture, micro-credit, Rice Bank, Cow Bank	EU	"PRASAC II" Activities: Rural water supply, agricultural development, rural credit
		UNDP	"Rural Development Project" (funded by the Human Resource Development Fund established by the Japanese Government) Activities: Technical assistance in the fields of agriculture, income generation, education, and health.
		LWS (NGO, Lutheran World Service)	"integrated Rural Development Projects" Activities: Providing support and knowledge to village people for their establishing self-support groups which enable them to control development activities.
Kampong Speu (Intermediate Area)			
Seila	Seila was started in 2001, however, it was still in a preparatory stage in June in 2002, . Activities of the program are expected to be started in 2003. Activities: Capacity building for local planning and decentralization	WFP	Activities: Constructions of roads, ponds, and canals, by the approach of the "Food for Work". Provision of food to pregnant and breastfeeding women.
ADB	Activities: Loan for rural road construction	LWS (NGO)	"Integrated Rural Development Project" Activities: Providing support and knowledge to village people for their establishing self-support groups which enable them to control development activities. An approximately 80 Km road connecting to the National Road No. 4 was construction by this NGO as an exceptional activity for this NGO.
The World Bank	Activities: Loan for rural road construction	CONCERN (NGO):	Activities: micro credit in 13 villages.
EU	"PRASAC (Support Program for the Agriculture Sector in Cambodia) II "Activities: Establishing rural water-user associations. Constructed a building in the compound of PRDD. Training government officials from departments in the province.	Cambodian Red Cross(NGO)	Activities: Distributed food and other material for families

Note: Yellow color = loan projects, Green color = bilateral donor's, Blue color = national projects/programs, Purple color = NGO's, White color = multilateral donor's.

(Cont'd)

Table K-9 Development Programs/Projects for Rural Development by Donor and NGOs (2/2)

Koah Kong (The Intermediate Area)		Kampot (The Intermediate Area)	
DANIDA	Activities: animal rising (a pilot project in Boeng Ka Chhang village), coastline environment management	Seila	Seila was started in 2001 and advanced to the stage that targeted communes formulated plans and obtained the approvals on their plans from the District Governor.
Sihanoukville		ADB	Activities: Loan for construction of schools, wells, irrigation, gravel roads (width: 4m)
ADB	Activities: Loan for road construction	GTZ	Activities : a) "Integrated Food Security Program", Technical Assistance to improve livelihood of villages facing food security issues through development of rural infrastructure, income generation, etc . The rural infrastructure development by this program contributed largely to improving villagers' access to markets and information. b) Technical Assistance to facilitate the Commune Councils.
Finland	Activities: Land title issues	IFAD	Activities: Financial support for the implementation of Seila
DANIDA	Activities: Coastal environmental management, such as protection of mangrove, and coral reef (pilot project). Formulation of cooperative of fishermen in Steang Hub District.	WFP (finished)	Activities: construction of roads (width: 2~3m) and ponds
IMO (International Maritime Organization)	Activities: Environmental Protection	Australian People for Health, Education and Development Abroad (NGO)	Activities: Vocational training for children from poor rural household. Training courses are conducted for the participants in free of charge and include freshwater fish rising, industrial skills. Courses for women such as repair of radios and other electric apparatuses, veterinarian works, sewing, hair-dressing, etc. are also conducted.
WFP	Road construction by the approach of "Food for Work".	Cambodian Women for Peace and Development (NGO)	Activities: Income generation of rural women through weaving
DONBOSCO (NGO)	Activities : Vocational training in both urban and rural areas		

Note: Yellow color = loan projects, Green color = bilateral donor's, Blue color = national projects/programs, Purple color = NGO's, White color = multilateral donor's.

K.6 SOCIAL SITUATIONS OF VILLAGES

K.6.1 Social Survey by the Study Team

A social survey was undertaken by a team of the Center d'Etude et de Developpement Agricole Cambodgien (CEDAC) in Phnom Penh to study and analyze the rural society in the Growth Corridor Area upon the request from the JICA Study Team.

(1) Outline of the survey

1) Objectives

The survey objectives were:

- To analyze present socio-economic conditions of the rural corridor area and,
- To identify needs, potentials and constraints for the rural development in the JICA growth corridor study area from the viewpoint of local people and communities.

The result of the survey were to be used in formulation of development plans of the proposed development corridor area.

2) Study area

The study area covered following provinces and municipality: Kandal, Takeo, Kampong Spoeu, Koah Kong, Kampot, and Sihanoukville.

3) Methodology

The survey applied the Rapid Rural Appraisal (RRA) to collect quantitative and qualitative information on socio-economic situations of the selected villages, with an emphasis on qualitative aspects, particularly those of development needs, potentials, and constraints of the villages.

Accordingly, in each selected village, the study team carried out the following tasks:

- a) Interviewing key informants in each village,
- b) Conducting two focus group discussions in each villages (one group of women and one group of men),
- c) Five case studies,
- d) Fifteen household surveys and,
- e) Observation

Separate questionnaires were formulated; one for key informants interviews, one for case studies, and one for household surveys. The two group discussions were conducted with pre-designed guidelines. Multiple choice, open and closed

questions were used in the questionnaires.

a) Key informant interview

The key informants interviewed were the chief of the village, active people in village development activities, people with higher educational background than other villagers, community leaders, and the chief of commune if he/she lived in the surveyed village. Village maps were drawn based on the information from the key informant during the interview.

b) Focus group discussion

The focus group aimed at to understand the socio-economic characteristics of local communities, to assess and obtain viewpoints at their development needs and constrains village level. Villagers who carry out different economic activities (motor taxi driver, teacher, farmer, community worker, etc.) were invited to join the group discussion to get relevant information on all existing economic activities. The number of the participants in the each discussion was limited to 10 to 15 people (**Figure K-5**).



Figure K-5 Focus Group Discussion of the RRA

The focus group discussion was carried out for male and female groups, in order to distinguish the development needs, potential and constraints from each gender's point of view, secondly in order to avoid single-gender domination in the group during the discussion process.

c) Household Case study (HHCS)

Five case studies were carried out in each village in order to understand livelihood systems and identify development needs, potential and constraints at household level. To get the most diversified cases, heads of household from different economic strata and conducting various economic activities in the village, were interviewed. The sample selection for the household case study (HHCS), was mainly based on the results of group discussions about the types of economic activity.

d) Household survey (HHS)

Fifteen household surveys in each selected village were carried out during the study. This survey aimed to collect complementary quantitative information to add to the information obtained through key informants interviews, focus group discussions, and case studies. Persons from different economic strata were selected and interviewed. For the sample selection for the HHS, stratified sampling was used. First the village households were roughly divided into different groups according to the housing settlement, and cropping or other economic activities. Then, the samples were selected according to the relative size of each group.

e) Observation

Observation was carried out in each village study. Some important indicators were observed, such as housing condition, soil color, animal husbandry, source of water etc.

4) Selection of villages

Eight villages in the six provinces and municipality (Kandal, Takeo, Kampong Speue, Koah Kong, Kampot, Sihanoukville, and) of the study area were selected. The selection of the studied villages was carried out based on the following criteria:

- a) Located in the areas regarded as “rural areas” in the above provinces and city.
- b) Access to National Road No. 3 or No. 4, along either National Road No. 3 or No. 4, or place where the access is relatively easy.
- c) Main economic activities of households:
 - Areas where main source of income is from agriculture/forestry/fishery or self-employment business,
 - Areas where main source of income is from wage income: no village in the study area was found to meet this criteria
- d) In each province/municipality of the study areas possess at least one village is selected for the study.

Names and location of the selected villages and number of respondents/responded households for RRA are indicated in **Table K-10**.

Table K-10 Villages, locations, number of Respondents/Responded households for RRA

	Greater Capital Area	Intermediate Area						Sihanoukville City	Total
Provinces	Kandal	Takaev	Kampong Speue	Kampong Speue	Kampot	Kampot	Koah Kong		
Villages	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab	Preak Tnaot	Touch	Ban Tiet	Cheung Kou	
HHS	16	15	16	15	14	15	16	15	122
HHCS	5	5	5	5	5	5	5	5	40
(Household)	(100)	(101)	(90)	(83)	(400)	(540*)	(180)	(197)	(1691)
FGD (M)	16	15	15	17	17	14	10	16	120
FGD (F)	20	14	14	25	14	11	17	18	133

Note: HHS=Household Survey, HHCS:=Household Case Study, (Household)=total number of households existed in the surveyed village, FGD (M)=Focus Group Discussion by male villagers, FGD (F)=Focus Group Discussion by female villagers

5) Survey Schedule

The survey was conducted according to the schedule below.

- Preparation May 26th to June 1st
- RRA June 2nd to June 22nd
- Report writing June 23rd to July 3rd

(2) Survey Result

This section describes, first, basic situations such as demography location of the surveyed villages, second, livelihood, third, situations of rural infrastructure, and social services. Crosscutting issues are also described. Finally, past development projects as well as villagers' wants for rural development are analyzed.

1) Demographic information

Demographic information of the surveyed villages was obtained as follows (**Table K-11**). Updated information was not available from the village chiefs in some villages.

Table K-11 Demographic information of the surveyed villages

	Greater Capital Area	Intermediate Area						Sihanoukville City	Total
Provinces	Kandal	Takaev	Kampong Speue	Kampong Speue	Kampot	Kampot	Koah Kong		
Villages	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab	Preak Tnaot	Touch	Ban Tiet	Cheung Kou	
Population	451	556	402	432*	1,377*	2,751*	888*	1711	8,568***
Female	229	294	201	214*	716*	1,447*	436*	528	4,065***
Household	100	101	90	83	400	540*	180	197	1,691***
Average number of family	5.31	4.67	5.06	6.20	6.5	5.67	5.63	6.53	5.70
Female-headed household	30	31	11	10	N/A	99	25	20	226
Household with PWD**	1	17	4	0	15	9	1	14	61

Note: * = Data from the National Census in 1998,** PWD=People with disability, ***= including data from the National Census in 1998.

Source: Key informant interview of the RRA

Ethnic and religious minorities

There were ethnic minorities and religious minorities in the surveyed villages; twenty families in Preak Tnaot village in Kmapot Province were the Cham who were Muslims, Ten families belonged to Veal Kandal village in Kandal Province were Catholics. It was alleged in the RRA that there were not problems and conflicts in relation to ethnic and religious differences. Only two among the eight surveyed villages had their own Buddhist pagodas. Villagers in other six villages went to pagodas in nearby villages.

