No.

タイ国
国立衛生研究所機能向上プロジェクト
運営指導調査団報告書

平成12年3月

国 際 協 力 事 業 団
医　療　協　力　部

医 協 一
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序　　文

タイ王国ではエイズの爆発的な流行を背景に、1991年、エイズ対策を政府が取り組む最優先課題として位置づけ、首相府を中心とする14の省庁からなる「国家エイズ委員会」が設立されました。以降タイ王国政府はエイズの感染予防に取り組んできたが、これに対しわが方では感染予防を主軸としたプロジェクトを行うことによりタイ王国政府に協力を行ってまいりました。

わが国は国立衛生研究所（NIH）を拠点として、エイズに関する試験分析研究体制および公衆衛生活動の強化支援を目的とする「エイズ予防対策プロジェクト」（1993年～96年）を実施しました。タイ王国政府は同プロジェクトの終了時評価に基づき、エイズに関する試験分析研究体制の強化を目的とするプロジェクトをわが国に要請してまいりました。これらの要請を受けまして、エイズと新興・再興感染症の調査研究体制の強化にかかるプロジェクトとして1999年３月から５年間の予定で国立衛生研究所機能向上プロジェクトを実施中です。

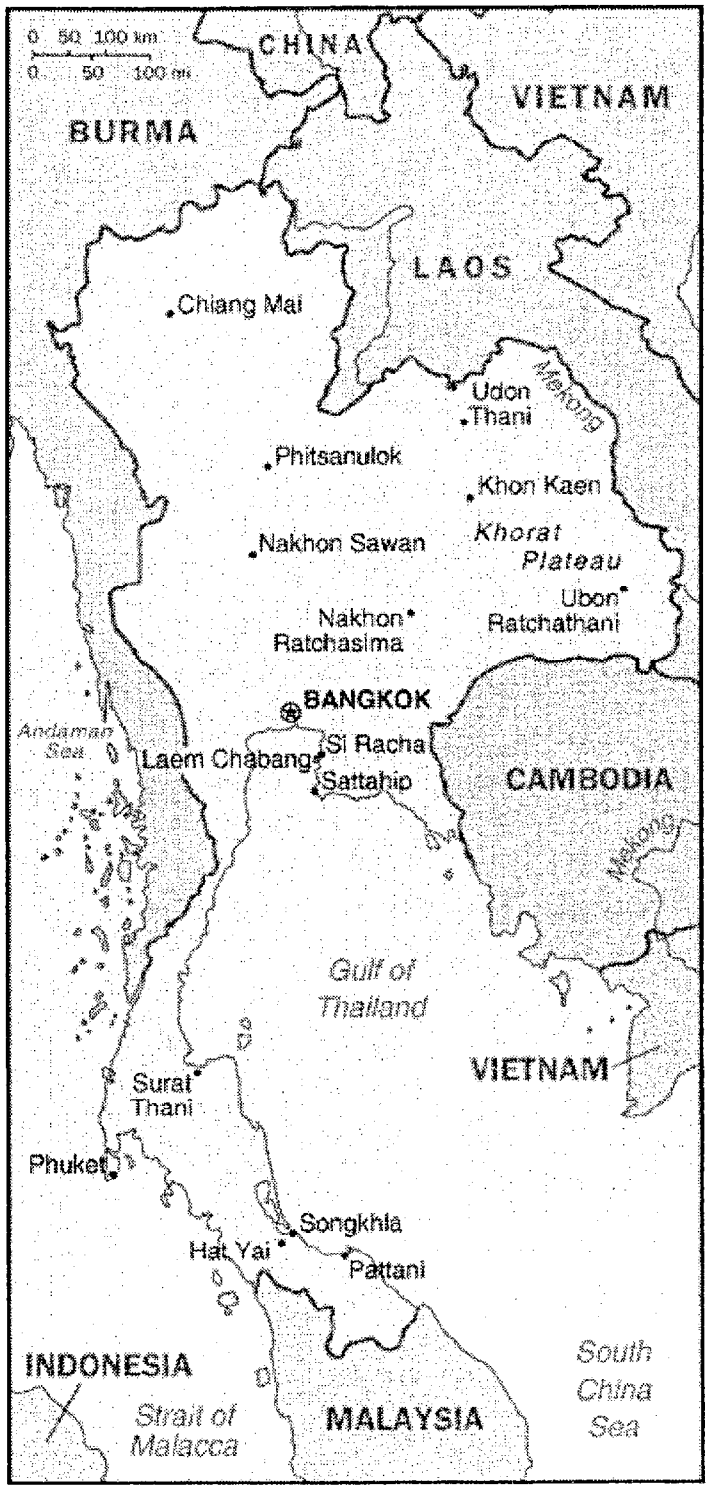
国際協力事業団は、開始から約１年を経た本プロジェクトの円滑な実施のためにその進捗状況を確認したうえで今後の協力の方向性について協議すべく2000年１月24日から１月29日まで前国立感染症研究所長　山崎修道氏を団長として運営指導調査団を派遣しました。

