

Human activities contributing to a malaria outbreak in Amphoe Thong Pha Phum, Kanchanaburi, Thailand

Project Name: Epidemiological investigation
of sentinel cases and the probable exposure
routes in the Tongphapoom malaria outbreak.

การค้นหาคู่ผู้ป่วยมาลาเรียเริ่มแรกโดยวิธีทางระบาด
วิทยาและวิถีทางของการได้รับเชื้อในพื้นที่การ
ระบาดมาลาเรีย อำเภอทองผาภูมิ

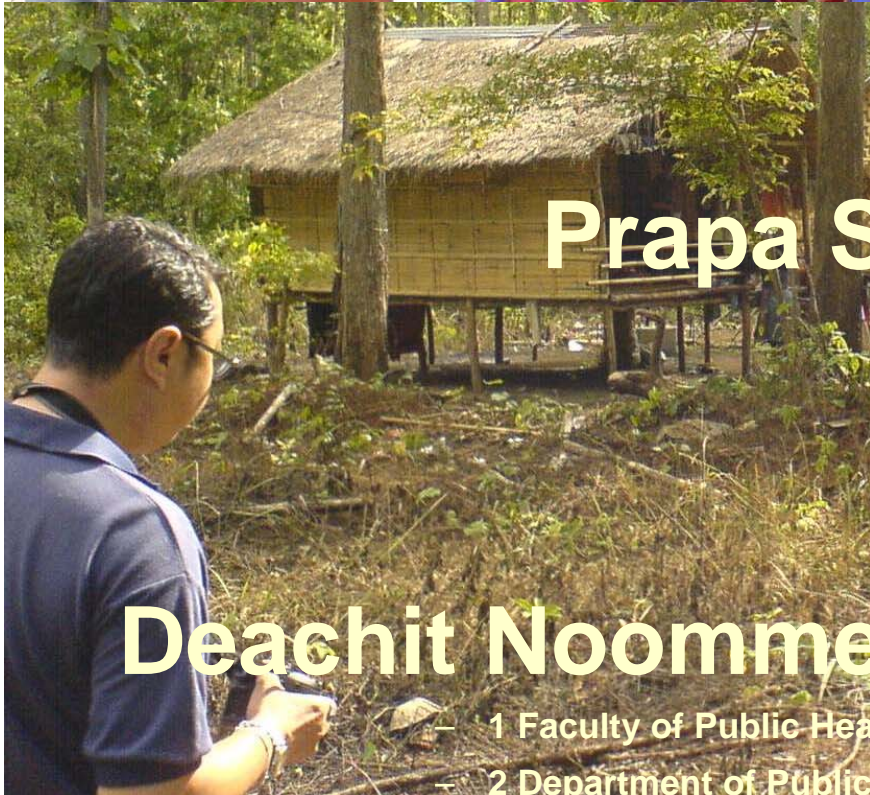
RESEARCHERS



Ronald A. Markwardt ¹



Prapa Sorosjinda-Nunthawarsilp ²



Deachit Noommeechai ¹

¹ Faculty of Public Health, Burapha University, Thailand

² Department of Public Health Foundation, Faculty of Public Health, Burapha University, Thailand

GRATEFUL ACKNOWLEDGEMENTS

Head of Vector Control Programs:

Mr. Virat Saisang

Director of ThongPhaPhum Hospital:

**Dr. Itthiponth
Jaraloran**

**District Health Officer of
ThongPhaPhum:**

Mr. Marut Nerastein

Malaria Ctr. At Ban RaiPa:

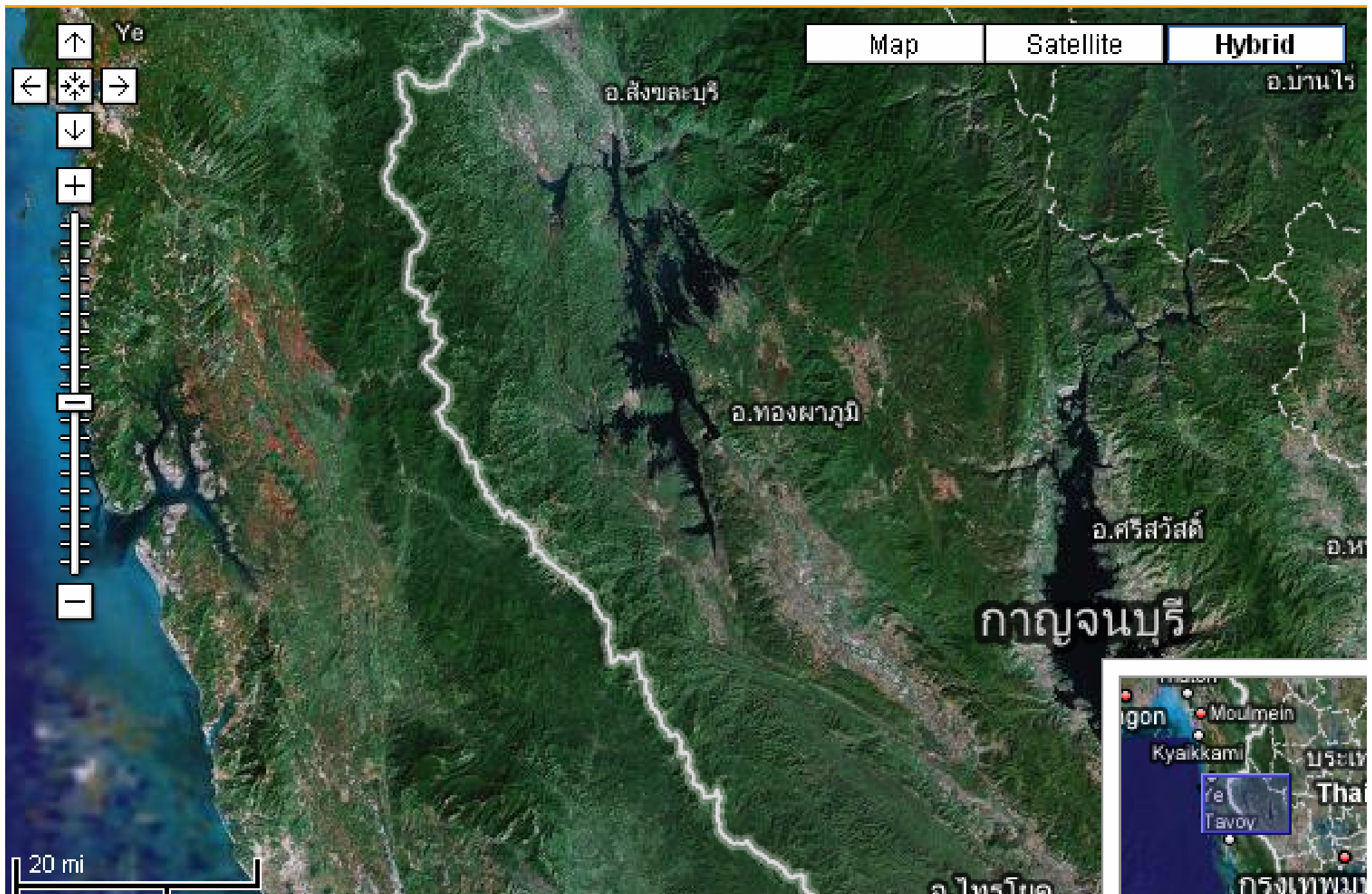
Ms. Viean

Head of Primary Health Care:

**Mrs. Ratchanee
Janmodeep**

**Community leaders in Huay KaYeng
subdistrict:**

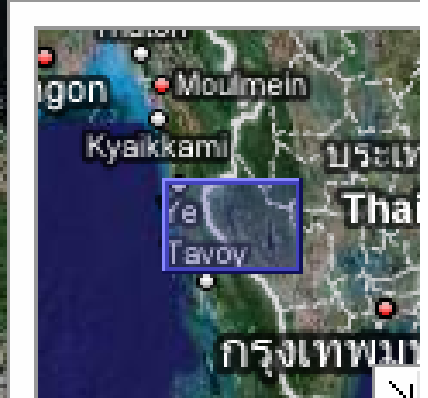
**Phra Chalerm
Chotithammo**



Map Satellite Hybrid

Navigation controls including directional arrows (up, down, left, right), a compass, a zoom-in (+) and zoom-out (-) button, and a vertical zoom slider.