2) *Location and historical background (Figure K-6)*

Greater Capital Area

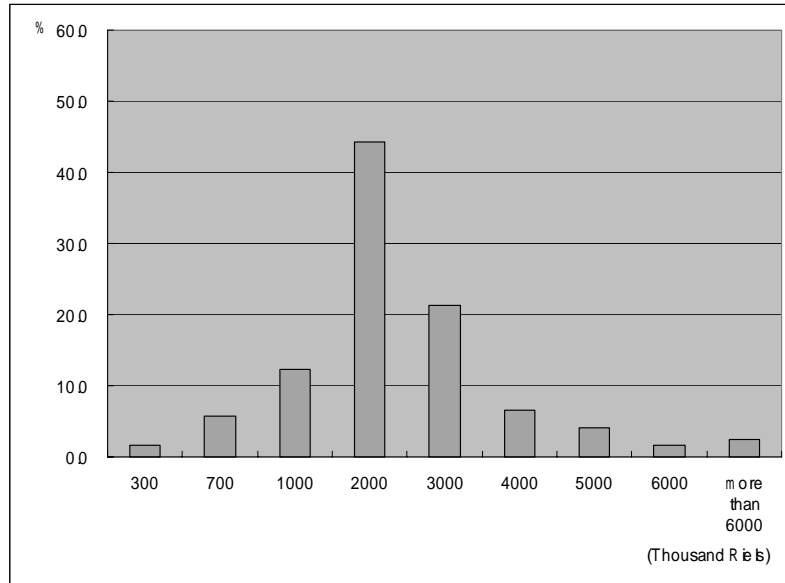
Veal Kandal village (Kandal province) : Located in the area where can be reached within 20 minutes by car from the center of Phnom Penh municipality and between the National Roads 3 and 4.

Intermediate Area

- a) Trapeang Sraengae village (Takev province): Located in the eastern part of the province. The nearest national road is the National Road No. 3.
- b) Trapeng Chrov village (Kampong Speue province) : Located rather closely to the National Road No.4.
- c) Bantoab (Kampong Speue province): Located 3 Km from National Road No.4 and almost relative closely to the mountainous to the Elephant Mountains.
- d) Preak Tnoat (Kampot province): Located along the National Road No. 3 and in the coastal area of the province. Had been almost isolated by 2002 due to bad conditions of the National Road No. 3. Large damage had been brought by the Khmer Rouge.
- e) Touch (Kampot province) : Located closely to the National Road No. 3 and Takaev province. Large damage had been brought by the Khmer Rouge
- f) Ban Tiet (Koah Kong province): A coastal village in a district having a boarder with Sihanoukville municipality. Located from 20 Km from National Road No. 4. From the village, need to use boats to go to the district town where was 12 Km away from the village.

Sihanoukville municipality

Cheung Kou : Located in the coastal area and along the National Road No. 4.

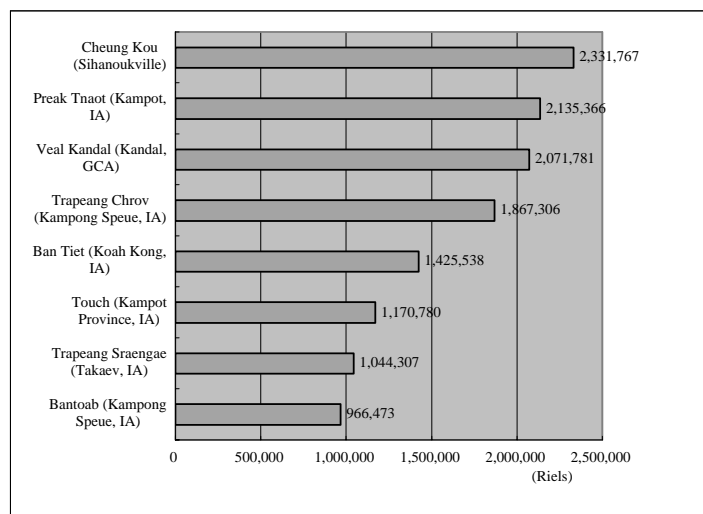


Source: Prepared by the Growth Corridor Study Team from the RRA

Figure K-7 Ranges of annual cash expenditures surveyed households

In terms of average annual cash expenditure of each surveyed village, that for Cheung Kou village (Sihanoukville Municipality) was the highest, followed by Preak Tnoat village (Kampot Province, the Intermediate Area) and Veal Kandal (Kandal Province, the Greater Capital Area). Since Preak Tnoat village was a fishing village, therefore, the livelihood depended on more on cash income than those of farming village where the agriculture was most often subsistence and the cash income should be higher as a result. From the fourth highest to the lowest average expenditure, those for villages in the Intermediate Area (**Figure K-8**).

Economic disparity existed among the three areas. The highest amount for Cheung Kou village (Sihanoukville Municipality) was 2.4 times large of the lowest for Bantoab village (Kampong Speue province).



Source: HHS of the RRA

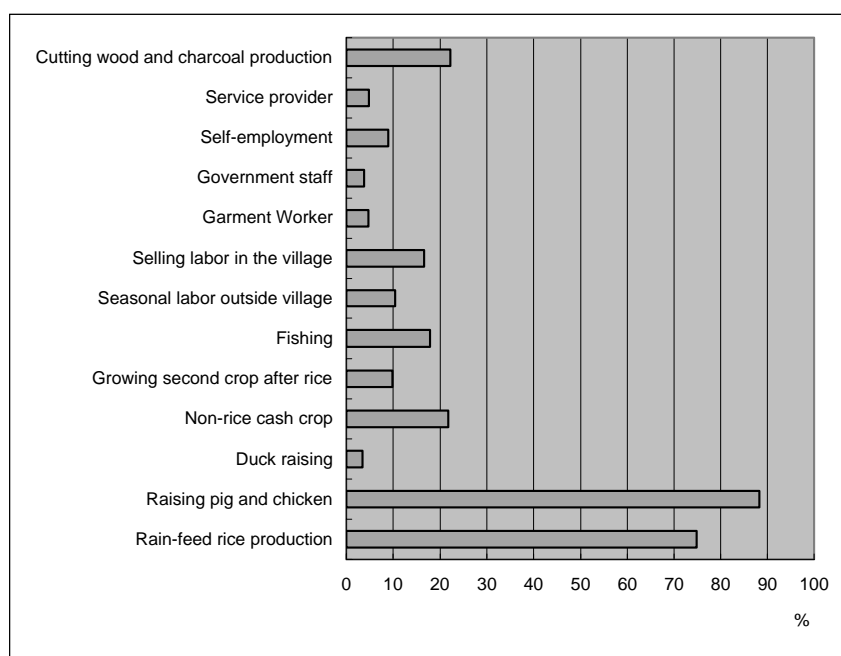
Figure K-8 Average Annual Cash Expenditure for the Surveyed Village

In the surveyed villages, expenditures for health services and those for ceremony are regarded as the main expenditures⁶⁵. Forty-five per cent of the all surveyed households regarded the expenditure for health service as one of the main expenditure, and 36.1 per cent that for ceremony.

4) *Main economic activities*

a) Agriculture

In all the surveyed villages, most of villagers conduct not only one production/economic activity but multiple, however, rain-fed rice production is the main economic activity except one fishing village (**Figure K-9**). Even in the two villages in the costal area rice production is their main economic activity. It should be noted that these production/economic activities did not necessarily earn cash income.



Source: Prepared by the Growth Corridor Study Team from the RRA.

Figure K-9 Economic activities in the surveyed villages

The rain-fed rice is the staple food for the villagers and is consumed for mainly the producing households, average production was as low as about 1.7 tons per hector⁶⁶. However, natural conditions restrict the rice production. Two restricting factors below are common in the surveyed villages, but there are peculiar factors for each area defined by topography of the area.

- Soil fertility is low most of the Growth Corridor Study Area

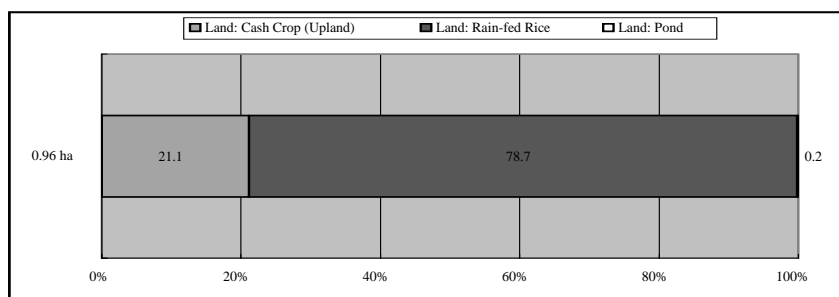
⁶⁵ The category of expenditure for “Others” is not included in this analysis.

⁶⁶ Calculated from HHS of the RRA.

- Pest and disease controls are not adequately conducted by farmers, and this reduces

i) Land holdings

Under these difficult natural conditions, the average land holding per household is small, and this restrained increases in rice production. The average land holding per household of the eight surveyed village is 0.96 ha, and the average land holding per household member is 17.4 a⁶⁷. Most of them were being used for rain-fed rice production (**Figure K-10**). This fits in the range of more than 10 a to less then 20 a, which was extracted from the cases in studied by Amakawa⁶⁸ on land redistribution after abolishment of collective production system in rural areas in Cambodia.



Source: Prepared by the Growth Corridor Study Team from the HHS of the RRA

Figure K-10 Structure of average land holding of surveyed households

ii) Irrigations

Irrigation systems existed in only two villages among the eight surveyed villages. The two villages were located in the Intermediate Area. Constructed ponds and reservoirs existed in seven villages. Only one village had a natural pond. Natural streams were being utilized in five villages.

iii) Agricultural Inputs

The inputs to rice-production as well as other crop production in the surveyed villages were limited. Villagers use chemical fertilizer in response to the low soil fertility of their land. The average use of chemical fertilizer by farmers was 70 kg/ha for rain-fed rice production and from 50 to 70 kg/ha for non-rice dry-season crop. Some use organic fertilizer, in addition to chemical fertilizers.

⁶⁷ The average number of household was 5.6 per household (number of the household=122).

