

Appendix -I

I. Questionnaire guidelines for key informant interview :

Purpose : To determine the behavior of community people for treatment seeking, personal and family protection from mosquito nuisance and maintenance of environmental and housing conditions from mosquito nuisance and socio -economic conditions conducive for malaria transmission.

(A) Open ended questionnaire for health service provider :

Informants : District Health Officer, Health Post staffs

I. Behavioral Aspects :

(A) Treatment seeking behavior :

- (1) Do people think malaria is a problem in their community ?
- (2) What is their cultural belief about malaria ?
- (3) How they treat malaria ? Where do they treat ? Whom do they prefer for treatment ?
- (4) What is their acceptability towards use of chemoprophylaxis ?

(B) Personal and family protection behavior from mosquito nuisance :

- (1) How do people protect themselves from the mosquito nuisance in community?
- (2) Do people use bed nets, coils, repellents, insecticides ? Frequency ? Effectiveness ? How many use one bed net ? At what time ? Do all use bed net in the community ? How they get bed net- by purchasing or any community schemes ? Who suggested them to use bed-net?
- (3) How this behavior relates to malaria transmission ?

(C) Maintenance of surrounding environment in order to reduce mosquito

nuisance :

- (1) Do community people know that poor living environmental maintenance cause malaria ?
- (2) Do community people know the habit and habitat of mosquito ?
- (3) Do community people take interest in the environmental maintenance such as reduction and temporary drying of breeding sites, spraying, cleanliness, reformation of canals etc. to reduce mosquito nuisance ?
What type of maintenance work is done by community?
- (4) Do you know which is the malaria risk group in the community ? Why ?

II. Socio-economic Aspects :**(A) Housing :**

- (1) What are housing conditions of the village ?
- (2) How the housing condition is responsible for malaria transmission ?

(B) Occupation :

- (1) What are the main occupation of the village ?
- (2) What are the risk occupation in the village ?
- (3) Which occupation groups in the village are responsible for malaria transmission ?

(C) Migration :

- (1) What are the migration pattern into and outside the village ?
- (2) What are the patterns of people's movements, nomadism in last 5 years ?
- (3) In the village, is there large group of skilled people who do not have job or are working at low level than skills they have ? Do people leave village to any other place for work and earning ? If so what is the name of that place and is it a malarious area ? Do they go there and come back daily or do they live there and come back weekly, monthly or occasionally ?
- (4) Is there outside labor force movement in the village ? If so from where ? Are they suffering from malaria ?

- (5) Is there any resettlement and rehabilitation activities (distribution of lands and house) for landless peasants, refugees, homeless population like nomads etc. in past or present in the village ?

(D) Irrigation :

- (1) What is the irrigation provision in the village ?
(2) Is the irrigation responsible for transmission in that area ?

(E) Deforestation :

- (1) Do people go to forests ? If yes for what (wood-cutting or other reasons) ?
What were the wood-cutting activities in the forests for last 5 years ?

(F) Health education :

- (1) How do people get information about malaria treatment, protection measures?

(G) Availability of health facilities :

- (2) What are the provisions of health facilities, its accessibility, number of private practitioners, local medicine shop-keeper and their involvement in treatment?

(H) Agricultural productions and development works :

- (3) What are the main agricultural productions of people such as paddy, wheat, maize etc. in the village ?
- (4) What are the development works like public works and hydro-electric schemes at present and types of industry and their working time in the village and household distance from these ?

(B) Open-ended questionnaire for community informants :

Informants : Village leaders, teachers, private practitioner, traditional healers etc.

1. What are the common illness in this community? and in which season?
2. Which of these people think are the most important problem? Why ?
3. What do people call for malaria ? What is the cultural belief about malaria?
Do people think malaria as a problem in their community?
4. What do people think about causes malaria?
5. How people express the signs and symptoms of malaria ?
6. How people treat malaria - Who treat ? Where do people treat ? How do people go at treatment facilities ? Whom do people prefer for treatment?
7. How did people know information about malaria treatment & protection measures?
8. Do people think malaria can be spread ? How ? Do they think it can be prevented ? How ?

9. Do people use bed nets, coils, repellents, insecticides ? How many use one bed net ? At what time ? Do all use bed net in the community ? How they get bed net- by purchasing or by any community schemes ? Who suggested you to use bed- net?
10. What are the major ethnic groups and their behavior regarding malaria transmission?
11. What type of work they do in the community ?
12. Do community people know poor environmental maintenance, housing conditions causes malaria ?
13. Do community people know the habit and habitat of mosquito ?
14. Do community people take interest in the environmental maintenance such as reduction and temporary drying of breeding sites, spraying, cleanliness, reformation of canals etc. to reduce mosquito nuisance ? What type of maintenance work is done by community?
15. Which occupational group in the village is at malaria risk ? Why ?
16. What are the provisions of health facilities, its accessibility, number of private practitioners, local medicine shop-keeper and their involvement in treatment?
17. What are the main agricultural productions of people such as paddy, wheat etc. in the village ?

18. What are the development works like irrigation, public works and hydro-electric schemes at present and types of industry and their working time in the village and distance from household ?
19. What are the patterns of people's movements, nomadism and urbanization in last 5 years ?
20. What were the wood-cutting (trees cutting) activities in the last 5 years ?
21. Is there large group of skilled people do not do job or working at low level than skills they have in the village ? Do people leave village to any other place for work and earning ? If so what is the name of that place and is it a malarious area ?
22. Is there outside labor force movement in the village ? If so from where ?
Are they suffering from malaria ?
23. Is there any resettlement and rehabilitation activities (distribution of lands and house) for landless peasants, refugees, homeless population like nomads etc. in past or present in the village ?

- (5) Physical conditions of house : (a) Roof type(b) Leakage
.....(c) Type of walls (tin, bamboo, bricks etc.) (d)

Notes :

(b) Demographic census :

- (6) Clusters of household (a) Dense (b) Scattered (c) Notes :

- (7) Family size (a) Joint (more than one family) (b) Single (only one
family like parents and 2-3 children) (c) Notes :

(c) Physical setting (internal) :

- (8) Number of rooms :

- (9) Number of sleeping rooms :

- (10) Availability of bed nets (by seeing) (a) Yes (b) No (c) Notes :

(d) Domestic pet :

- (11) Domestic cattle (a) yes (b) No (c) Notes :

- (12) Number of cattle sheds :

- (13) Proximity of cattle sheds from house (specify approx. distance) :

- (14) Mention surrounding environment of households like waste disposal,
water supply, storage and disposal system :

1.2. Proximity of apparent or potential breeding sites of mosquito from house :

- (15) Types of breeding sites : (a) Ponds Specify approx. distance and
number (b) River Specify approx. distance and number

- (c) Pools Specify approx. distance and number
- (d) Burrows Specify approx. distance and number (e) Pits
Specify approx. distance and number
- (f) Dam Specify approx. distance and number
- (g) canal Specify approx. distance and number
- (h) Notes :

(16) Water lying around wells or taps.....