本報告書は、本調査の結果をとりまとめたものです。

ここに調査にあたり、ご協力を賜りました関係各位に対し深甚なる謝意を表します。

平成12年３月

国際協力事業団
理事　阿部　英樹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１．運営指導調査団派遣

１－１　調査団派遣の経緯と目的

タイ王国（以下、タイ）National Institute of Health（NIH：国立衛生研究所）は、日本政府の無償資金協力（1984年度24億5000万円、1985年度14億6000万円）によって1986年に設立されたタイ保健省医科学局に所属する研究所である。

タイでは現在までのエイズによる死者は22万人以上、感染者は約100万人（総人口の1.7%）と推計されている。こうした背景のもと、NIHを拠点として、エイズに関する試験分析研究体制および公衆衛生活動の強化支援を目的とする「エイズ予防対策プロジェクト」（1993～96年）が実施された。タイ政府は同プロジェクトの終了時評価に基づき、NIHのさらなるエイズに関する試験分析研究体制の強化に加え、新興・再興感染症の調査研究体制と地方研究室間の連携体制の強化についてプロジェクト方式技術協力をわが国に要請し、1999年３月から５年間の予定で以下の協力を実施中である。

（１）プロジェクト目標

NIHにおけるエイズおよび新興・再興感染症についての研究機能が向上し、NIHにおける研究成果がタイの感染症対策にいっそう貢献するようになる。

（２）期待される成果

１）エイズに関する研究環境が整備・充実される。

２）新興・再興感染症に関する研究環境が整備・充実される。

（３）活動項目

１）-1 放射性同位元素を用いた実験が可能な高度安全実験体制を確立する。

１）-2 高度安全動物実験室での感染動物の管理と実験に必要な技術を導入する。

１）-3 高度安全動物実験室での安全管理システムを確立する。

１）-4 地域におけるエイズの実体を研究調査するためのコホートを設定する。

１）-5 検体保存管理システムを確立する。

２）-1 新興・再興感染症の病原体についての診断技術を導入する。

２）-2 地方研究室において新興・再興感染症の病原体診断を行う適正技術を開発する。

２）-3 研究室間の情報処理ネットワークシステムをつくる。

本運営指導調査団は、プロジェクト開始から１年を経過した現時点で、これまでの進捗状況のレビューを行い、対象地域拡大の計画、プロジェクト・デザイン・マトリックス（PDM）

その他懸案事項等について先方と協議を行い、円滑なプロジェクト運営を図ることを目的として派遣された。

１－２　調査団の構成

	担　当	氏　名	所　属
団長	総　括	山崎　修道	前国立感染症研究所長
団員	協力計画	梅田　珠実	国立感染症研究所国際協力室長

１－３　調査日程

日順	月　日	曜日	移　動　お　よ　び　業　務
1	1月24日	月	11:00　成田発（JL717） 15:55　バンコク到着 18:00　プロジェクト専門家と打合せ
2	1月25日	火	10:25　バンコク発（TG162） 12:30　ランパン到着 13:30　ランパン病院にて関係者と協議 17:30　ランパン発（TG167） 19:30　バンコク到着
3	1月26日	水	9:30　保健省医科学局表敬 10:00　NIHにて関係者と協議 午 後　M/M作成
4	1月27日	木	10:00　M/M調印式 12:00　団長主催レセプション 15:30　JICA事務所報告
5	1月28日	金	午 前　バイオセーフティ会議に参加 22:50　バンコク発（JL718）
6	1月29日	土	6:20　成田到着

１－４　主要面談者

（１）タイ側関係者

１）保健省医科学局（Department of Medical Sciences, Ministry of Public Health）

Prof. Dr. Pakdee Pothisiri	Director-General
Dr. Paijit Warachit	Deputy Director-General

２）ランパン県関係者

Dr. Suchin Wongchusri	Director of Lampang Hospital
Dr. Panita Pathipvanich	Assistance Director of Lampang Hospital
Dr. Taweesup Siraprapasiri	Senior Health Technicical Officer