20 mi

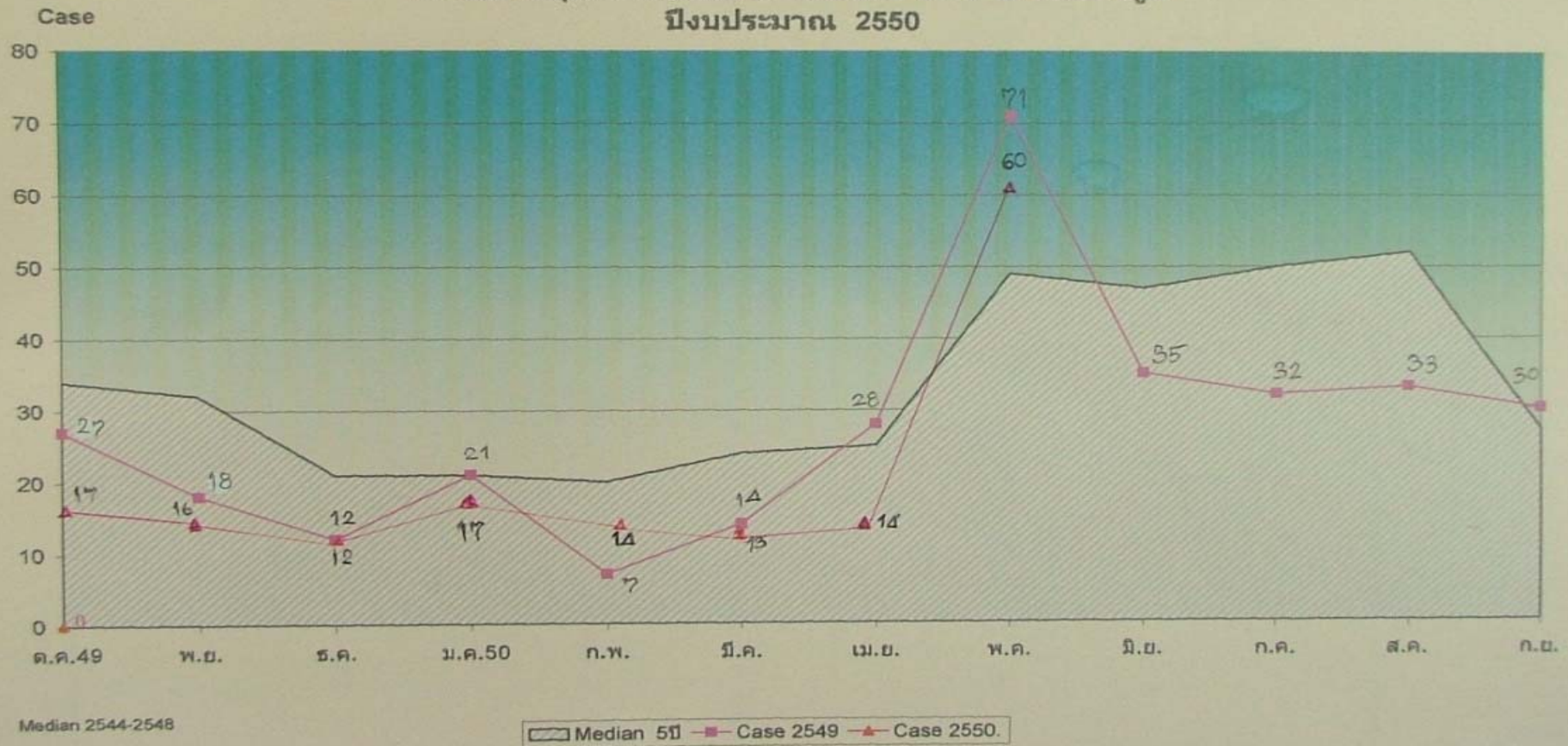


BACKGROUND

- **The annual peak of the malaria outbreak occurs in May in Amphoe Thong Pha Phum. There are clusters of malaria cases near the border settlements.**

MALARIA DISEASE CYCLES

กราฟเดือนภัยทางระบาดวิทยา
 หน่วยควบคุมโรคติดต่อฯ โดยแมลงที่ 4.1.7 อ. หองผาภูมิ
 ปีงบประมาณ 2550



RESEARCH QUESTIONS

- **What is the basis of these people's susceptibility?**
- **What more can be done to protect them?**

OBJECTIVE

- Track the progression of malaria among people various cultures and ethnicities in the area



METHOD


- **Reviewed data from Malaria Control Center, District Hospital, and Primary Health Care.**
- **Interviewed health care personnel and community stakeholders, e.g. monks & employers.**
- **In-depth interviews were done with 20 sentinel cases during June and July 2007.**
- **Surveys of mosquitoes and larvae near homes of cases during Aug and Sept.**

THE TEACHING INTERVIEW

- **People provided information about their activities during the past month, including:**
 - Prevention behaviors,
 - Exposure situations,
 - occupations,
 - locations of work,
 - migrations,
 - travel routes.