(17) Observation of mosquito larvae around water (a) Observed - Yes (b) No (c) Notes :

(18) Re-checking of some breeding sites after considerable rain - (a) Yes (b) No (c) Notes :

(19) Forests in and near village - (a) Yes (b) No

(20) Proximity of village to the forest (specify distance)

1.3. Malaria records (printed on house walls) :

(21) Malaria treatment card (a) Yes (b) No

(22) Insecticide spray record (a) Yes (b) No

2. Location and provision of the health service and malaria clinic :

2.1. Formal sector :

(a) Government

Numbers

Hours that clinic is open

Distance from households

Availability of service types

Staffs

(b) Non Government :

1. Social organization

Numbers

Hours that clinic is open

Distance from households

Availability of service types

Staffs

Notes

2. Registered medical practitioner :

(a) Physician Numbers.... Hours that clinic is open

Distance from households

Availability of service types

(b) Nurse Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

(c) Paramedics Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

2.2. Informal sector :

(a) Quacks - Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

(b) Medical shops - - Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

(c) Injectionist - Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

(d) Traditional healers - Numbers.... Hours that clinic is open

Distance from households

Availability of service types

Notes

3. Occupation and agriculture :

- (a) Major occupation groups like farmers/fisher folk/ crafts workers/ traders/
miners (b)
Working time
- (c) Gender at work
- (d) Main crops - Rice (b) Corn (c) Notes :
- (e) Proximity of agricultural fields from houses (specify approx. distance) -
Rice fields
- (f) Provision of Canals Irrigation Developmental works
- (g) Proximity to the households (specify approx. distance of each)

4. Deforestation :

Note down any activities related to forest like wood-cutting, working time of
workers, dense of forest etc.

2. Human behavioral aspects :

2.1. Risk behavior :

How many hours people spent time for (observe major sites and note down) -

- (a) Drinking
- (b) Gambling
- (c) Wood-cutting
- (d) Gender - Men (approx. number)..... Female (approx. number)

Notes : Write down each Number

2.2. Note down health behavior and illness behavior if observable -

.....
.....

2.3. Focus specially to the risk groups like migrants, miners, forest workers etc.

.....
.....

Appendix III

Semi-structured interview guidelines :

Purpose : To know the treatment seeking behavior, personal and family protection and maintenance of living environment and socio-economic conditions.

Informants : Senior household member of the house where observation are done.

A. Behavioral aspect :

(a) Treatment seeking behavior :

1. What is the common illness in your family ?
2. Which of these do you think most problematic and why ?
3. Do you know malaria ? Yes No
4. If yes, what is the symptoms of malaria ?
5. Do you know what is the cause of malaria ? Yes No
6. What do you do if you have fever ?
7. Where do you go for treatment if you have fever ? and who treat you ?
8. Whom do you like to go for treatment ? Govt. Clinic Private clinic
 Traditional healer Other (specify name)
9. How did you get information about malaria treatment ?
10. Do any family member have malaria in the past and present? When (ask about day and dates) ? How he/she recovered?

11. Did he/she take medicine (ask to show prescription) ?
12. How many tablets for how many days did he/she swallowed ?

(b) Personal and family protection behavior from mosquito nuisance :

1. Do your family has bed nets ? Yes No How many (ask number)
2. Do your family use that ? Yes No Why you use
3. At what time you use (ask morning, day, evening or night) ?
4. Do all family member sleep under net ?
5. Do your family use other measures to control mosquito nuisance ?
6. At what time your family use other control measures ?
7. How did you get bed nets ?
8. Who suggested to use bed nets ?
9. Do insecticides have been sprayed to your house ? When ? How many times in a year? How did you get insecticides ? Who sprayed it?
10. Have the doors, windows and openings in your house been screened ? If yes why? If no why ?

(c) Maintenance of surrounding environment in order to reduce mosquito nuisance :

1. Do you know where mosquitoes live ?
2. Do you know where mosquitoes breed ?
3. Do you know how to avoid mosquito living and breeding places ?

4. How you store and dispose water ?

(B) Socio-economic aspect :

(1) What is the occupations of family workers ?

(2) Do they work at the night time ?

(3) What they use to protect from mosquito bites while working at night time ?

(4) Do any family members work outside this village ? If yes which place ? Is there malaria? If he/she has been suffered from malaria in that place ?

(5) What is the average income level of your family ?

(6) What types of crops you farm in your land ?

Appendix IV

Documents review check-list :

Purpose : To get general information about malaria in the study site from health facilities and local authorities.