（2）日本側関係者

1）JICAタイ事務所

岩口　健二	所長
梅崎　　裕	次長
笛吹　　弦	担当所員

2）プロジェクト専門家

吉池　邦人	チームリーダー
小嶋慎一郎	業務調整員
宮村紀久子	長期専門家（感染症対策）
有吉　紅也	短期専門家（エイズ研究）
杉山　和良	短期専門家（実験室安全管理）

2．総　括

（1）ランパンにおけるフィールド研究

1月25日（火）、調査団は現地専門家吉池リーダーとともに、本プロジェクトの1つであるHIV-1 cohort studyが実施されている。ランパン県病院（Lampang Provincial Hospital）を訪問した。ランパン病院では、Dr. Suchin院長とDr. Panita副院長、およびPPHO (Provincial Public Health Office）のDr. Taweesapならびに日本人側の有吉短期専門家とタイJICA事務局の笛吹氏等によって現地疫学調査研究の報告会が準備されていて、約1時間にわたって報告と討論が行われた。

本研究プロジェクトにおいては、有吉専門家の計画指導に基づいて、PPHOのDr. Taweesapなどが中心になって、Nam Thoak郡の小村（Tambon）で実施されたCommunity-based cohort study（15歳～19歳の1044人の住民対象）と、Lampang Hospital-based cohort study（デイ・ケア・センターに登録されたHIV感染者を対象とするCouple Study）の両方が実施されている（資料2）。

報告会は、有吉専門家の司会によって病院内会議室で行われ、Community-based studyについては、すでに第1相の調査研究が終了し、HIVおよびB型、C型肝炎等の流行状況、HIV疫学調査参加率、follow-up率等について有益な情報が得られた（PPHOのDr. Taweesapが報告）。Hospital-based studyについては、ランパン病院のデイ・ケア・センターの担当医Dr. Panita副院長と有吉専門家の報告によると、Retrospective couple studyが終了し、デイ・ケア・センターに登録された457の既婚者の解析から、調査参加率、採血率、HIV陽性率などが算出され、今後のProspective discordant couple studyのための基礎データが得られた。これらのcohort studyについては、タイ政府の倫理委員会の承認が得られており、今後の研究の発展が期待される（詳細は有吉専門家が報告する）。

さらに調査団は、Dr. Suchin、Dr. Panita等の案内で、病院内に新設されたデイ・ケア・センター（Medical and Psychosocial Care Center）を視察し、そこでの活動状況について説明を受け、若い参加者（感染者を含む）がJICA提供のティーシャツ・ユニフォームを着用して仲良く活動している状況を見学した。また、採血サンプルの解析（HLAタイピング、CTL活性の測定など）が行われる実験室の整備の進行状況を確認した。

（2）国立衛生研究所（NIH）におけるHIV/AIDSおよび新興感染症研究

1月26日（水）、NIHにて、本プロジェクトの活動状況レビュー会議が開催され、日本での研修により技術移転を受けたタイ側カウンターパートから報告が行われた（資料3）。

バイオセイフティーに関しては、短期派遣専門家による現状分析と、基礎的な知識・技術に

ついての個別指導に加え、１月28日（金）のNIH、JICAおよびJST共催バイオセイフティー・セミナーにより、知識・技術の普及が行われた（資料４）。

HIV/AIDSについては、HLAタイピングの技術が移転され、ランパンでのフィールド研究と連携した活動の基盤が固められた。

新興・再興感染症については、ノーウォーク様ウイルス、アストロウイルス、アデノウイルス等のウイルス性下痢症、Ｅ型肝炎、コレラ、デング熱の病原体診断技術が移転されたが、一部でタイ側が習得を希望した検査方法と、日本側が指導した内容が一致していないケースがあった。また、新しい技術のなかには、移転後の研究に用いる機会がなかったり、検査キットがタイ国内で入手できなかったりするなどの問題点が指摘されたものもあった。タイNIHスタッフの新興感染症の病原体診断に関する意欲が感じられた一方、日本人専門家から学んだ技術が、必ずしも所内の他のスタッフとの間で共有されていないように見受けられた。

今後の技術移転の対象疾患としては、1996年に急増し、致死率も上昇したものの、流行している血清型が把握されていないレプトスピラ症、およびタイにおける感染状況が明らかではない肝炎（特にＡ型、Ｅ型）がNIH側より提案された。

３．プロジェクト実施上の諸問題

３－１　プロジェクトの進捗状況、問題点と対応策

上述のとおり、プロジェクトは予定どおり順調な進捗をみせており、特筆すべき問題点はないがさらに円滑な運営を図るためにミニッツのなかで次のとおり提言を行った。

（１）日本人短期専門家派遣、タイ研修生受入れを実施する際は、移転する技術の詳細な内容と目的を明らかにし、e-mail等によりカウンターパート間で事前に十分な打合せを行うことが必要である。