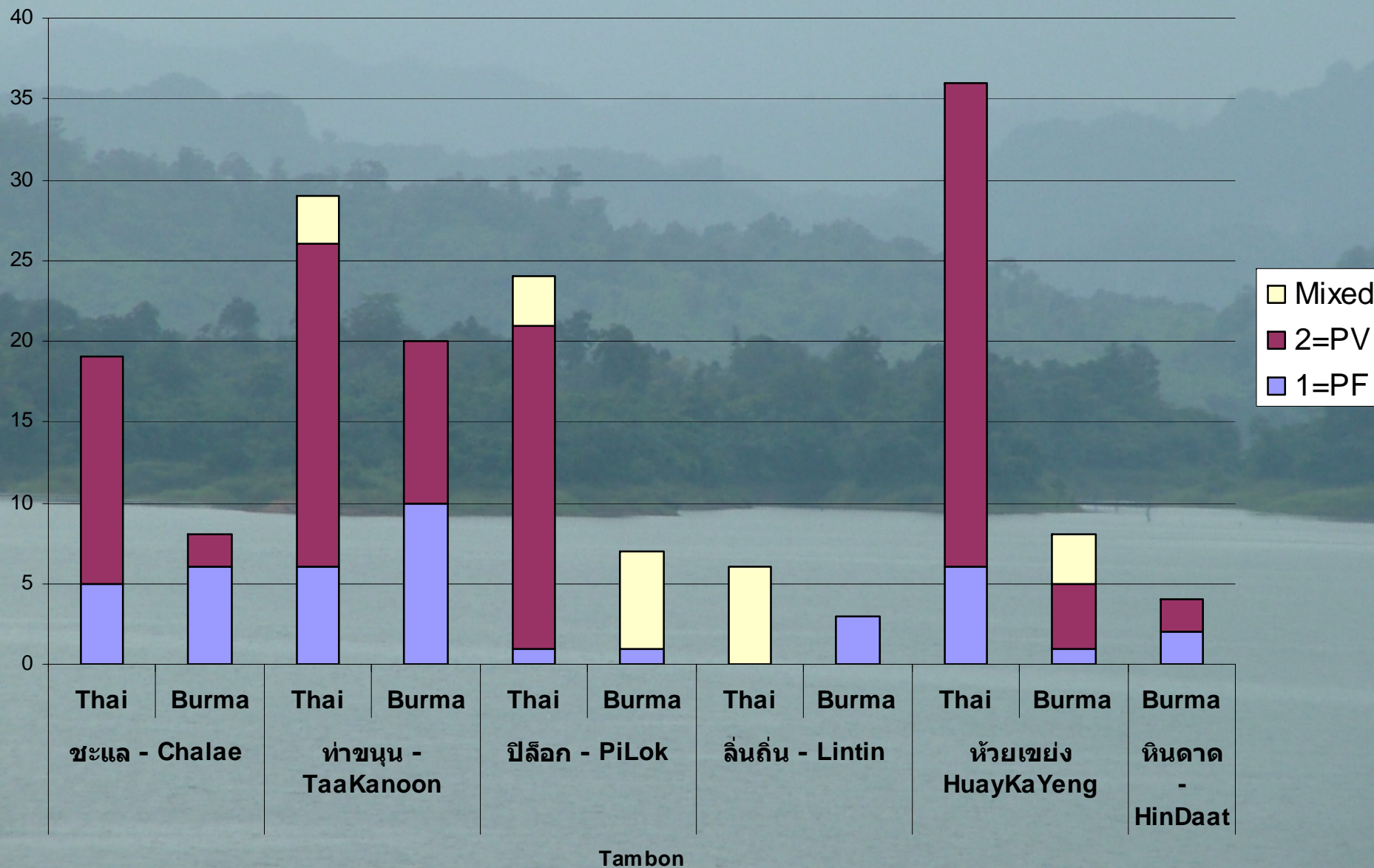
**CASES TREATED IN MAY, 2007 AND TYPE OF MALARIA
AMPHOE THONG PHA PHUM**

	PF + PV	Thai	Myan- mar	Other	Med Age	n <15 yr	% <15 yr	Fe- male
Hospital N=57	37 + 26	9 + 17	27 + 7	1 + 0	22	14	25%	21
Community N=51	15 + 36	12 + 31	3 + 5	---	21	18	35%	19
Total dx reported	52 +61	21 +48	30 +12	1 +0				
Interviewed=20	9 + 11	0 + 3	4 + 0	7 + 6	18	7	35%	8