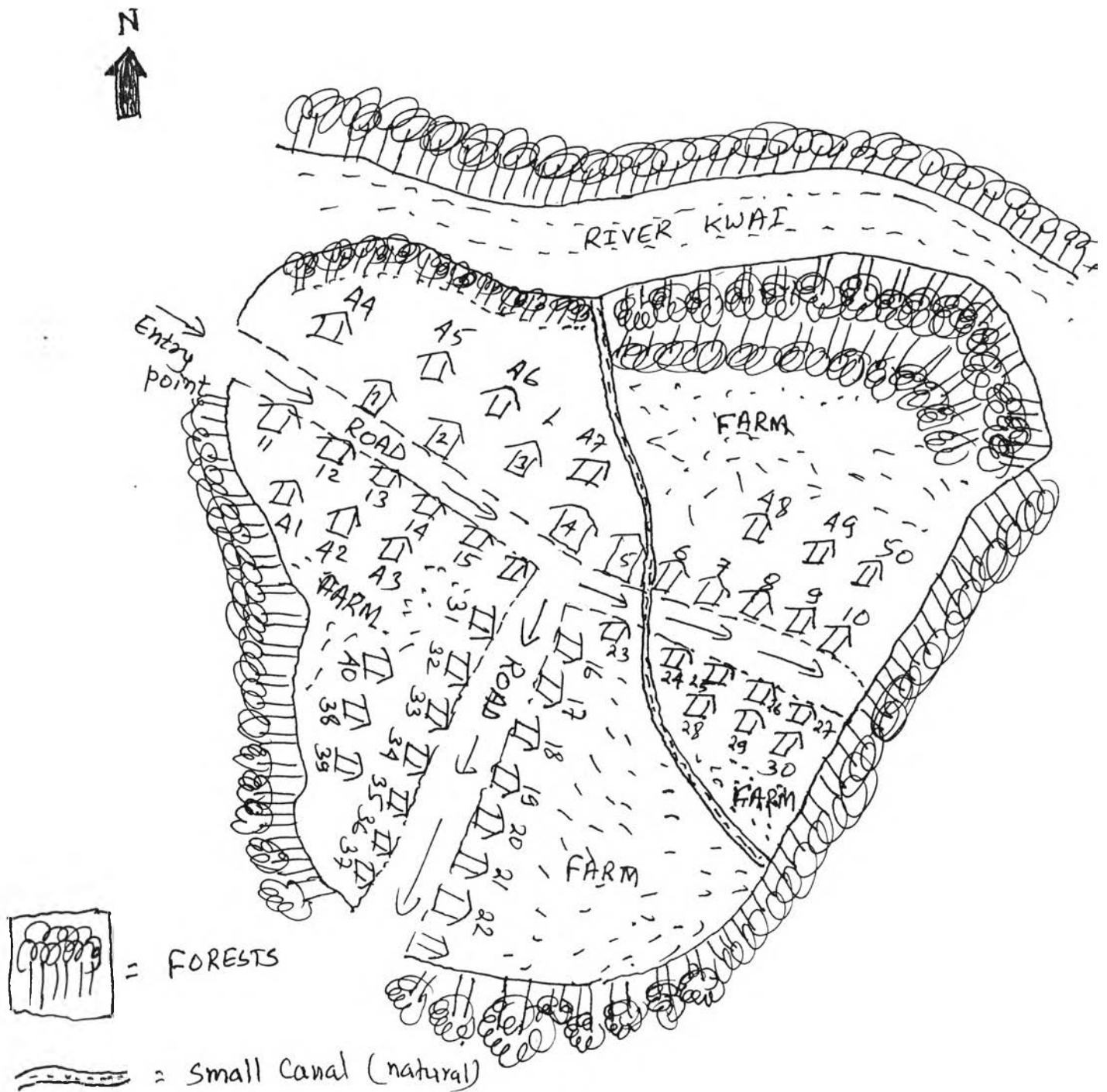
Record will be taken from : Health facility, local authorities.

Records of :

1. Population of the village.
2. Distribution pattern of population within village
3. Occupation
4. People's mobility and migration
5. Educational status/literacy levels
6. Incomes of household members/per capita income
7. Average household size
8. Average dependents size
9. Number of the household in the community
10. Major ethnic groups and their occupation
11. Past records of malaria - cases/trend/age/sex/economic and social class/
anti-malaria campaign and activities/community involvement etc. in the
village
12. Environment - climate, rainfall, humidity, temperature etc.

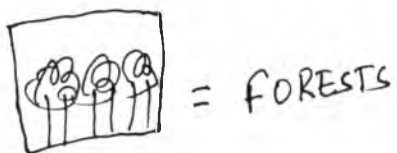
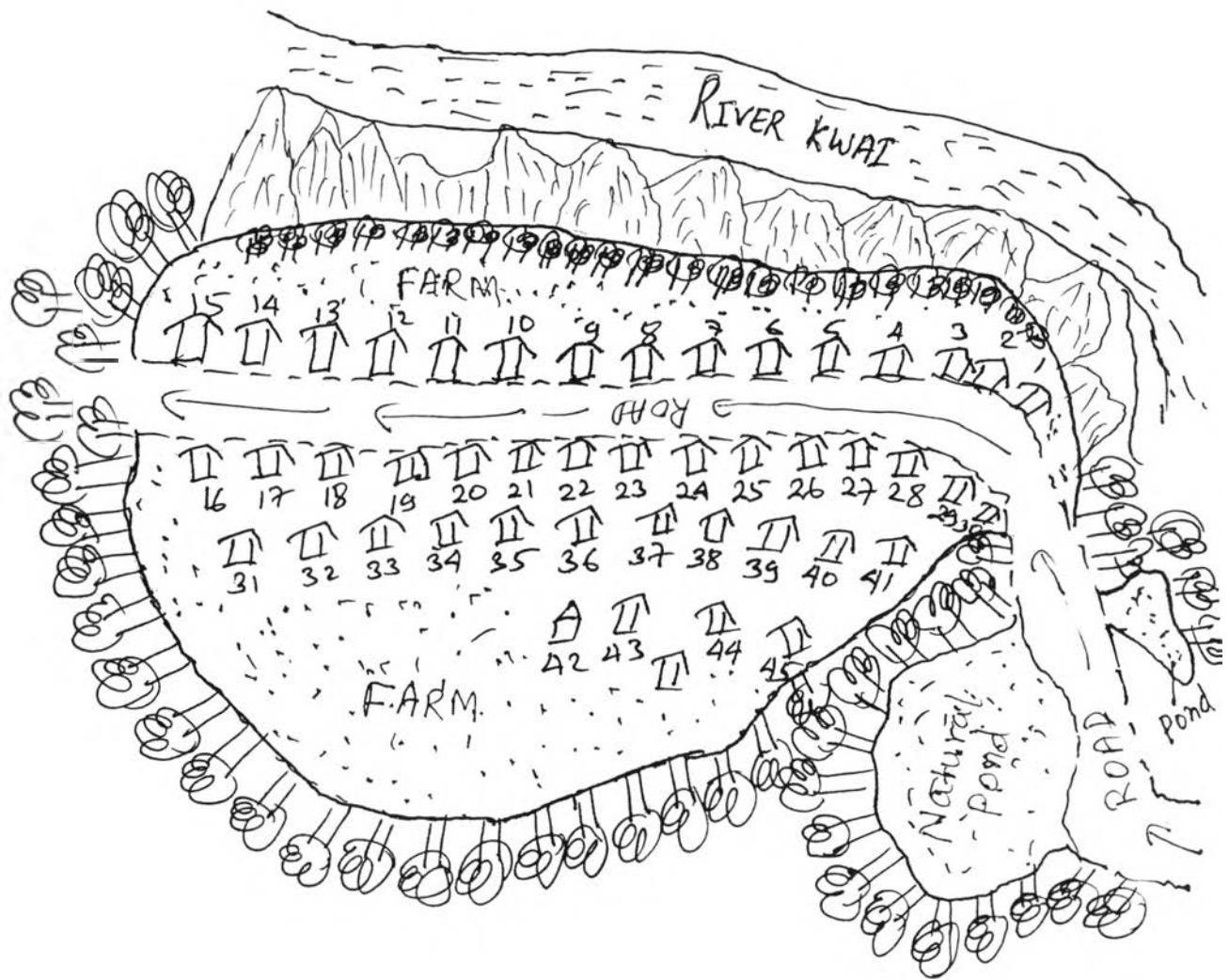
Appendix V