（２）移転された研究技術を根づかせるためには、技術移転後の日タイ共同研究を通じて、日本人研究者とタイ側の協力が維持される必要がある。

（３）タイ側の事情により、1999年度に予定されていた完成が遅れているCTL実験室をできるだけ早期に完成させる必要がある。

（４）新興感染症研究機能強化の対象として、レプトスピラおよび肝炎ウイルスの分離・同定に関する技術移転を行う。

（５）ランパンにおけるフィールド研究は、タイ政府倫理委員会の承認内容に沿って今後も継続させる必要がある。

３－２　資機材の利用状況

供与済の機材はすべて有効に活用されている。また長期および短期派遣専門家の携行機材として購入されたパソコン等も有効に活用されている。

プロジェクト開始後３年程度を経た時期に資機材の利用状況を調査する場合には、プロジェクト終了に向けた先方のメンテナンス体制の構築状況をあわせて調べることが必要と思われる。

附　属　資　料

資料１　ミニッツ

資料２

資料３

資料４

参　考

資料1　ミニッツ

MINUTES OF MEETINGS BETWEEN THE JAPANESE MANAGEMENT CONSULTATION TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE KINGDOM OF THAILAND ON THE JAPANESE TECHNICAL COOPERATION FOR THE PROJECT FOR STRENGTHENING OF NATIONAL INSTITUTE OF HEALTH CAPABILITIES FOR RESEARCH AND DEVELOPMENT ON AIDS AND EMERGING INFECTIOUS DISEASES

The Japanese Management Consultation Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Shudo Yamazaki, visited the Kingdom of Thailand from 24 to 29 January 2000.

During its stay in the Kingdom of Thailand, the Team had a series of discussions to review the activities of the Project for *Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases* (hereinafter referred to as "the Project").

As a result of the discussions, both sides agreed to the matters in the document attached hereto.

Nonthaburi, 27 January 2000

Dr. Shudo Yamazaki
Leader
Management Consultation Team
Japan International Cooperation Agency

Dr. Pakdee Pothisiri
Director-General
Department of Medical Sciences
Ministry of Public Health
The Kingdom of Thailand

ATTACHED DOCUMENT

1. Both sides agreed on the progress of the Project as described in the following 1.1-5.

1.1 Summary of the 1999 activities with regard to those listed in the Record of Discussions (R/D) Master Plan

A) Studies of HIV-1 infection and AIDS. A hospital-based couple study was planned and initiated in Lampang. The technology for typing HLA genes was transferred to National Institute of Health (NIH). Biosafety practice in NIH was assessed by a Japanese expert.
B) HIV-1 vaccines evaluation system using small animals. Equipment necessary for containment animal laboratories was provided. A Thai scientist was sent to Japan for training.
C) Identification of pathogens. Technologies for identifying and characterizing diarrhea viruses and hepatitis E virus were transferred to NIH. Two scientists were sent to Japan for training in research on *Vibrio cholerae* and dengue virus, respectively.
D) Laboratory network for surveillance. The central office for networking was set up in NIH.

1.2 Technology and information transfer

Japanese experts transferred to the counterparts methodologies and information required for research and reference activities on pathogens. The transfer is expected to facilitate the development of cooperative research programs conducted in the framework of the Project. The following programs were or are being implemented.

A) Dispatch of Japanese experts (see attached Table):
Koya Ariyoshi (Field studies of HIV-1 infection and AIDS)
Kazuyoshi Sugiyama (Biosafety practice and management of containment laboratories)
Tatsuya Matsumi (Studies of HLA typing)
Naokazu Takeda (Serological study of hepatitis E virus)
(Detection and identification of diarrhea viruses)

B) Training of Thai personnel in Japan (see attached Table):
Virat Sumateewatanakul (Inbred and outbred breeding animal colonies for HIV vaccine evaluation)
Aree Thattiyaphong (Molecular diagnosis of *Vibrio cholerae*)
Areerat Sa-ngasang (Molecular studies of dengue virus)

C) Provision of Machinery and Equipment (see the attached equipment list):

D) Discussions between the Thai counterparts and the Japanese experts:
Reference laboratory activities for leptospirosis
Preparation of hepatitis A virus antigen for ELISA