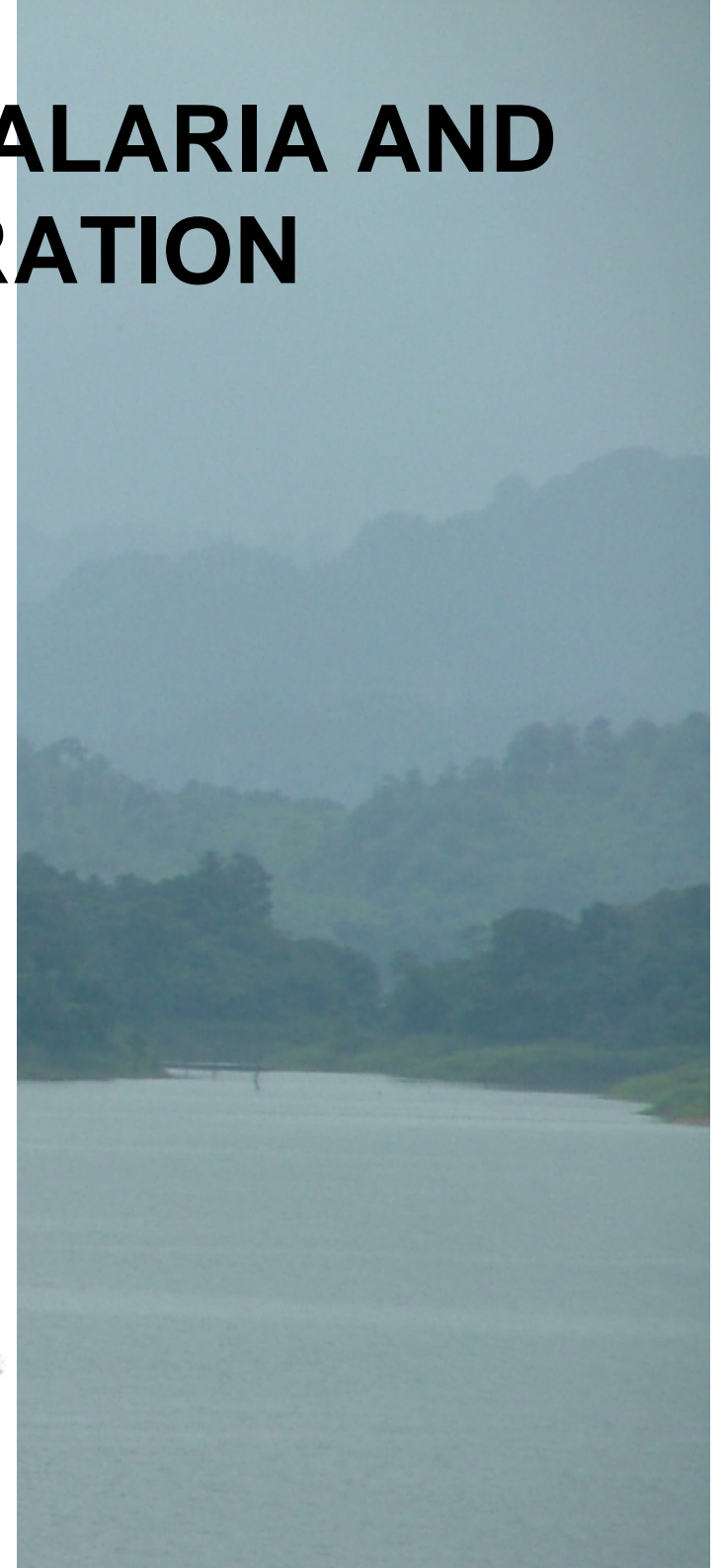
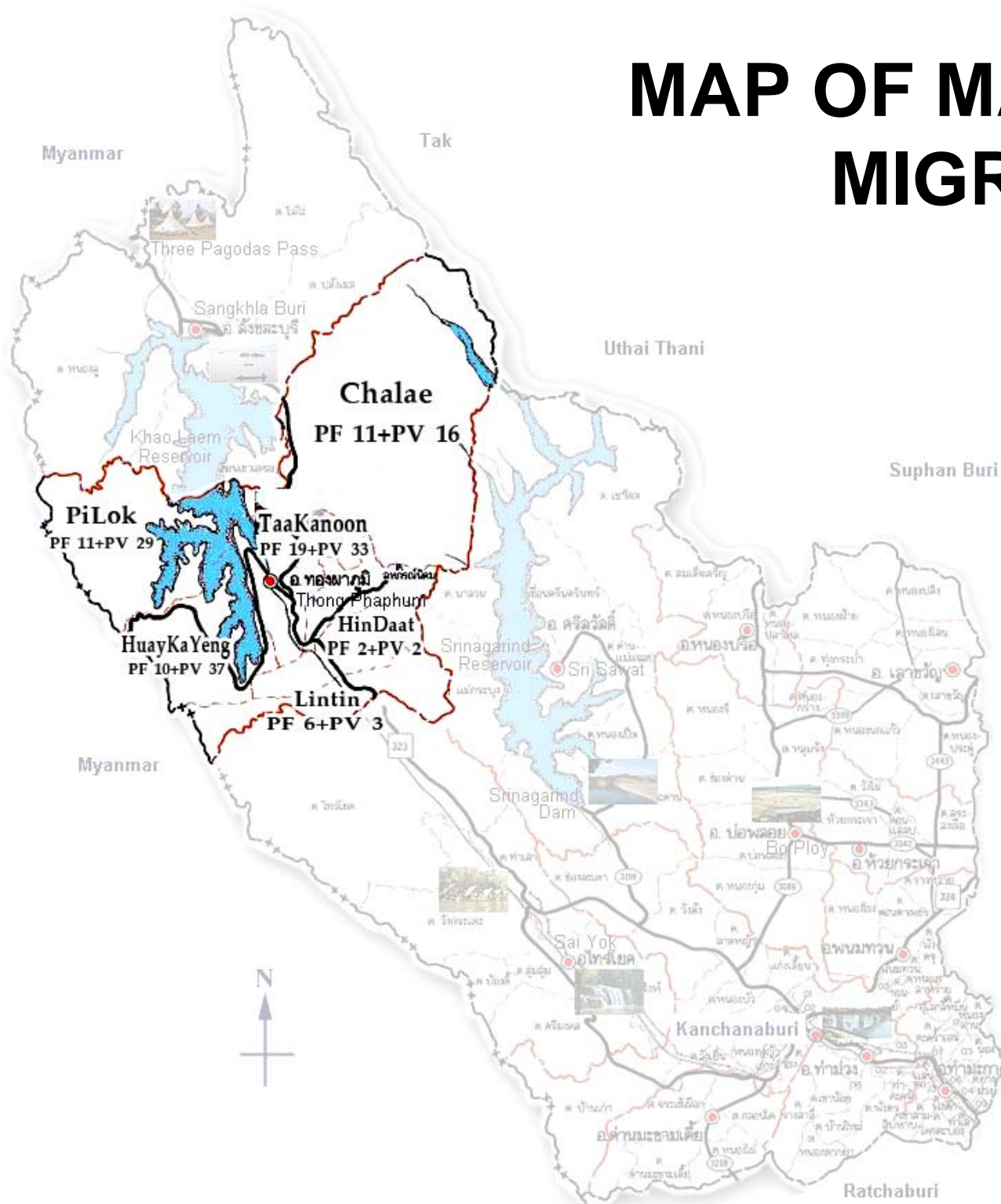
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- **Others interviewed**
 - Karen (6 PV + 4 PF)
 - TaWai (0 PV + 3 PF)