Map of Village Kang Pa Lom-1



Appendix VI

Map of Village Vang Ka-Jac-7



= FORESTS



= Hills

Appendix VII

Required information on host (human) about socio-economic and behavior :

Characteristics	Why it is important	How it may be used	Information from an area
1. Population size	Indicates the total number of people at risk	To plan amount of drugs needed and to plan health facilities	
2. Distribution	Indicates accessibility of people, urban and rural environment	To determine the type of surveillance and malaria control activities required	
3. Occupations	Indicates risk of acquiring malaria e.g. farming, fishing, hunting, wood-cutting, wood gathering, cattle herders, sales person etc.	To find out who needs to know more about malaria and control activities required.	
4. Mobility	Increases possibility of epidemics with movement of cattle herders, travel from urban to rural areas, labor movement with development projects, dams, refugees etc.	To plan control activities. To allocate resources where they are most needed.	
5. Types of dwellings and location in relation to breeding sites	Open dwellings are difficult to spray. Different ones need different net designs. Proximity of breeding sites increases risk	helps to determine appropriate vector control measures	
6. Income levels	Ability to buy health care, protection measures, quality of dwellings	To design cost-effective but equitable systems of health care supply (e.g. treatment, nets)	

Characteristics	Why it is important	How it may be used	Information from an area
7. Night time behavior	If people are outdoors during the mosquito biting time, their risk of infection is higher	To protect children by suggesting when they should be indoors and using net	
8. Treatment seeking behavior	Influences access to early and effective diagnosis and treatment	To identify barriers to obtaining early diagnosis and treatment. To determine information needs of the community and of health care providers	
9. Environmental maintenance	Poor maintenance of canals and water pumps or poor drainage can create breeding sites for <i>Anopheles</i>	To determine information needs of the community, water authorities and municipalities	
10. Personal protection activities	Reduces mosquito-human contact (number of bites) so reduces transmission	To determine materials and information required	
11. Community protection activities	Indicates community's concern about malaria	To support community efforts to arrange accessible health care, finance nets and insecticides, reduce breeding sites	

(Source : Adapted from WHO, (1997); Partnerships for Change and Communication Guidelines for Malaria Control)

Appendix VIII

Required information on disease (malaria) :

Characteristics	Why it is important	How it may be used	Information from an area
1. Endemicity	Determines the type of control activities needed	To make a plan of control measures	
2. Morbidity (number of cases of disease per year)	Helps to determine the scope of the problem and impact on the community	To plan health facilities	
3. Mortality (number of deaths from the illness per year)	Helps to determine the scope of the problem and impact on the community	To plan health facilities, to assess quality of health care and needs for training and improvement	
4. Sex distribution of cases (ratio of male to female)	Shows who is at more risk, where transmission occurs and immune status of population	If mainly males, it may be occupational, if pregnant women, they should be focus of control efforts	
5. Parasite species (percent of each species)	Determines treatment regimens. If predominantly <i>P. falciparum</i> there will be more complications and mortality	Health promotion and rapid access to health services are more important where <i>P. falciparum</i> is predominant	
6. Drug resistance	Influence choice of effective drugs, effectiveness of self medication and cost of drug provision	Resistance increases need for more peripheral laboratory services	

(Source : Adapted from WHO, (1997); Partnerships for Change and Communication Guidelines for Malaria Control)

Appendix IX

Required information on Vector (malaria mosquito) :

Characteristics	Why it is important	How it may be used	Information from an area
1. Species	Different species have different behavior	Influences mosquito control strategy	
2. Preferred breeding sites	Indicates which water bodies are important and whether larva control is feasible	Helps to decide which control methods to use and determines role of community and other service sectors, industry; determines content of communication	
3. Resting habits (indoors, outdoors)	House spraying and insecticide treated nets may be more effective against indoor resters	Helps to decide which control methods to use and determines role of community and other service sectors, industry; determines content of communication	
4. Biting habits (indoors, outdoors)	House spraying and insecticide treated nets may be more effective against indoor biters and if people are inside at peak biting time	Helps to decide which control methods to use and determines role of community and other service sectors, industry; determines content of communication	
5. Seasonal density changes	affects seasonal patterns of disease	Helps to determines content of communication and timing of control activities by communities and health sector	

(Source : Adapted from WHO, (1997); Partnerships for Change and Communication Guidelines for Malaria Control)

Appendix X

Required information on Environment :

Characteristics	Why it is important	How it may be used	Information from an area
Climate, rainfall, surface water, temperature, vegetation, topography	Affects suitability for transmission	Determine mosquito control strategies and prediction of outbreaks	

(Source : Adapted from WHO, (1997); Partnerships for Change and Communication Guidelines for Malaria Control)

Appendix XI

Required information on Control Activities (by community and health services) :

Characteristics	Why it is important	How it may be used	Information from an area
1.Types of health care (list of all facilities, whether they have supplies, microscopes, staffs, etc.	Public health services, private sector, non-governmental organizations; all contribute to provision of health care, but vary in quality, accessibility and affordability	To provide the best access for all affected people to early effective diagnosis and treatment and to appropriate prevention. To determine content of communication	
2.Types of mosquito control (list types used by health services and community)	Different countries use residual house spraying, occasionally outdoor ultra low volume spraying in towns or camps, chemical or biological larva control, removal of breeding sites or nothing	To determine content of communication	
3.Types of personal protection	Indicates acceptability and availability of repellents, nets, coils etc.	To build on current practices and make them more effective	
4. Chemoprophylaxis of pregnant women	It may be difficult to encourage women to take prophylaxis regularly	To develop the most efficient and acceptable distribution system	
5. Availability of treatment protocols	It is important that all drug providers and users know the most appropriate treatment for the area	To train health providers and educate mothers	
Outbreak control activities	In some areas outbreaks of malaria are increasingly important and can cause deaths	To involve community in reporting fevers and implementing control activities. To ensure drug supplies are readily available	

(Source : Adapted from WHO, (1997); Partnerships for Change and Communication Guidelines for Malaria Control)

Curriculum Vitae

Name : Raj Kumar Pokharel

Sex : Male

Date of Birth : 17th September, 1961

Nationality : Nepali

Education : B. Com.