⁶⁸ Naoko Amakawa, "System and Structure of Farmland Ownership: Restructuring Process after Pol Pot Regime" in Naoko Amakawa, ed., *Reconstruction and Development in Cambodia*, IDE Research Series No. 518, Institute of Development Economies, 2001. The distributed land per household member varies among different areas in Cambodia, but mostly more than 10 a to less then 20 a.

Use of agricultural machineries was also limited. Almost no households possessed agricultural machineries in the surveyed villages, 18 per cent of the households had cattle, and 20 per cent ox-carts (**Table K-12**). Rental of cattle and ox-carts were common among the villagers. Rental of tractors was carried out, but it was expensive that one household pays 100,000 Riels per tractor for plowing one hector, including a tractor-operator and gasoline.

Table K-12 Villagers' possession of tools for agriculture

Resources	Number of Family Possessing (total=122)	Percentage
Cattle	22	18.0
Ox-cart	25	20.5
Motor-pump	1	0.8
Motor-plow	1	0.8

Source: Prepared by the Growth Corridor Study Team based on HHS of the RRA.

5) *Food Security*

Food security was still a big challenge in some surveyed villages due to the restrictive factors in agricultural production described above. There were households that could not produce enough amount of rice for their own consumption. These households had to buy rice from sellers or borrow from relatives or neighbors, or borrow money for buying rice from money-lenders, relatives, or neighbors. The average land holding of each village and the percentage of the households suffered from “rice shortage three to six months” in the village highly correlated (Cor:0.95).

6) *Measures for earning cash income*

Survival of villagers who faces the shortage of rice production depends on how they can compensate the shortage with some measure for earning cash income for buying rice, or bartering something with rice, or borrowing money from somewhere. Among the surveyed 122 households, the measures for earning cash income and their ratios of the households engaged in them were found as follows (**Table K-13**).

Table K-13 Common measures for earning cash income

Economic measures	Ratio of households engaged in (%)	Rank	Economic measures	Ratio of households engaged in (%)	Rank
Raising Livestock	46.7	1	Fishing	8.2	11
Dilay Wage Loboring	40.2	2	Transportation service	8.2	12
Production and sales of non-rice cash crop	30.3	3	Medium trading and medium middlemen	7.4	13
Small trading and small middlemen	22.1	4	Village grocery shop	4.9	14
Collection of NTFP and fuel wood	18.9	5	Rice mill	2.5	15
Selling domestic fruit products	16.4	6	Government staff	0.8	16
Salary works	14.0	7	Others	56.6	17
Selling rice surplus	13.9	8			
Other Self-employment	9.8	9			
Donation from relatives	9.0	10			

Note: Total number of household is 122.

Source: HHS of the RRA.

a) Common measures

i) Raising livestock

The most common measure is raising livestock as indicated in **Table K-4**. The ratio of households engaging in them is 46.7 per cent. The households were applying simple techniques to raising livestock, and almost no veterinarian services were provide to their livestock. The farmers bought medicines including traditional medicines for treatment of illness of pigs.

Raising chickens and dugs was not regarded technically-challenging, and this seems to be the reason for being ranked as the most common measure. On the contrary, raising cattle generally requires higher investment than other livestock such as pigs, thus only limited number of households can raise cattle.

In addition, there were constraints of raising livestock in the surveyed villages.

External constraints:

- Dry and hot climate in March and April often endengered diseases to chickens and pigs.
- Shortage of water in dry season affects health of animals and causes diseases to them.

Internal constraints:

- Veterinary services are not sufficiently available in villages.
- Fodders are not enough due to low level of agricultural production.
- Land is not sufficient for livestock-raising due to the shortage of land

for cropping. Having limited land for cropping, farmers chose to grow crops for their own consumption first hand rather than livestock-raising⁶⁹. In addition, it is found that farmers do not usually share among them their land for fodder production.

ii) Daily wage laboring

The villagers sold labor for other farmers' farming activities within surveyed their own villages such as rice transplanting and cultivation, construction works, works for fruit or oil palm plantation, and tree-cutting, even some villagers work outside the village seasonally. Selling labor to other farmers' agricultural activities was an important cash earning measure for landless farmers.

iii) Production and sales non-rice cash crop

Thirty per cent of the surveyed households produced and sold non-rice cash crops as a measure for earning cash income (**Table K-13**). The households producing non-cash crops spread over the six villages among the surveyed eight. They produced variety of non-rice cash crop, such as water melon, pumpkin, tomato, sugar cane, scallion, etc. Non-cash crop was not produced at Preak Tnoat and Cheung Kou villages located along the coast.

b) Less common activities

i) Collection and sales of Non-Timber Forest Products (NTFP) and fuel wood

Among the surveyed households, 18.9 per cent engaged in collections and sales of NTFP and fuel wood (**Table K-13**). Exploitation of common natural resources among the villagers and sales of them were valuable measures for earning cash income, particularly during the dry season. Some villages were still able to cut trees from their common forest.

Other common natural resources found through the RRA were common land for non-rice cash crop production in the village, and fish in a lake. Most villages in the Intermediate Area had at least one kind of common natural resources. In contrast, one village in the Greater Capital Area (Kandal village, Kandal province) did not have any common natural resources (**Table K-14**).

⁶⁹ Chicken and pig raising is closely relating to the crop production of the households in most Cambodia.

Table K-14 Natural common resources

	The Greater Capital Area	the Intermediate Area						Sihanoukville
Province	Kandal	Takaev	Kampong Speue	Kampong Speue	Kampot	Kampot	Koah Kong	Sihanoukville
Village	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab	Preak Tnaot	Touch	Ban Tiet	Cheung Kou
Kind of common natural resources	-	-	-	Land for non-rice cash crop in the village	Land for non-rice cash crop in the village	-	Land for non-rice cash crop in the village	-
	-	-	-	Forest in the village	Forest in the village	-	Forest in the village	-
	-	+*	-	-	+*	Fish in a lake	Forest	Forest

Note: *=details unknown

Source: The Key Informant Interview and Focus Group Discussion

Issues relating to the exploitation of common natural resources were found in the RRA. The issues reflected the power relationship in the village; villagers with power often had advantages. Difference in villagers' access to necessary tools for the exploitation was another issue. Poorer villagers were often disadvantaged in these aspects.

ii) Salary worker/government staff

Salary jobs such as working for factories and civil service, from which regular cash income was obtained, were not common as measures for earning cash income, since the ratio of households conducting these was only about 15 per cent in total (**Table K-13**). Among the surveyed villages, the ratios of households of which members were working for garment factories varied, but low. An exceptional case was that of Veal Kandal village (Kandal province, the Greater Capital Area) being at about 50 per cent.

The lower ratio of engaging salary jobs implies that entry to salary jobs was not easy for the people in the surveyed villages since some levels of educational background and skills necessary for the entry did not prevail among the villagers⁷⁰. For example, it was said that young women who wanted to work as garment factory workers often had to have training for techniques of industrial sewing machines at vocational training centers/schools for the entrance examination of garment factories.

⁷⁰ It should be noted that there has been a clear tendency for employment of the garment factories that they have preferred women to men, particularly younger women. This gender imbalance emerged men's difficulties to get a job for a garment factory regardless their backgrounds.

iii) Self-employment

Following economic activities found were categorized as self-employment in the RRA; “trading and middlemen”, “transportation service”, “village grocery shop”, “rice mill”, and “other self-employment”. It should be noted that some of them were being conducted as side jobs of farmers. Among these jobs, the highest rate for farmers’ applying was 22.1 per cent (4th highest ratio among the 16 measures)⁷¹, and was distributed to the “small-scale trading and middlemen” (**Table K-13**). But the second highest, “other self-employment”, was only 9.8 per cent (9th highest ratio), and the third highest, “transportation service”, 8.2 per cent (12th highest) (**Table K-13**). Therefore, self-employment was not common in the surveyed villages.

The category of “other self-employment” included only limited kind of the so-called cottage industries such as sugar production from sugar palm, jar production, Khmer noodle production, battery charger, and so forth, and these were called “small-scale enterprise”. The ratio of the households operating “small-scale enterprise” to the total number of the households was only 6.1 per cent.

iv) Fishing

Only 8.2 per cent of the surveyed households were conducting fishing (**Table K-13**). Fish cultivation in pure water is generally regarded as an effective measure earning in cash income and increasing in protein intake of rural areas. However, fish cultivation in pure water was not common⁷² in the surveyed villages because of general shortage of water.

c) Disparities between the cash incomes from common and less common measures

The disparity in earned annual cash incomes between the more common measures for earning cash such as agricultural activities and the less common measures such as salary works was large. This implies that rural households tended to apply the cash-earning measures which earned only limited amount of cash and that reducing poverty in the rural area has been difficult due to this tendency.

i) Raising livestock

In spite of the highest ratio of the households raising livestock, raising livestock (46.7 per cent) was not well-paying job in the surveyed villages and earned the second lowest annual cash income from the bottom among the

⁷¹ “Others” in Table were not included in the 16 measures.

⁷² A NGO introduced fish cultivation to Touch Village in Kampot province in 1999, but the inappropriate soil conditions of the fish pond for storing water terminated the project. Prawn cultivation is conducted in the coastal area close to National Road No.3 in the same province, but not in the surveyed villages.

16 cash earning measures (**Table K-15**). The cash income from the most common measure, raising livestock, was 271,221 Riels and only 13.9 per cent of the highest cash income of 1,978,929 Riels from “medium trading and middlemen” (**Figure K-11**). It was also only 21.9 per cent of cash income from the third⁷³ highest income of 1,234,424 Riels from the salary works. For example, one household raised four to ten chicken annually and sold the chickens at 5,000 Riels per kg. Since one chicken was sold usually at about 6,000 Riels, thus, 24,000 to 60,000 Riels could be earned by each of the households.