COMMUNITY AND HOSPITAL REPORTS OF MALARIA IN RESIDENTS OF THONGPHAPHUM

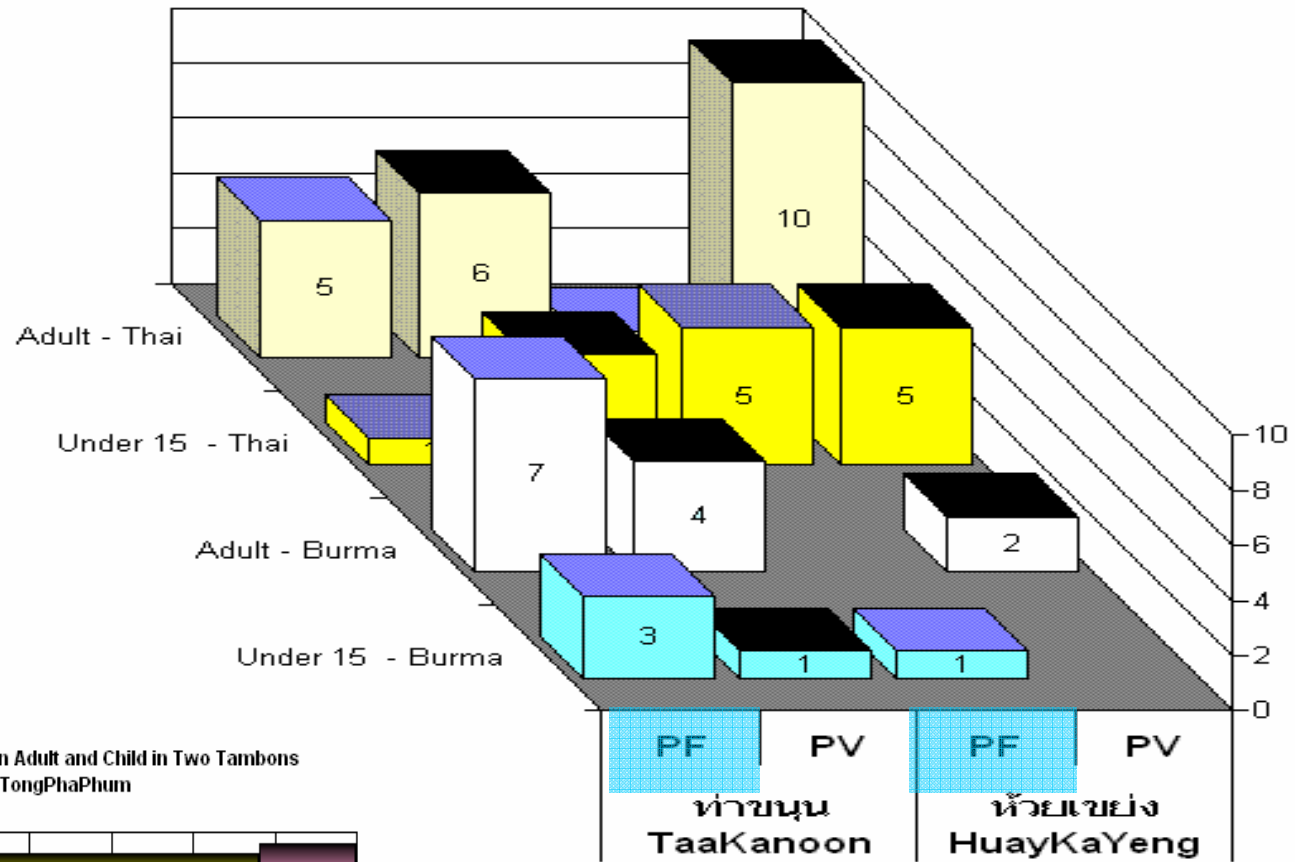
By Type and Citizenship Reported by Tambon in May 2007