Area of Interest : Health System Development
Logistic Management for Health
Vector-borne Disease Control and Prevention

Work experience : Public Health Officer, Logistic Management Division,
Department of Health Services, Ministry of Health,
Kathmandu, Nepal.

Location, Geography, and Climate

Kanchanaburi is situated on the Thai-Myanmar border, some 130 kilometers from Bangkok. It is the second largest city of Thailand. The province borders Supanburi, Uthaithani, Tak provinces and Myanmar to the north. To the south is Ratchburi province, to the east are Supanburi, Nakornpathom, and Ratchburi provinces, and to the west is Myanmar.

Table 1 Number of jurisdiction under Kanchanaburi Province

Districts (Amphor)	No. of Canton (Tambons)	No. of Villages	Municipality	Sub municipality
Muang	13	96	1	3
ThaMuang	13	99	-	4
ThaMaakaa	17	139	1	5
PaNomTuan	7	84	-	1
BoPloi	5	60	-	2
ThongPhaPhoom	7	42	-	1
SaiYok	7	52	-	2
SriSaWat	6	31	-	1
SangKhlaaBuRi	3	19	-	1
LaoKhwan	7	62	-	2
DaanMaKhamTia	4	37	-	1
NongPrue subdistrict	3	27	-	1
HuaiKraJao subdistrict	3	59	-	1
Total	96	807	2	25

Section 3 Selected health and medical activities in Kanchanaburi Province in 1995

3.1 Medical care

	<u>Goal</u>	<u>Current status</u>	<u>%</u>
Out patients - no. of patients	477,216	196,693	41.22
- episodes	716,286	388,893	54.30
In patients -no. of patients	49,274	23,749	48.20
- episodes	196,770	100,108	50.88

3.2 Communicable disease control

3.2.1 EPI

- DPT in 0-1 (complete doses)
- BCG in 0-1
- OPV in 0-1
- Measles in under 1
- Hepatitis B (complete doses)
- Tetanus (complete doses)
- DPT in 1½-2 (booster)
- OPV in 1½-2 (booster)

3.2.2 TB control

- Case detection by sputum exam

3.2.3 Leprosy control

- Examination of contacts
- Examination of students grades 1-6
- Examination of out patients

3.2.4 Malaria Control

<u>Activities</u>	<u>Target</u>	<u>Current</u>	<u>% of target</u>
No. of blood slide taken	138,135	61,401	44.44
No. of presumptive treatment given	30,207	6,225	20.60
No. of radical treatment given	11,765	3,244	27.57

3.2.5 Diarrhoeal disease control

- Oral rehydration for under-five patients

3.2.6 Control of Dengue fever

- Survey of vector breeding places in the community and in schools
- Vector control in the community and in schools by environmental control, abate sand, biological control, and chemicals.

3.2.7 Filariasis control

- Case detection by blood slide diagnosis
- Treatment of registered cases
- Registration of new cases