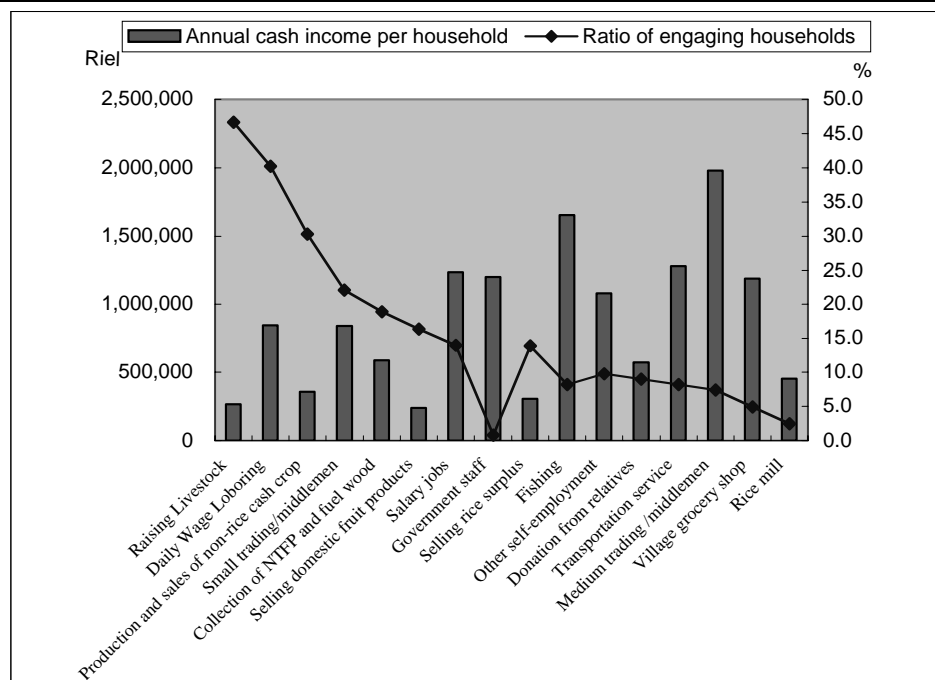
Table K-15 Annual Cash Income per household by various measures

Economic Measures	Annual cash income per household (Riels)	Rank	Economic Measures	Annual cash income per household (Riels)	Rank
Medium trading and medium middlemen	1978929.0	1	Donation from relatives	572,364	11
Fishing	1654730.0	2	Rice mill	453,333	12
Transportation service	1280250.0	3	Production and sales of non-rice cash crop	356,108	13
Salary works	1234424.0	4	Selling rice surplus	306,471	14
Government staff	1200000.0	5	Raising Livestock	264,982	15
Village grocery shop	1188250.0	6	Selling domestic fruit products	237,000	16
Other Self-employment	1080167.0	7	Others	204,941	17
Daily Wage Loboring	846327.0	8			
Small trading or small middlemen	843963.0	9			
Collection of NTFP and fuel wood	586848.0	10			

Note: Total number of household is 122.

Source: HHS of the RRA.

⁷³ The second highest is fishing (1,654,730 Riels), since fishing can be conducted as an income earning measure in specific areas, this section does not include it in the discussion.



Source: Prepared by the Growth Corridor Study Team from the RRA

Figure K-11 Measures for Earning Cash Income and Rates of Engaging Households

ii) Daily wage laboring

Although the second common measure, daily wage laboring brought in 846,327 Riels, about three times larger amount of cash than the “raising livestock”, and still came to 42.8 per cent of the cash income of 1,978,929 Riels from the “medium trading and middlemen” (**Figure K-11**). Earnings from daily wage laboring were from 4,000 to 6,000 Riels per day.

iii) Production and sales of non-rice cash crop

The third common measure is “selling non-cash crops”, but the cash income of 356,108 Riels from this was still only 18 per cent of the cash income of the “medium trading and middlemen” and 29 per cent of the income of 1,234,424 Riels from the salary jobs (**Figure K-11**).

iv) Collection and sales of Non-Timber Forest Products (NTFP) and fuel wood

Earning cash from collections of NTFP and fuel wood was a less common measure, 18.9 per cent of the surveyed households engaged in collections of NTFP and fuel wood (**Table K-13**). But the annual cash income from this measure valued at 586,848 Riels, which was twice higher than the income from raising livestock, the most common activities (**Table K-15**). Yet, the income was only 30 per cent of that from “medium trading and medium middlemen” (**Figure K-11**).

v) Fishing

Although fishing is a well-paying job (1,654,730 Riels) following income from medium trading/middlemen (**Table K-15**), only 8.2% of the surveyed households were engaging in fishing as stated above.

7) *Access to rural credit*

Micro-credit activities conducted by two NGOs (EMT and CRS) were utilized actively by the surveyed villagers in the year of 2000 and 2001. The borrowing amount of the credit for one household was from US\$ 20 to 24, which were relatively large amount for ordinary farmers in rural area. However, the severe affect of drought in 2001 had made the borrower-villagers face difficulties in repayment according to strict rules set by the NGOs. As a result, most of them ended up preferring informal credit mechanism (here informal means loans without formal written agreements between the borrows and lenders) to the credit system of NGOs⁷⁴. Although the interest rates of the informal credit system are high, for example, about 50% for one cropping season, but a favorable points of this system recognized by burrowers was that they can ask for and were allowed delay in repaying the interest and principle and are allowed the delay.

(3) Area-wise Features

1) *Greater Capital Area - Veal Kandal village in Kandal Province*

a) Annual household cash expenditure

The average amount of annual household expenditure for this village was the third highest among the all surveyed villages, following Cheung Kou village in Sihnoukville municipality and Preak Tnaot village, a fishing village, in Kampot province. There were no surveyed households at this village belonging to the annual expenditure range of less than 700,000.

b) Agriculture

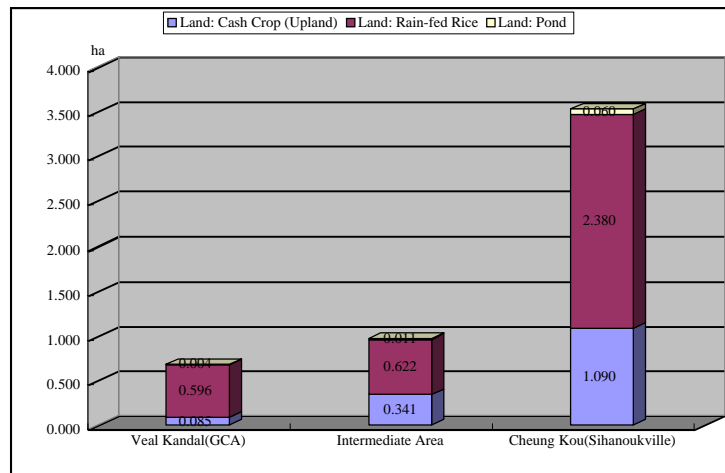
The staple crop production is rain-fed rice production. The short-term dry season in the mid July to the mid or end of August causes damages on the growth of rice in this village.

i) Land holding

The average land holding in Veal Kandal village was the smallest among the three areas. It is plausible that the higher population density in Kandal province caused by urbanization limited the land holding. The average land holding for the rain-fed rice production did not differ largely from that

⁷⁴ Some farmers used ACELDA. One household in Cheung Kaeu village borrowed money from ACELDA Bank for two years for livestock raising and repaid in the past. In 2002, it borrowed again at 4 % of interest rate and will repay it after one year from the disbursement.

for the Intermediate Area, but the land holding for cash crop (upland) differed significantly, that for Veal Kandal village was only one fourth for the Intermediate Area (**Figure K-12**).



Source: The RRA of the Study Team

Figure K-12 Average land holding in the three areas

c) Measures for earning cash income

Although large portion of households were engaging in rain-fed rice production (70 per cent) and raising livestock (80 per cent) similarly to other surveyed villages, higher number of the villagers working for garment factory at this village distinguished the economic activities.

i) Salary worker/government worker

It was found that certain number of villagers of this village depended on cash income, salaries, from garment factories. The ratios of the households of which members were working for garment factories was at about 50 per cent in the coastal villages.

ii) Daily wage laboring and seasonal works

Seasonal works outside the village and daily wage laboring inside the village were also active measures for earning cash income, following the works for the garment factories. However, the ratios were less than 20 per cent.

iii) Collection and sales of Non-Timber Forest Products (NTFP) and fuel wood

As no common natural resources existed at this village, such activities exploitation of common natural resources were not conducted.

2) *Intermediate Area*

a) Annual household cash expenditure

Except that for Preak Tnaot village, a fishing village, in Kampot province, the

average amounts of the annual household cash expenditure for all surveyed villages in this area were lower than that for each one village in the Greater Capital Area and Sihanoukville.

But among the villages in this area, again, disparity existed even in a province; there were better-off villages and worse-off villages within this area. The average amounts ranged from 966,473 Riels to 1,867,306 Riels.

Ratios of the households belonged to lower ranges of annual expenditure amount were higher in Trapeang Chrov viillage (Takaev province) and Touch villages (Kampot province); 53.3 per cent and 40 per cent respectively, belonged to the range of less than 1,000,000 Riels.

b) Main non-food cash expenditure

At four of six surveyed villages, an expenditure for health service was regarded as a substantial expenditure of the households. Particularly, 80 per cent of the surveyed households at Ban Tiet village in Koah Kong province regarded the expenditure for health services as the main expenditures.

c) Agriculture

Agriculture was the main industry in this area, and the main crop was rain-fed rice. Problems relating to water widespread as the fundamental problems with different characteristics by the geographical location of the villages. There were three types of problem; water shortage, heavy rain, and salty water.

- Water-shortage: villages in Takaev and Kampot provinces
- Heavy rain: Prek Tnoat village (Kampot province)
- Salty water: Ban Tiet village(Koah Kong province, the coastal area)

In addition, strong seasonal wind from the sea affected the rice at Prek Tnoat village (Kampot province, the coastal area)

i) Land holding

Although the livelihood in this Area heavily depended on agriculture production, the average land holding was less than 1 ha per household. The smallest average land holding per household was found for Bantoab village in Kampong Speue province at only 0.42 ha.

ii) Irrigations

Two among the all villages, Trapaeng Srangae village (Takev province) and Touch village (Kampot province) had irrigation systems. Even though, it was said by the villagers that the irrigation systems were not well functioning. As a result, the villagers often suffered from drought in the early rainy season and short dry season in the mid July to the mid or end of

August⁷⁵

d) Food Security

Food security in this area was not secured, and the problem of shortage of rice was severe and persistent in some villages. Because of the shortage of rice, some of surveyed households needed to buy rice, and 87.5 per cent⁷⁶ of them regarded the cash expenditure for buying rice was one of the main expenditure of the household. At Ban Tiet village (Koah Kong province), only 50 per cent of the households could produce enough amount of rice for their own consumption annually. Twenty per cent faces rice shortage for one to three months annually, and 30 per cent three to six months. At Bantoab village (Kampong Speue province), only 60 per cent of the households could produce enough amount of rice for their own consumption annually. Twenty per cent faces rice shortage for one to three months annually, and the rest 20 per cent three to six months. (**Table K-16**).