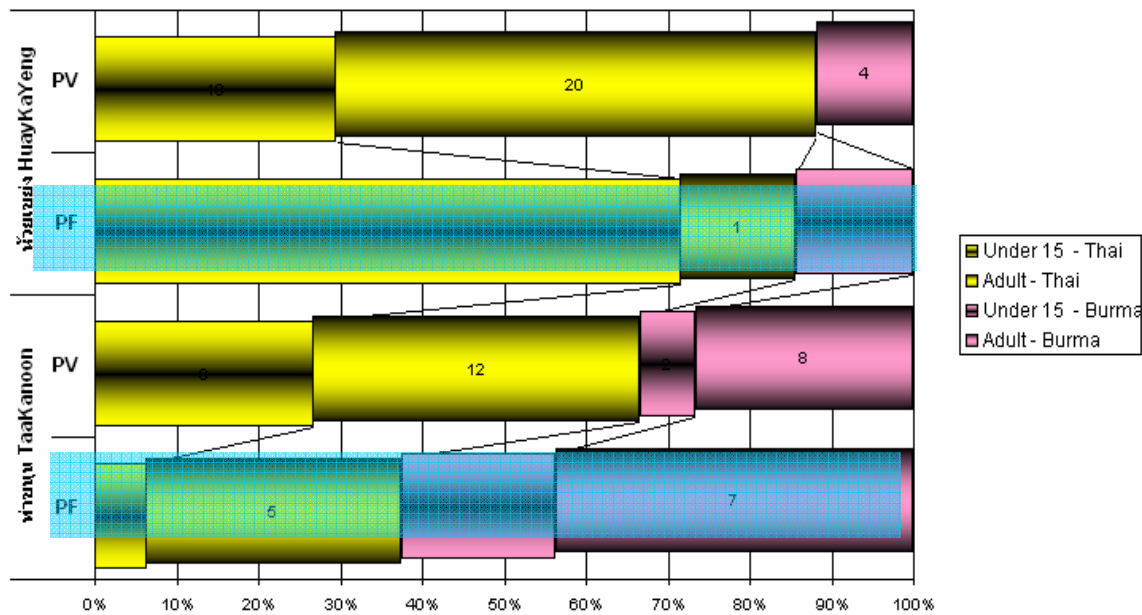
MAP OF MALARIA AND MIGRATION



PF and PV Malaria in Adult and Child in Two Tambons May 2007 - TongPhaPhum

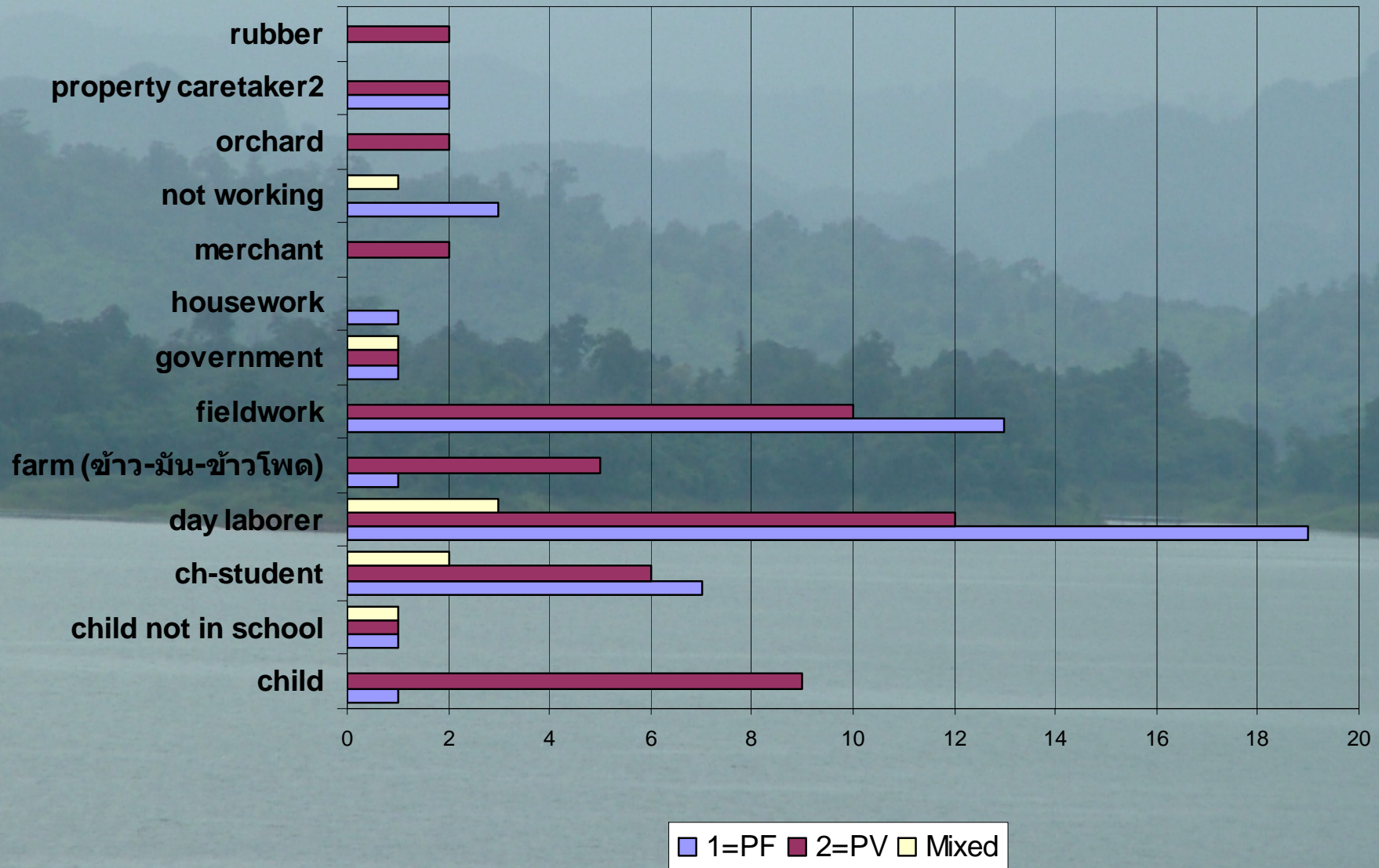


Percent of PF and PV Malaria in Adult and Child in Two Tambons
May 2007 - TongPhaPhum



COMMUNITY AND HOSPITAL REPORTS

Malaria type by occupation TongPhaPhum - May 2007



RESULTS

Things people are doing to spread malaria.

Evidence of exposure and contagion patterns confirmed the relationship of malaria to:

- **1) migration of infected individuals into the area,**
- **2) increased human presence due to the deforestation and plantation activities,**
- **3) the lack of protecting themselves from mosquito bites when in the forests, and**
- **4) changing activities contributing to the outbreak among children.**

So – What are the Human Activities that Contributed to this Malaria Outbreak?

- **Work – Economic**

- occupations,
- locations of work,

- **Migration – purpose or reason**

- migrations, incursions,
- travel routes.

- **Cultural – Political**

- Lack of Prevention behaviors, e.g. Housing, Clothing, Indigenous Practices to Keep insects away, e.g. domestic animals, fires
- Exposure situations, e.g. bathing, watching TV.

DEFICIENCIES IN CURRENT MALARIA EDUCATION

- Infected persons do not protect themselves from mosquito bites, thus facilitating the local spread of malaria.**
- The people interviewed did not consider malaria a serious problem as long as free treatment is available.**
- Patients know the treatment side effects were more debilitating than the disease.**
- Education programs aimed at children do not reach the people most at risk**

DISCUSSION

- **EQUITY ISSUES VS LIFESTYLE RISKS & DISEASES**
- **CROSS BORDER DIFFERENCES**
- **OR PREVENTING MALARIA**

SOME RECOMMENDATIONS

- **Malaria and health center personnel should educate people:**
 - about the mosquito as the vector of disease + prevention
 - that malaria can have serious and or fatal complications, such as cerebral malaria
 - ways to prevent bites
- **People in villages and work camps should beware that visitors and new neighbors might be malaria carriers.**
- **Employers or community stakeholders could provide mosquito nets, repellent or advice about protection to prevent transmitting the disease.**

Thank You

- Mrs. Pornpimon Adams, the reviewers and the organizing committee
- Suphot and Natrudee Denduong of the Health and Social Sciences International Program at Mahidol, Salaya – whose approach in MaeSot, Tak guided our research and who reached similar conclusions 3 years ago
- Those of you who stayed to listen
- Anyone who can share information with us
Correspondence: Ronald@buu.ac.th or
ronmarkwardt@yahoo.com

- **END**