3.2.8 Control of worm diseases

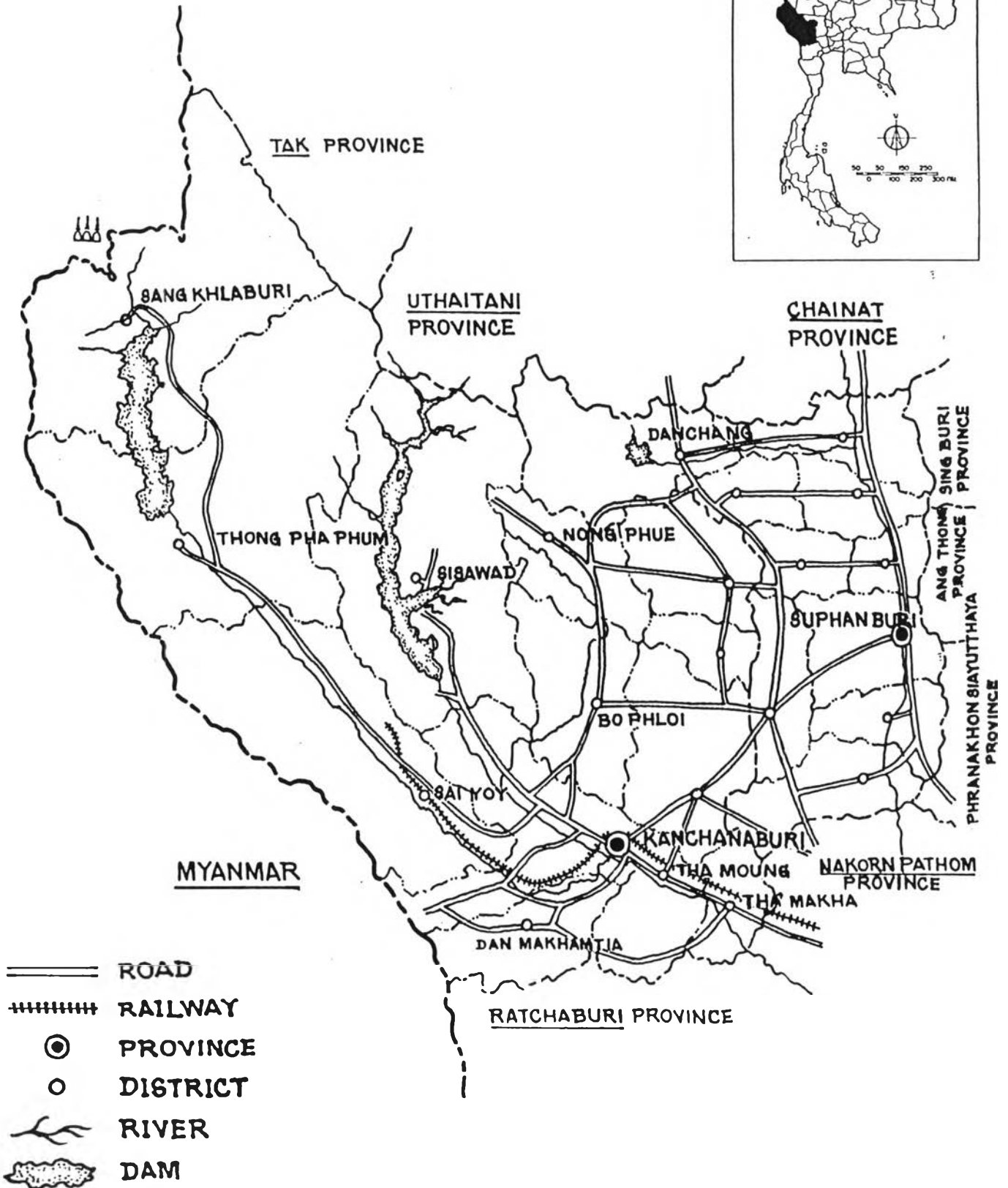
- Mass treatment in students grades 1-6

3.2.8 AIDS

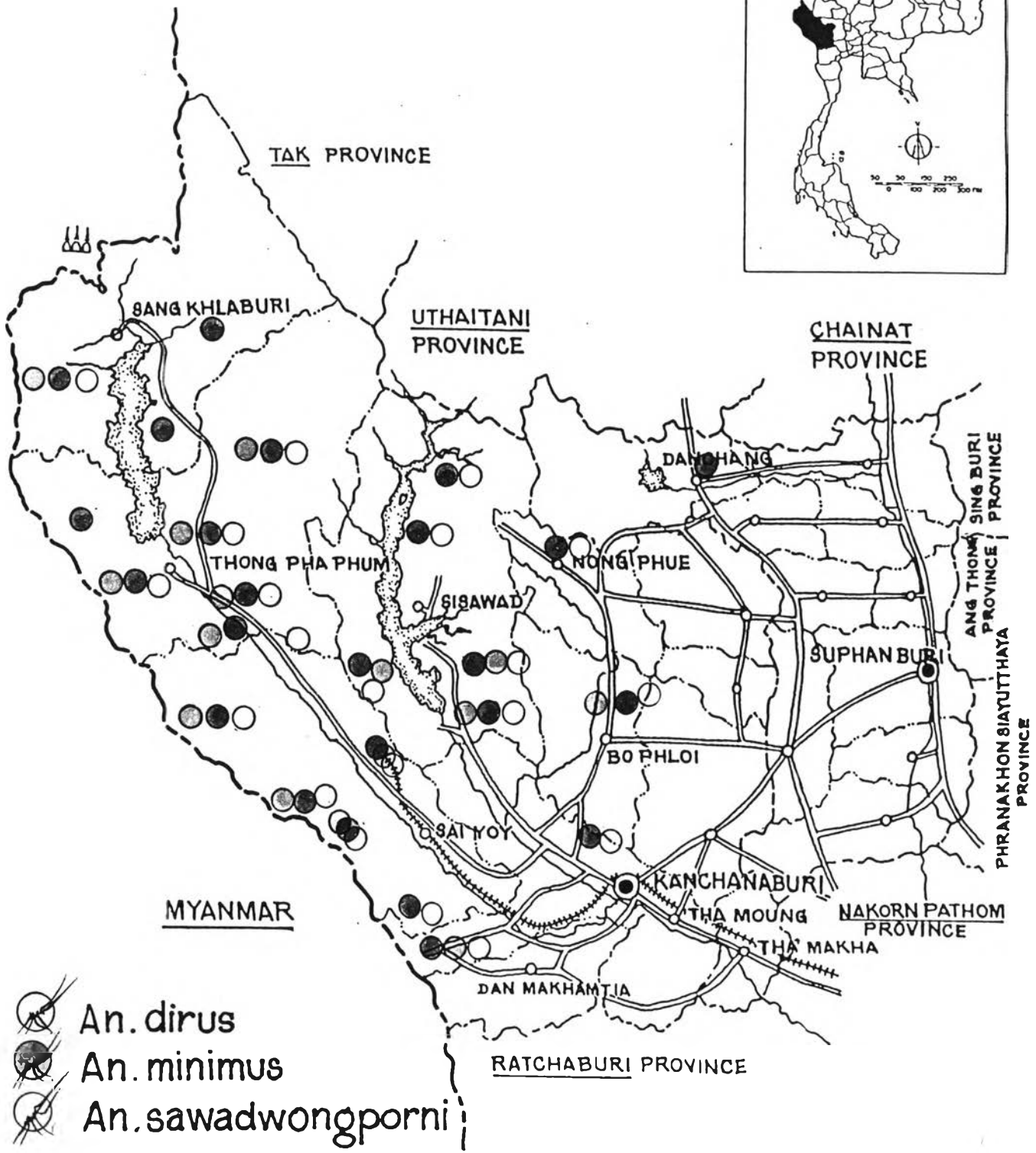
Table 11 AIDS statistics in Kanchanaburi (June 1990-30 April 1995)

Categories	Male	Female	Total	No. death	Incidence rate
AIDS	214	29	243	47	19.34
HIV infected persons with symptoms	104	10	114	24	21.05
Total	318	39	357	71	19.89