Table K-16 Ratio of households securing rice (%)

Percentage of Households	Kandal	Intermediary Area					Krong Preah Sihnouk
		Takaev	Kampong Speue	Kampong Speue	Koah Kong	Kampot	
	Veal Kandal	Trapaeng Srangae	Trapaeng Chrov	Bantoab	Ban Tiet	Touch	Cheung Kou
Enough	70	80	80	60	50	70	80
Shortge 1-6 months	30	20	20	40	50	30	20
Shortge 1-3 months	20	20	10	20	20	20	20
Shortge 3-6 months	10	0	10	20	30	10	0

Source: Key informant Interview and Focus Group Discussion of the RRA of the Study Team

e) Measures for earning cash income

Level of economic diversification limited in this area. Other than rain-fed rice production and livestock raising, major economic activities were growing second crop after rice cultivation and non-rice cash crop. Following these, only a small number of households were conducting different kind of measures. In extreme, economic activities of Touch village in Kampot province consisted by rain-fed rice production, raising livestock, cutting wood and charcoal production, and seasonal labor outside village. Combination of these activities could be concluded as being vulnerable against natural conditions such as climatic changes, crop diseases, pest, etc., and as having a risk not to obtain satisfactory level of cash income.

i) Daily wage laboring

Daily wage laboring was less common as a measure for earning cash

⁷⁵ JICA's study on agriculture production system in Slakou River Basin found that numbers of irrigation systems in the basin including Takeaev and Kampong Speue province were not functioning.

⁷⁶ Calculated from the data of HHS of RRA.

income in most surveyed villages in this area. Exceptions were cases for Prak Tnaot village (Kampot province) and Ban Tiet village (Koah Kong province). The former was a fishing village, therefore, it is plausible that fishermen without having own fishing boats of these two villages were working for fishing boat owners as laborers. The latter where plantations were one of the main economic activities had 60 per cent of the resident worked for the plantation as daily wage laborers.

ii) Collection and sales of NTFP and fuel wood

Collection and sales of NTFP and fuel wood, which could earn as twice large amount of cash income as that from raising livestock, were not existed, despite of the availability of natural common resources. Most of the exploitation of common natural resources remained at subsistence level.

Two villages, Preak Tnaot village (Kampot province) and Ban Tiet village (Koah Kong province) had more variety of common natural resources than other villages in this area; land for non-rice cash crop production, forest in the villages, and other kind of resources outside of villages. Bantaob village (Kampong Speue province) had only two kinds of common natural resources, common land for non-rice cash crop production and common forest. Trapeang Chrov village (Kampong Speue province) had no common natural resources.

iii) Salary worker/government staff

The job-opportunities created by the garment industries in Cambodia almost did not reach to the villagers in this area. At Touch (Takaev province), Trapeang Chrov (Kampong Speue province), Bantaob (Kampong Speue province), Ban Tiet villages (Koah Kong province), and Preak Tnaot village (Kampot province), the ratios of the household of which members were working for garment factories were less than 1 per cent. At Trapeang Sraengae villages (Takaev province), the ratio was around 10 per cent in four villages.

iv) Self-employment

Self-employment/business except agriculture and fishery was not common at the surveyed villages in this area

Box: Khmer noodle seller from Touch village

More than 100 women from Touch village were working in Phon Pehn as Khmer noodle sellers. They were living together in groups consisting 5 to 10 women, each paying 5 US dollars per month as rent. They made Khmer noodle from rice powder collectively and sell it individually, but shared the sales. Each member earned approximately 500 Riel per day.

3) *Sihanoukville*

a) Cheung Kou village

i) Annual household cash expenditure

The average amount of annual household expenditure for this village was highest among the all surveyed villages. There were no very poor households among the surveyed households; no surveyed household belonged to the expenditure range of less than 1,000,000 Riels. This contrasted with villages in other two areas of which some surveyed households belonged to lower ranges, particularly, with two villages in the Intermediate Area, Trapeang Chrov viillage (Takaev province) and Touch villages (Kampot province). They hold 53.3 per cent and 40 per cent of the surveyed households belonged to the range of less than 1,000,000 Riels, respectively.

ii) Main Economic Activities (agriculture)

Rain-fed rice production is the staple industry at this village. Since Cheung Kou village located along the northeast coast of the province, the rice production is affected by salty water which flowed in the paddy field due to broken points of polders, particularly when rain fall is less, such as in November. Heavy rain in the rice flowering season reduces rice production.⁷⁷

- Land holding

The land holding per household was the largest in this village, being at 3.5 ha per household. The rice production amount per ha is also known to be high as three ton per ha.⁷⁸

- Polders

The polders in Prey Nob district in Sihanouk municipality had been constructed in the 1930s and contributed to expanding arable area for rice production and brought in increases of rice production up to three tons per ha⁷⁹. Most of them were once broken due to the continual war and conflicts in Cambodia, but polder rehabilitation was started by two French NGOs⁸⁰.

iii) Food security

Due to sufficient amount of its rice production, this village did not face food

⁷⁷ Srae Amble and Cheung Kou villages are located in the area where the annual rain fall reaches up to approximately 4,000 mm.

⁷⁸ Pel Skha and Soun Seng, Rice Marketing Study in Prey Nup District and Sihanoukville, 2000.

⁷⁹ Pel Skha and Soun Seng, Rice Marketing Study in Prey Nup District and Sihanoukville, 2000.

⁸⁰ Pel Skha and Soun Seng, Rice Marketing Study in Prey Nup District and Sihanoukville, 2000.

security issues.

iv) Measures earning cash income

At this village, economic measures for earning cash income were not very diversified. Other than the production of rain-fed rice production, livestock raising and collection and sales of NTFP and fuel wood were the common measures.

- Collection and sales of NTFP, fuel wood

Approximately 60 per cent of households of the villagers cut trees from their common forest in the village and sold it.

- Salary works/Government Staff

Despite that Cheung Kou village was located on National Road No. 4 and in a district next to the district where garment and other factories and municipal offices were being operated, in total less than 10 per cent of households of the village has members were engaging in salary works and civil services. The ratio of household of which members were working for garment factories remained less than 3 per cent. Since the villagers wanted to have increased opportunity for engaging in off-farm jobs, the lower rates presumably indicated that either educational background, skills, or other qualifications required for working for factories were not match the villagers.

(4) Village infrastructure

The lower level of infrastructure development in the villages restricted increases⁷in rice productions and other economic activities and resulted in keeping the poor villagers being poor.

1) Road

The road conditions in the surveyed villages were relatively satisfactory as a whole, since after road conditions to/in the villages where had been almost isolated due to bad road conditions previously were improved. However, the remaining poor road conditions affected not only villagers' economic activities but also their use of health and education services (**Table K-17**).

2) Safe-drinking water

Access to safe drinking water, which is the main factor to prevent various kinds of diseases, especially infants' and children's diarrhea, were assured in three villages among the surveyed eight villages. These included Veal Kandal (Kandal province), Cheung Kou village (Sihanoukville), and Ban Tiet village (Koah Kong Province). This contrasted less advanced situation regarding to access to safe drinking water in the Intermediate Area.

In Trapaeng Chrov village (Kampong Speue province), some of the villagers needed to buy water (**Table K-17**).

3) Sanitation

Access to toilets was extremely limited among the surveyed households: only 4 households, about 3.3 per cent, among the 122 households had toilets (**Table K-16**).

Toilet: Even the village locations were relatively close to either the district center or an urban area, or on the national roads, the rate of household had toilet were still low at only 3.5%, 2.3%, and 1.6%, respectively.

4) Electricity

Three main sources for lighting exist in the rural areas, kerosene lamps, battery, and generators. Thirty-two per cent of the surveyed households were using only kerosene lamps. Sixty-two per cent of the surveyed households were using a battery and kerosene lamps for lightning. Only nine households, seven per cent owned a generator for household use (**Table K-17**).

Table K-17 Village Infrastructure

	Greater Capital Area	Intermediate Area						Sihnoukville
Province	Veal Kandal	Trapaeng Srangae	Trapaeng Chrov	Bantoab	Ban Tiet	Preak Tnoat	Touch	Cheung Kou
Village	Kandal	Takaev	Kampong Speue	Kampong Speue	Koah Kong	Kampot	Kampot	Sihnoukville
Road access								
Road condition to National Road	Good	Good	Good	Good	Poor	Good	Poor	Good
Access to drinking water								
Piped water (number of households)	0	0	0	0	0	0	0	0
Open well/drilled well	70% of all households	12(number)	Few(number)	Few(number)	60% of all households	4(number)	Few(number)	90% of all households
Pond/lake(number)	0	1	0	1(for drinking)	0	1	0	1
Canal/river(number)	0	1	0	0	0	1(for drinking)	1	2
Access to drinking water as a whole	Good	Poor	Poor	Medium	Good	Poor	Poor	Good
Access to sanitation								
Toilet(number of households)	1	1	0	0	0	2	0	0
Access to electricity(%)								
Battery and Kerosene	62.5	73.3	56.3	60.0	68.8	50.0	53.3	73.3
Kerosene	31.3	26.7	43.8	40.0	25.0	28.6	33.3	26.7
Battery	0.0	0.0	0.0	0.0	0.0	7.1	13.3	0.0
Generator	6.3	0.0	0.0	0.0	6.3	14.3	0.0	0.0

Source: Key Informant Interview, Group discussion, HHS of the RRA of the Study Team.

5) Materials of houses

Wood wall was the most common among the surveyed villages, seventy percent of

the household had wood wall. As for materials for the roof, 42 per cent of the households used Galvanized iron, 30 per cent thatch, and 25 per cent tile. About one third of the households thought that the conditions of their houses were “uncomfortable”.

6) *Access to markets*

The villagers can access to the markets without difficulties due to the relatively satisfactory road conditions except that those of Touch village (Kampot province), in addition the distance to the nearest market from each surveyed villages was not very long, from 2 Km to 8 Km (**Table K-18**).