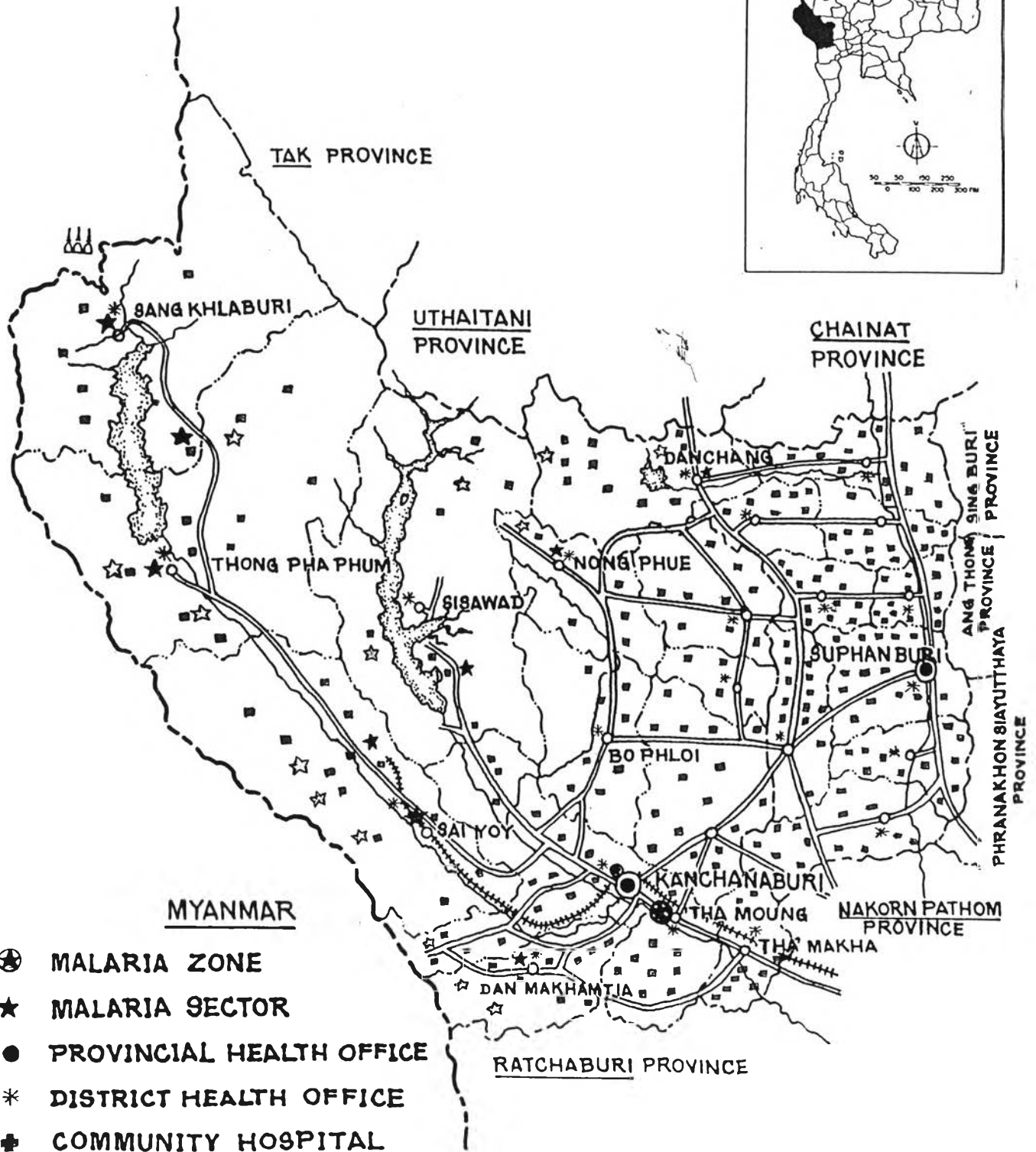
MAP OF MALARIA ZONE 53 KANCHANABURI



MAP SHOWING THE DISTRIBUTION OF MAIN VECTORS



MAP SHOWING THE DISTRIBUTION OF HEALTH FACILITIES



- ⊙ MALARIA ZONE
- ★ MALARIA SECTOR
- PROVINCIAL HEALTH OFFICE
- * DISTRICT HEALTH OFFICE
- ⊕ COMMUNITY HOSPITAL
- ⊞ HEALTH CENTER
- ☆ MALARIA CLINIC