Table K-18 Access to the nearest market

	Kandal	Intermediary Area						Krong Preah Sihnouk
		Takaev	Kampong Speue	Kampong Speue	Koah Kong	Kampot	Kampot	
	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab	Ban Tiet	Preak Tnaot	Touch	Cheung Kou
Nearest market (Km)	2	7	7	8	12	5	3	3

Source: Key Informant Interview, HHS, and HHCS of the RRA of the Study Team

(5) Social services

1) *Basic Education*

There were no primary schools at four of the eight surveyed villages, therefore, children in these villages went to schools in nearby villages. However, the approximate school enrollment rates at the primary level in the surveyed villages, which were informed by the villagers, were higher than those for the five provinces and one city in the National Population Census in 1998. The highest enrollment rate was 100 per cent, and the lowest 60% (**Table K-19**).

Table K-19 Schools and enrollment rates for basic education

	Greater Capital Area	Intermediate Area						Sihanoukville City
		Provinces	Takaev	Kampong Speue	Kampong Speue	Kampot	Kampot	
	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab	Preak Tnaot	Touch	Ban Tiet	Cheung Kou
Number of primary schools	0	0	0	1	1	0	1	1
Children enrolled (%)	100	90	80	100	70	90	60	100
Number of secondary schools	0	0	0	0	0	0	0	0

Source: Key Informant Interview and Group Discussion of RRA

Anecdotal case indicated that lower level of education caused a tragic health problem in Ban Tiet village (Koah Kong province); 15 persons of the village died from drinking bad quality of an alcoholic beverage without knowing the danger.

Three reasons can be analyzed for the parents of the surveyed villages not sending their children to upper levels of education.

a) *Poverty.*

- b) Difficulty of physical access; Ban Tiet village and Praek Tnaot village had been almost isolated by the end of 2001, and the enrollment rates at the primary level in the two villages were 60 per cent and 70 per cent, respectively. The 60 per cent for Ban Tiet village was the lowest among the eight surveyed villages.
- c) The parents wanted their children to help them in productive activities and domestic chores, more than to go to schools. This tendency was reinforced by a perception of villagers that if their children became able to read and write, no additional education for them was necessary. As a result, there were certain numbers of villagers who had finished only a-few-years primary school education. Therefore, income level of household in villages and the enrollment rate did not necessarily have a liner relation.

(2) *Health Services*

There were no health centers in the surveyed villages, this was due to a government policy that health centers are established based on the number of population under the concept of the Operation District for health services (**Table K-20**). The surveyed villages were too small to have a health center according to the policy. Therefore, the villagers needed to the nearest health centers or the district health center to which the distance from the village varied from three to 12 Km (**Table K-20**). Thus, transportation costs were incurred to some villagers to visit near by health centers.

Table K-20 Access to health centers

	Kandal	Intermediary Area						Krong Preah Sihnouk
		Takaev	Kampong Speue	Kampong Speue	Koah Kong	Kampot	Kampot	
	Veal Kandal	Trapaeng Srangae	Trapaeng Chrov	Bantoab	Ban Tiet	Preak Tnoat	Touch	Cheung Kou
Health Center	None	None	None	None	None	None	None	None
Nearest District Health Center (Km)	N/A	7	7	8	12	5	7	3

Source: Key Informant Interview, HHS, and HHCS of the RRA of the Study Team

Cost of health service was a burden for some villagers. Among 40 households interviewed for HHCS of this RRA, one household sold their land for health services and became landless.

Most of the households (about 98%) surveyed in HHS are using public health facilities. However, the villagers preferred the private health services to the public health services, because they regarded the public services were not reliable in terms of quality and constant availability, and because they usually needed to buy medicine prescribed at the public health facilities, similarly to the case they visit private health facilities.

Box: Health situations

Not detailed data was obtained in the RRA, only names of diseases and sick conditions occurred to the villagers in last year were obtained through the HHCS. The most common diseases were malaria, and the most common sick conditions were stomach ache, weakness, and women's reproductive health problems.

(6) Collective Activities for production

Differences were found in farmers' tendency in applying group activities for production and other economic activities by the distance from the village to the market center and by the level of diversification of economic activities in the villages, although detailed data was not able to obtain. When the villages were located near to the market center, hiring labor instead of mutual help among the villagers was more often applied. When diversification of economic activities in the villages were advanced, hiring labor was more often applied. At Ban Tiet village (Koah Kong province) where road access and economic diversification were still limited, a NGO project established a mutual support group conducting collective raising of buffalo and the so-called rice bank. Sharing agriculture equipment among the villagers was also decreasing, due to the increases in availability of rental of agricultural equipment.

Collective activities of managing newly constructed or improved infrastructure such as road, irrigation, drinking-water sources in the community were increasing, but evaluation of operation of these collective activities, independent further detailed studies are necessary.

(7) Cross-cutting issues

1) Gender issues

People in the surveyed villages regarded that men and women had equal responsibility but performed different roles by gender based on their differences in physical strength and skillfulness. For example, works require physical strength such as tilling and cutting trees were regarded men's works, and weeding, planting and selling products women's works (**Table K-21**). However, it was believed in the surveyed villages that security problems hinder the opportunities of women including school girl-students to go outside the villages. Working for a garment factory was newly emerged job in some villages almost exclusively for women.

Table K-21 Activities by gender

Activities	Women	Men
Agricultural activities		X
Tilling		X
Weeding	X	
Planting	X	
Application of fertilizer	X	
Clearing land		X
Taking care of livestock		
Taking care of cattle		X
Taking care of chickens and pigs	X	
Collection of fuel wood		X
Fishing		X
Running grocery shops	X	
Selling agricultural products	X	
Domestic chores	X	
Taking care of children	X	
Labor outside village	(X)*	X

Note: (X)*=younger women worked as factory workers outside the village recently.

Married women could make decisions independently from their husbands in the family on things not requiring large amount of money. But decisions on those requiring large amount of money were to be made by the husbands (**Table K-22**)

Table K-22 Decision-making by gender

Contents of decision-making	Women	Men
Sending children outside the village for their works	+++	+
Purchasing foods and other daily necessary goods	+++	+
Purchasing housing materials and furniture	+++	+
Selling products	+++	+
Starting new economic activities	+	+++
Borrowing credit	++	+
Selling property in economic difficulties	++	++

Source: RRA by the Study Team

Note: + to +++ level of influence increases in

Women had access to almost same productive resources as men, but their level of access was lower than men's (**Table K-23**). Thus, it could be concluded that women's use of these resources were lower.

Table K-23 Access to resources by gender

Types of resource	Women	Men
Common land in the community	+	+++
Forest	+	+++
Non-timber forest product (NTFP)	+	+++
Sea Fish	+	+++
Fresh fish and fish in paddy field	++	++
Reservoir	+	+++

Source: RRA by the Study Team

Note: + to +++ level of using resource is increased

2) *Vulnerable people*

The average rate of female-headed households to the total households of the village was 18.1%. There were two villages of which the rate of female households were about 30 %⁸¹. The reason for the women's being household heads varied, including genocide by the Khmer Rouge, the war against Vietnam, diseases, accidents, so forth.

The highest ratio of the people with disability was about 3 per cent, and the lowest 0.2 per cent. Compared with 0.14 per cent of the national average calculated from the National Census 1988, this figure is slightly higher⁸².

(8) **Development Activities and Villagers' Wants**

1) *Current and past development projects*

Only four development projects were being implemented at some of the surveyed villages (columns colored in yellow in **Table K-24**) as of July in 2002. Two of them were in the field of education, one in agriculture, and another in capacity building. Three of them were being implemented in the villages in the Intermediate Area and one in Sihanoukville City. Concentration of NGO projects in particular villages in the Intermediate Area have been found (**Table K-24**).

⁸¹ Total population and population by gender of Prek Tnaot village, Touch village, Ban Tiet village, and Bantao village at the time of RRA were not known because the village chiefs of these village did not have updated data. Number of households of Touch village and that of female-headed households of Prek Tnaot village were also not known due to the same reason.

⁸² Reasons for this were not analyzed in the RRA.

Table K-24 Current and Past Development Projects

The Intermediate Area:				
Province	Kandal Province	Takaev	Kampong Speuc	Kampong Speuc
Village	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantoab
Project being conducted	[Rural Credit]: used by some villagers (ACLEDA)	[Education]: supporting formal education with curriculum and breakfast for children in primary school (EQUIP).	[Education]: supporting formal education with curriculum and breakfast for children in primary school (EQUIP).	No projects were being conducted
		[Capacity building]: training on VDC to village development program workers (SEILA).		
Project finished, not active (rural credit)	No projects were being conducted	[Agriculture]: providing training on IPM (Integrated Pest Management) techniques (IPM).	[Agriculture]: providing training on IPM (Integrated Pest Management) techniques (IPM).	[Rural Credit]: not actively used (EMT) .
		[Rural Credit]: not actively used (EMT) .	[Health]: educating and campaigning about hemorrhagic fever (RED CROSS).	
		[Rural Credit]: not actively used (CRS).	[Micro-Credit]: providing credit with families ¹⁾ . (ARON RAS)	
The Intermediate Area				
Province	Kampot	Kampot	Kaoh Kong	Sihanoukville City
Village	Prek Tnaot	Touch	Ban Tiet	Sihanoukville City Cheung Kou
Project being conducted	No projects were being conducted	[Rural Credit]: being used by some villagers (ACLEDA)	No projects were being conducted	[Agriculture]: agricultural development and small scale dam repair in the polder area (GRET/ANS).
				[Rural Credit]: being used by some villagers (ACLEDA)
Project finished, not active (rural credit)	[Agriculture](AFSC),	[Fish cultivation]: training in fish raising and providing (APHEDA/FFP).	[Agriculture](AFSC),	[Health]: providing treatment for disabled persons (LICADHO).
	[Village Development] supporting community mobilization and leadership training (AFSC)	[Rural Credit]: not actively used (EMT) .	[Village Development] supporting community mobilization and leadership training (AFSC)	[Rural Credit]: not actively used (EMT) .
	[Environment]: supporting the Mangrove planting activity (DANIDA).			
	[Agriculture]: providing chickens and vegetable seeds (DANIDA).			
	[Water Supply]: providing one pond in Pagoda (DANIDA).			
	[Agriculture]: providing chickens and vegetable seeds (DANIDA).			
	[Education]: providing one school building with 5 rooms (ASAC).			

Note: Yellow colume=project being implemented, Gray colume=project implemented in the past, 1)=Implementation of the project laste only around 3 months in the village due to farmers not paying back loans. The information listed above were compiled from the RRA by the Growth Corridor Study Team

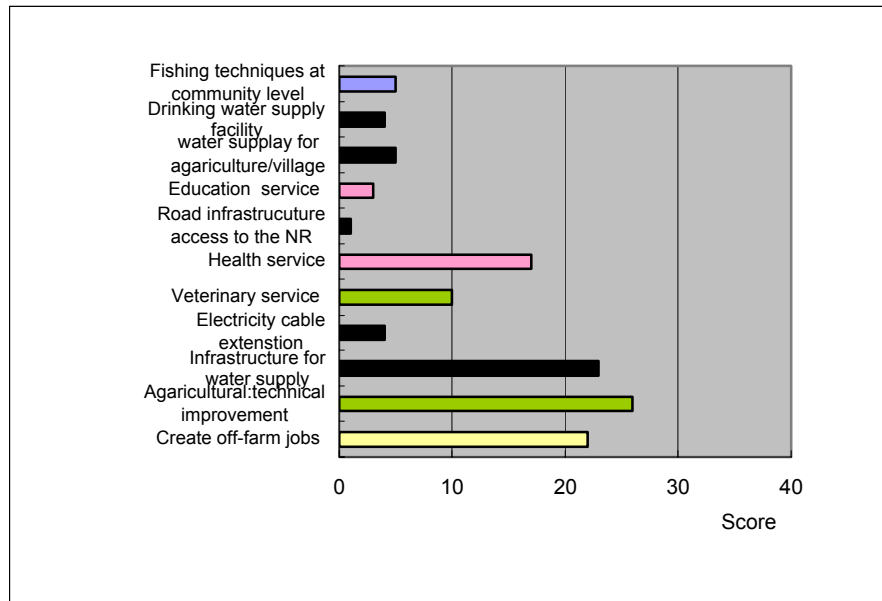
Source: The RRA by the Growth Corridor Study Team

Source: Prepared by the Growth Corridor Study Team from the RRA

2) Villagers' needs for development⁸³

Through the RRA, villagers' development priorities were found and scored; by village, the first prioritized want was scored five points, second four points, third three points, fourth two points, fifth one point (**Figure K-13**).

⁸³ Wants here extracted from the focus group discussion and other surveys in the RRA, but are not based on full discussions and processes for the particular purpose of extracting development needs, and the villagers participated in were selected not through thorough reviews for the particular purpose.



Source: The RRA of the Study Team

Figure K-13 Villagers' development wants (scored)

Development wants for agriculture technical improvement was regarded as higher in all surveyed villages except one fishing village, reflecting the low productivity of agriculture in the surveyed villages. This want was ranked as the first from third priorities among the seven out of eight surveyed villages. Development want for infrastructure for water supply for agriculture was also regarded as highly important in the all surveyed villages except one, reflecting the water shortage for agriculture. Creation of off-farm job opportunities was another highly prioritized want. Want for provision of the veterinary services did not surpass these wants, but ranked as one of the five prioritized development wants at four villages out of eight. Among social services, improvement of health services was ranked as the first to the third priority in the five villages.

3) Area-wise features

At the village level, bipolarization of development wants had been emerged. Villages like Veal Kandal village (Kandal province, the Greater Capital Area) and Cheung Kou village (Sihanoukville City) located in relatively closely to the areas where industrial development advanced further than other areas, creation of off-farm job opportunities were regarded as the highest priority. In contrast, at some villages in the Intermediate Area, very basic infrastructure development and improvement of social services were prioritized (**Table K-25**).

Table K-25 Prioritized villagers' wants for development project

Greater Capital Area	Intermediate Area							Sihanoukville
	Kandal	Takaev	Kampong Speue	Kampong Speue	Koah Kong	Kampot	Kampot	Sihanoukville
Village	Veal Kandal	Trapeang Sraengae	Trapeang Chrov	Bantaob	Ban Tiet	Touch	Prek Tnaot	Cheung Kou
First	Create off-farm job opportunity	Infrastructure for agriculture: water supply	Infrastructure for agriculture: water supply	Social service: Improve health service	Agriculture: technical support	Infrastructure: Infrastructure for agriculture: water supply and village road and bridge	Fishery: Support the establishment on community fisheries.	Create off-farm job opportunity
Second	Agriculture: technical support	Agriculture: technical support	Create off-farm job opportunity	Create off-farm job opportunity	Infrastructure for agriculture: water management	Infrastructure for agriculture: water supply	Agriculture: Providing the veterinary service	Agriculture: technical support
Third	Infrastructure for agriculture: water supply	Social service: Improve health service	Agriculture: technical support	Agriculture: technical support	Social service: Improve health service	Agriculture: technical support	Social service: Improve health service	Social service: Improve health service
Fourth	Infrastructure: electricity cable	Create off-farm job opportunity	Agriculture: Providing the veterinary service	Agriculture: Providing the veterinary service	Social service: Improve the quality of education service	Infrastructure for agriculture: water supply	Infrastructure for agriculture: water management	Infrastructure for agriculture: water supply
Fifth	Agriculture: Providing the veterinary service	Infrastructure: Improve road access to the NR	Infrastructure: electricity cable	Infrastructure: electricity cable	Agriculture: Providing the veterinary service	Create off-farm job opportunity	Create off-farm job opportunity	Social service: Improve the quality of education service

Source: The RRA of the Study Team

a) Greater Capital Area - Veal Kandal village

The villagers did not recall during the RRA any development projects implemented in the past.

The highest development priority was put on creation of off-farm jobs, followed by improvement agricultural technology, and infrastructure development for water supply for agriculture. This combination reflects the characteristics of the village situated in the suburb of Phnom Penh municipality.

i) Intermediate Area

Projects to improve agricultural technology had been implemented four villages in the past, and being implemented in one village, reflecting the lower level of agricultural technology. Other past development projects included those for health, education, and rural development.

The villagers wanted development of infrastructure for water supply for agriculture eagerly and put on higher priorities. Supports for improvement of agricultural technology were also highly desired. Other than these two, their wants varied among villages, and reflected different levels of development of their villages. Thus, they included rather basic infrastructure development of village roads and drinking water (Touch village in Kampot province), and improvement of health services (Bantob

village in Kampong Speue province, Ban Tiet village in Koah Kong province, and Preak Tnoat village in Kampot province).

Interesting enough, at two villages in Kampong Speue province, Trapeang Chrov and Bantoab villages, the villagers put the second highest priority on the creation of off-farm job opportunities. This could be attributed to their recognition of attractiveness of off-farm jobs which had been created by factories in the area of province closely to Phnom Penh municipality.

ii) Sihanoukville - Cheung Kou village

Past development projects at this village did not differ from main ones in the Intermediate Area, projects for improvement of agricultural technology and health.

Similarly to Veal Kandal village in the Greater Capital Area, the highest development priority was put on creation of off-farm jobs, and the second on improvement of agricultural technology. But a difference existed in that the villagers still wanted social services, health and education, to be improved.

At the village level, bipolarization of development need had been emerged. Villages like Veal Kandal village (Kandal province, the Greater Capital Area) and Cheung Kou village (Sihanoukville City) located in relatively closely to the areas where industrial development advanced further than other areas, wants for creation of off-farm job opportunities were regarded as the highest priority. In contrast, in Touch village (Kampot province) in the Intermediate Area, basic infrastructure development of road and drinking water and repair of broken canal being used for irrigation were ranked as the first, second, and fourth priorities, respectively.

K.7 ISSUES TO BE ADDRESSED

K.7.1 Greater Capita Area (Kandal Province)

(1) Income generation activities

The proximity of this province to the Phnom Penh Municipality has been providing advantageously with economic opportunities to the residents, for example, the employment of factories. This advantage should be utilized further in income generation activities of farmers targeting at the market of Phnom Penh Municipality.

1) The Vulnerable People

As whole, the real situations of these vulnerable people have not been grasped and documented satisfactory by even lower level of the administrations. Official support for the vulnerable people has been severely limited due to lack of financial and human resources in the public sector. Prospective economic

development of Kandal province as the suburb of the Phnom Penh Municipality should bring in rapid socio-economic changes in the province. In these changes, the vulnerable people such as female-heads of households and people with disability, who receive almost no support from the public sector and are inadequately equipped with means to earn income, would be the last and least benefited from the economic development, if they do not gain skills and opportunities to increase in their income. The socio-economic changes have also a possibility to increase in the number of marginalize people such as street children. Those people also should be provided with the skills and opportunities.

K.7.2 Intermediate Area

(1) Rural Infrastructure Development

Inadequate rural infrastructure is depriving villagers' opportunities to improve their economic situation and quality of life. Very basic rural infrastructure, such as rural roads, small scale irrigation, drinking water supply facilities, which could earn high development effects, is mostly inadequate.

1) Agricultural Technology

Level of techniques applied in agriculture by rural farmers is generally primitive, partly due to this, farmers have not been able to increase in their production and prevent damages caused by pest and diseases of livestock. Introduced techniques and concepts for addressing present issue by development projects of donors and NGOs have often exceed the farmers' capacity for their daily application and faced issues of sustainability, one the other hand.

2) Health education

Access to health services in the rural area in the Growth Corridor Study Area has not been assured because of the physical difficulties, the lower quality of services provided by the government, and high cost of health services. While the improvement of these issues on the service providers' side continues to require massive efforts and time from the government, donors, and NGOs, lack of knowledge of villagers on health issues and resulted lack of their taking appropriate actions have made them incapable to prevent disease.

K.7.3 Sihanoukville

(1) Gender issues

Most workers of garment factories are said to be young daughters from poor rural families around the countries and living in factory dormitories or rent rooms in houses nearby factories. They can earn certain amount of US dollars per month, at least approximately US\$45⁸⁴. This makes some of poor rural households

⁸⁴ US\$45.00 is the minimum monthly wage for a regular worker of the garment industry.

which seldom earn such high amount of cash income aspire their daughters to work for garment factories, without thinking about their skill levels, and life and working conditions as factory workers.

While the life and working conditions of such workers are not known in details, the workers conduct strikes rather abruptly, requesting improvement of their working conditions. In addition, the International Labor Organization has inspected the working conditions and recommended further improvement of the working conditions.

Yet further studies are necessary, in the earlier stage of industrialization of Thailand, the Philippines, Hong Kong, and the southern part of China, a large number of young female unskilled workers worked for factories and sometimes experienced deteriorated working conditions, including those in EPZ/SEZ. This experience indicates that setting up new regulations and incentives for investors in the Special Promotion Zone, the Promotion Zone, or the Free Zone (FZ) in the Growth Corridor Area to attract investors would require careful consideration for the working conditions.