MYANMAR

RATCHABURI PROVINCE

NAKORN PATHOM PROVINCE

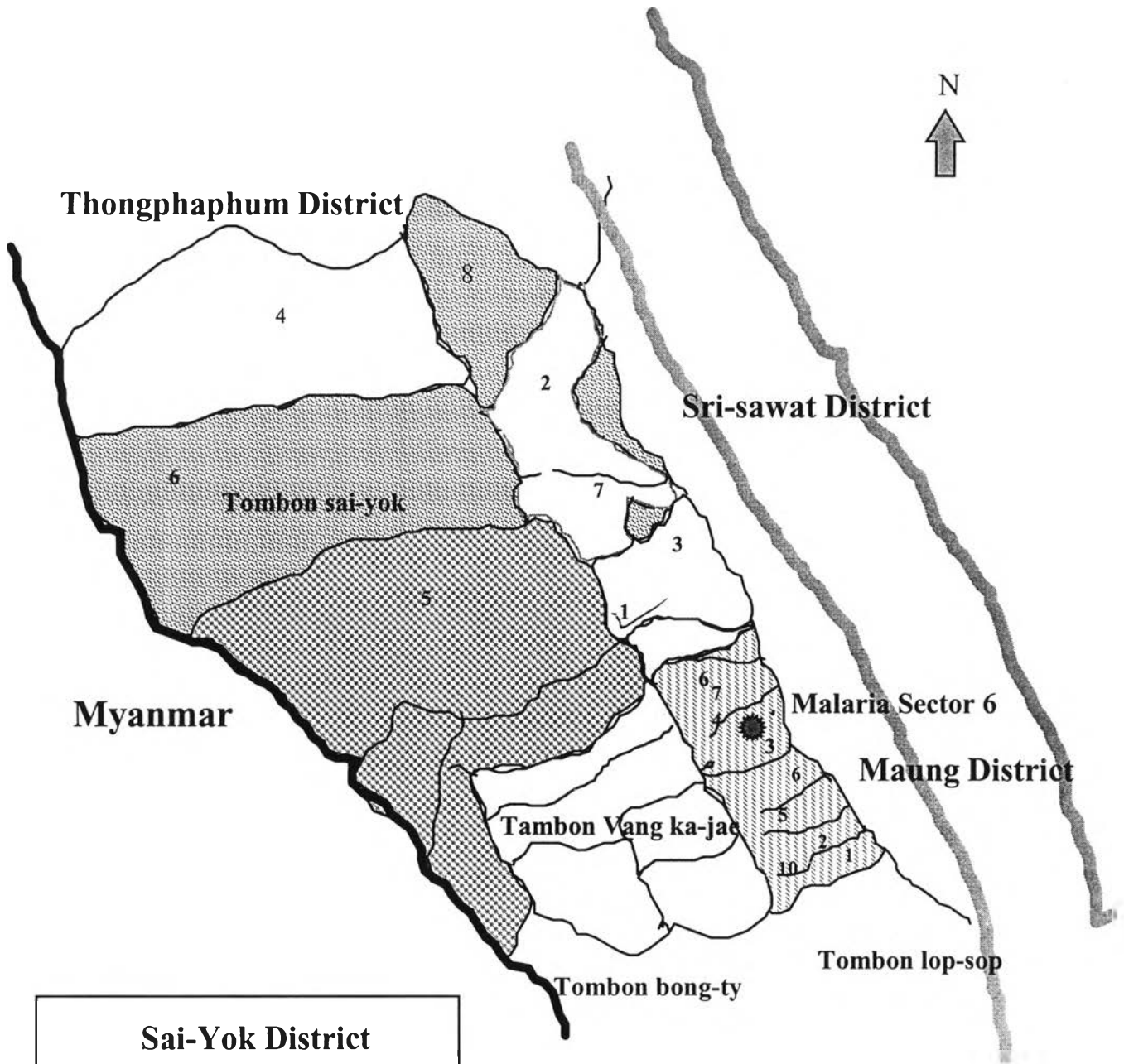
ANG THONG PROVINCE
SING BURI PROVINCE
PHRANAKHON SIAYUTTHAYA PROVINCE

TAK PROVINCE

UTHAITANI PROVINCE

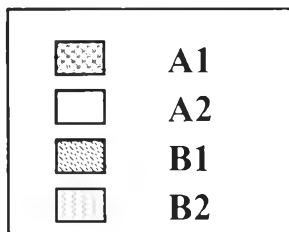
CHAINAT PROVINCE

Map Show Malaria Sector Ta-sao Focus 1995

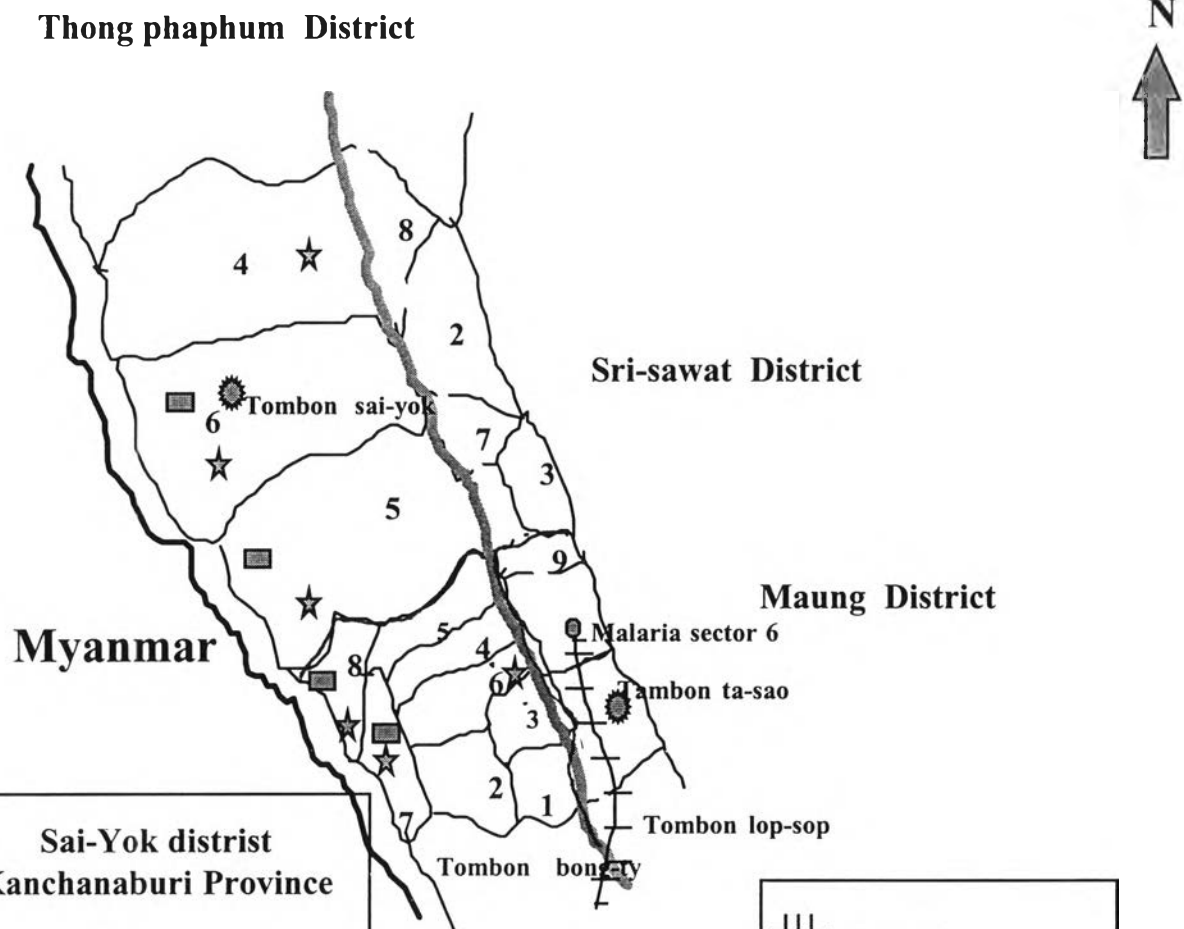


Sai-Yok District Kanchanaburi Province

3,577 Houses
 542 Hamlets
 17,388 Population
 3 Tombon
 26 Villages



Map show malaria sector 6 Ta-sao



Sai-Yok distrist Kanchanaburi Province	
3,577	Houses
542	Hamlets
17,388	Population

⊥⊥⊥	rail way
☆	<i>An. minimus</i>
■	<i>An. dirus</i>
~	River Kaew noi

Table 1 Summary of Malaria Surveillance in Sai-yok district

Fiscal Year 1990 - 1995

FY	population	Blood Exam.	Positive	Pf	Pv	Pm	Mixed	Fg	Parameter		
									API / 1000	ABER %	SPR %
1990	31,711	23,555	2,201	1,134	1,066	-	1	80	69.40	74.28	9.34
1991	31,567	15,431	2,237	1,362	872	-	3	81	70.86	48.88	14.49
1992	34,163	24,416	3,376	2,176	1,283	-	16	124	98.82	71.46	13.82
1993	32,648	22,744	2,336	1,545	766	-	25	64	71.55	69.66	10.27
1994	34,064	25,474	3,055	2,020	964	-	67	92	89.68	74.78	11.99
1995	35,718	25,888	2,573	1,635	878	-	60	94	72.03	72.47	9.93

Note : 1995 (Oct 1994-Jul 1995)

Operational Stratification of Malarious Areas — Nepal, 1990 - 1993