1) Expanding informal settlements by newly immigrated population

Mittaphep District of Sihanoukville, an urban area, has been experiencing a rapid inflow of population. Recently, job opportunities for dock works, fishing, construction, factories, have attracted and absorbed the new comers. In addition, the projected future population growth rates in Sihanoukville are alarmingly high⁸⁵. Therefore, urgent measures to develop economic and social infrastructure should be needed. Strengthening the education and health administrations and services is also urgently required.

The new comers flowed in often from poor neighbor provinces in south Cambodian provinces, most of whom were poor farmers, and some of them brought along their families. Some of the new comers, however, have ended up being poorly paid daily waged workers or fishermen, and settling informally in some areas. The basic infrastructure such as roads, water supply facilities, sanitation, and social services in these informal settlements are inadequate. These circumstances tend to work negatively on the residents, causing diseases and crimes and making their poverty pervasive.

There has been no mechanism to facilitate the people to participate in and take initiatives in development process of their living conditions, although their participation and initiative are imperative to sustainable development of their communities. Large volume of population is expected to continue to flow, so that, the situations of the informal settlement areas would be further deteriorated without urgently implementing participatory community development programs.

⁸⁵ It was projected to be at 4.2 per cent for the term from 2000 to 2008 and 3.6 per cent for 2008 to 2015.

2) *Land issues*

138 families were acknowledged and confirmed to be resettled as of February in 2003 in the land for the most up-dated plan of the FZ of 41 ha by the commune councils and the Sihanoukville Port Authority (PAS)⁸⁶. In addition, the PAS made agreements with these families regarding their resettlement to a nearby land of the planned FZ land, having purchased the land for the resettlement.

Parts of the areas of Tumnob Rolok Village and Tamei Village, are overlapping the PAS's planned area for the port extension and that for extension of the FZ for which the Study Team conducted a feasibility study. The number of families therein is said to be about 2,000 in total⁸⁷ if the development is executed according to the PAS's original plans. Due to the complexity of land registration system in Cambodia, land ownership of the residents documented/registered at the commune level and that of the registered at the national level are co-existing, and both regarded effective in the context of the Cambodian society. Therefore, detailed research involving different levels of the administration and participation of stakeholders in the early stage of development projects is imperative.

K.8 STRATEGY FOR SOCIAL DEVELOPMENT IN RURAL AREA

K.8.1 Overall Strategy for Social Development in Rural Area

Some tangible results have been earned in poverty reduction and the rural development by the ongoing efforts by RGC in collaboration with development partners. Currently, RGC recognizes the poverty reduction as the overall goal of SEDP II (Target year: 2005), and sets the following objectives for the social development (**Table K-26**).

Table K-26 SEDP II Objectives

SEDP II Objectives
Overall Goal Poverty Reduction
Social Development
Health and Nutrition
Improvement of the infant mortality
Improvement of the maternal mortality rate
Improvement of nutrition status of children under 5 years old
Education
Increases in primary education attainment and functional literate and numerate
Physical infrastructure and utilities
Improvement of access of the people to safe drinking water
improvement of access of the people to sanitation facilities (toilets)
Expansion of irrigated areas

Source: SEDP II, P.49,72.

Following essentially the policy directions of RGC on the issue of social

⁸⁶ For more details, please refer to the section on the IEE for the FZ area in the Growth Corridor Study.

⁸⁷ This number was explained to the Study Team by the Vice Governor of Mittapheap District in October in 2002.

development, the following overall strategies are adopted for the social development in the rural area of the Growth Corridor Area.

(1) Reduction of Poverty

Poverty reduction is still the most important and urgent issue in the area. Poverty should be reduced through enhanced development of small scale rural and basic infrastructure of which inadequacy has posed heavy burdens on the poor and kept the poor in the poverty.

(2) Additional Income Generation

Opportunities of generating additional income have not been fully utilized by the poor farmers as well as the vulnerable people in the area, due to their low level of skills, that of access to the market information, lack of a producer organization.

K.8.2 Area-Specific Sector Strategy for Social Development in Rural Area

Effective development approaches for rural development in the Growth Corridor Area are defined as follows based on the situation and problem analyses in previous sections. Based on the strategy , projects are recommended and attached to this paper.

The following are the area-specific strategies for social development in rural areas.

(1) Sihanoukville

As Sihanoukville is a quickly growing city, promoting community participation in community development particularly in the informal settlements is effective means of adaptation to development.

The community participation can be rendered through the establishing and building of a Committee for Community Development (CCD), consisting of representatives of the residents, officials of the municipality in charge of community development and NGOs. This aims at catering to development needs of the communities as well as facilitating self-help efforts of the residents.

(2) Greater Phnom Penh Area

The rural area in the outskirts of Phnom Penh and in Kandal Province is another area going through rapid urbanization. The comparative advantage of rural areas in the Greater Phnom Penh Area is the proximity to the large and active city.

In spite of increasing off-farm job opportunities at factories or in the city, on-farm income generation opportunities are an important instrument for the farmers in this area. Enhancement of on-farm income generation could be realized through providing farmers with relevant market information, upgrading their technologies and skills. In addition, encouraging farmers to establish a producer organization will be effective in the medium term.

Supporting the empowerment of the vulnerable people will be necessary, through providing with training of skills and opportunities for income generation. Collaborating with existing NGO activities will be desirable, in order to secure effective and timely progress, and devising constant support necessary for the vulnerable.

(3) Intermediate Area

Realizing quick betterment of the quality of life in the rural villages laden with persistent poverty is urgently needed. One approach for this issue is implementation of small-scale rural infrastructure development in response to the basic needs prioritized through a participatory process. This should be accompanied with measures for increasing the cash income and raise the agricultural productivity. The design of infrastructure should such that would require less financial and technical resources for maintenance and operation, while participation of the rural people in the operation and maintenance in the villages should be encouraged for maintaining the sustainability.

Promoting the empowerment of rural people through health education for preventing diseases and promoting health conditions is considered to be necessary.

(4) Strategy Common for All Areas

An aspect common to all the three areas is the role and capacity of the government. The underlying strategy for this common issue is the following;

Accelerating efforts for rural development by shifting emphasis of allocation of the government budget more to rural area from the urban.

Enhancement of efficiency of program implementation through concentrating available resources to small-scale development programs and projects thus raising the speed of the development, strengthening coordination among development partners. Coordination with Seila, which is contributing to the capacity building at the commune councils, the administrative core of the rural areas, is considered important.

Encouraging participation of the people, particularly the youth, at the commune and village levels in consideration of gender issues, to implement more effective and appropriate projects to facilitate their self-help efforts, and to ensure the sustainability.

Supporting the on-going efforts by RGC in cooperation with international donors for clarification and registration of land titles.

K.8.3 Scenario for Social Development for Rural Area

Considering the persistent poverty in Intermediate Area, quick remedy of the situation is the most urgent and central task of the rural development. The issues

of the other two areas also need responsive measures in parallel as the poverty is equally serious in the areas. Thus, the budgetary and program emphases on the programs for each area should be maneuvered in the short, medium, and long terms, according to the relative urgency of the projects.

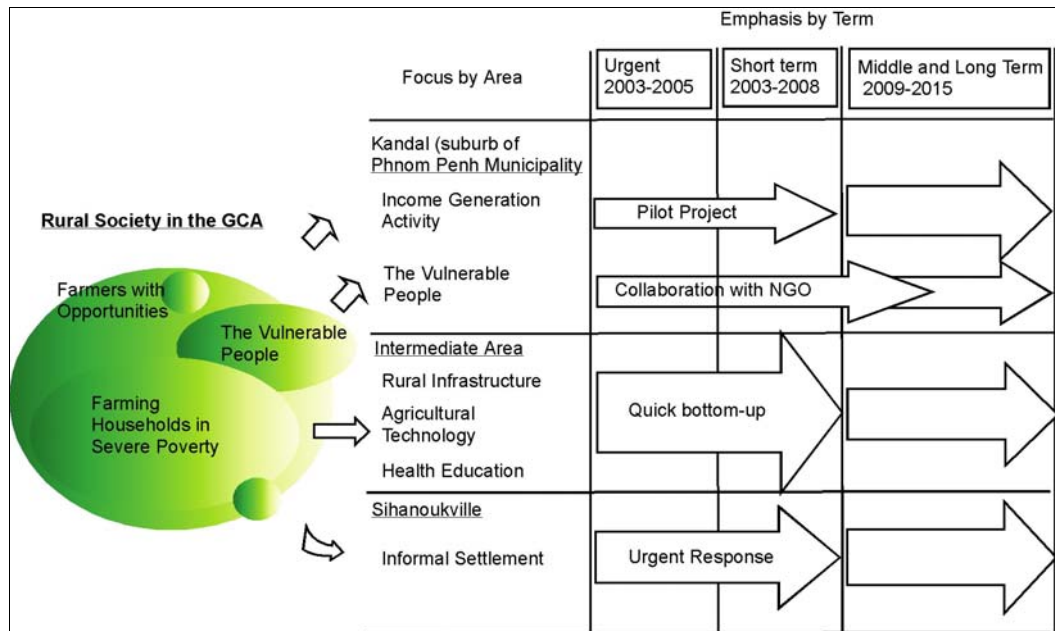


Figure K-14 Development Scenario

First, the support for the income generation activities in rural part of Greater Capital Area will be initiated immediately as an urgent project. Upon completion and evaluation of it, this kind of projects which reflect the evaluation should be continued in larger scale in the medium and long term.

Second, the quick improvement of the rural livelihood in Intermediate Area requires infusion of additional resource allocation for the short term. Along the completion of rural infrastructure remediation, activities aimed at raising the agricultural productivity and health education shall be implemented in the short and medium terms.

Third, recognizing the urgency of development of economic and social infrastructure in Sihanoukville, the participatory community development should be begun immediately. As the effects of self-help development takes time to bear fruits, the project needs to be conducted in a continuous and sustainable way, gradually adjusting the scope of work according to the betterment of economic condition in the communes.

Finally, a support for the vulnerable group should be implemented in the short and medium terms effectively and constantly, as they are most subject to adverse effects arising from a limited official support and on-going social change. A collaboration with selected NGOs with relevant experiences should be pursued in the due course, focusing on small scale projects. During the medium term, preparatory activities for introduction of official “safety net” in 2015 should

carried out