1.3 Field studies

For studies of the HIV-1 infection and pathogenesis and possible emerging infections, the Project has intended to initiate a hospital-based study in Lampang and to support the Mae Tha community-based study, the initial phase of which was completed recently. The MOPH (Ministry of Public Health) / JICA team headed by Dr. Paijit Warachit designed a couple study for the HIV-1 infected individuals attending at Lampang Provincial Hospital. The study, consisting of retrospective and prospective phases, is being conducted at the HIV Day Care Center in collaboration with the hospital. The retrospective phase started in July 1999. Demographic, clinical and laboratory data of all the cases registered at the Center and their spouses were collected from the Center's registration forms and other

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relevant hospital records. Compiled information in the 1169 newly filled-in forms is currently being analyzed by the MOPH / JICA data management team. A research proposal for the prospective phase was approved in January 2000 by the Thai Government Ethics Committee. The Project is going to establish a field station in the hospital before the end of March 2000 for processing blood samples, which will be analyzed in NIH.

1.4 Laboratory networking for infectious diseases surveillance

The MOPH is planning to set up a network for emerging infectious diseases, in which NIH is expected to act as the Information Center and Reference Laboratory .

1.5 Other activities

A) National Repository of HIV/AIDS Vaccine Trial and Evaluation
B) National Serum Reference Bank
C) Educational or Public Relation Campaign for AIDS and Infectious Diseases
D) Dissemination and Exchange of International Epidemiological Information

2. Both sides agreed that the following measures are necessary during the remaining technical cooperation period stipulated in R/D.

Recommendations

A) Communication (e.g. through E-mail) be improved between Japanese scientists concerned and Thai counterparts, so that the specific objectives of the training and technology transfer can thoroughly be discussed in advance.
B) A link between the Japanese scientists and Thai counterparts be maintained through collaborative research after technology transfer.
C) A CTL laboratory (initially planned to be set up in the fiscal year 1999) be completed early.
D) Technologies be transferred for identifying and characterizing other pathogens, such as *Leptospira* and hepatitis viruses.
E) Field studies in Lampang be continued, in line with the proposal approved by the Thai Government Ethics Committee.

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TABLE 1. Dispatch of Japanese Experts JICA NIH PROJECT

	Duties as/on	Term
Long term experts		
1. Dr. Kunito Yoshiike	Chief Advisor	1 Apr. 1999-
2. Mr. Shinichiro Kojima	Co-ordinator	1 Mar. 1999-
3. Dr. Kikuko Miyamura	Emerging and re-emerging diseases studies	1 Apr. 1999-
Short term experts		
1. Dr. Koya Ariyoshi	HIV studies	4 - 17 Jul. 1999
2. Dr. Koya Ariyoshi	HIV studies	27 Sep. 1999 - 28 Jan. 2000
3. Dr. Naokazu Takeda	Emerging and re-emerging diseases studies	22 Nov. - 8 Dec. 1999
4. Mr. Tatsuya Matsumi	HIV studies	10 - 22 Jan. 2000
5. Dr. Kazuyoshi Sugiyama	Emerging and re-emerging diseases studies	19 - 30 Jan. 2000

TABLE 2. Counterpart Training in Japan

	Training areas	Term
Ms. Aree Thattiyaphong	Cholera	29 Jun. - 23 Dec. 1999
Mrs. Areerat Sa-ngasang	Dengue virus	5 Oct. - 23 Dec. 1999
Mr. Virat Sumateewatanakul	Laboratory animals	5 Oct. 1999 - 28 Jan. 2000

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No.	Equipment items	Q'ty	Used for
1	Shaking incubator	1	HIV Studies
2	Autoclave	1	P2/3 Laboratory
3	High speed refrigerated microcentrifuge	1	
4	Low speed refrigerated centrifuge	1	
5	CO2 incubator	2	
6	Inverted microscope	1	
7	Freezer (-80)	1	
8	Freezer (-30)	1	
9	Refrigerator	1	
10	Safety cabinet	1	Field station
11	Bench-top centrifuge	1	
12	Microscope	1	
13	Freezer (-80)	1	
14	Freezer (-30)	1	
15	Refrigerator	1	
16	Dry-shipper	2	
17	Vehicle	1	
18	Computer	2	
19	Printer	1	
20	Liquid nitrogen freezer	1	
21	Gas killer (CO2 chamber)	1	Animal laboratory
22	Breeding guinea pig set (drawer type)	12	
23	Guinea pig rack set	1	
24	Stainless steel shelf for mouse cages	30	
25	Stainless steel shelf for rat cages	18	
26	Autoclave	1	
27	Hot air oven	1	
28	Ice maker	1	
29	Refrigerated compact centrifuge	1	
30	High - speed microcentrifuge	1	
31	Laboratory refrigerator	1	
32	Safety cabinet	2	Emerging and re-emerging diseases studies
33	CO2 incubator	2	

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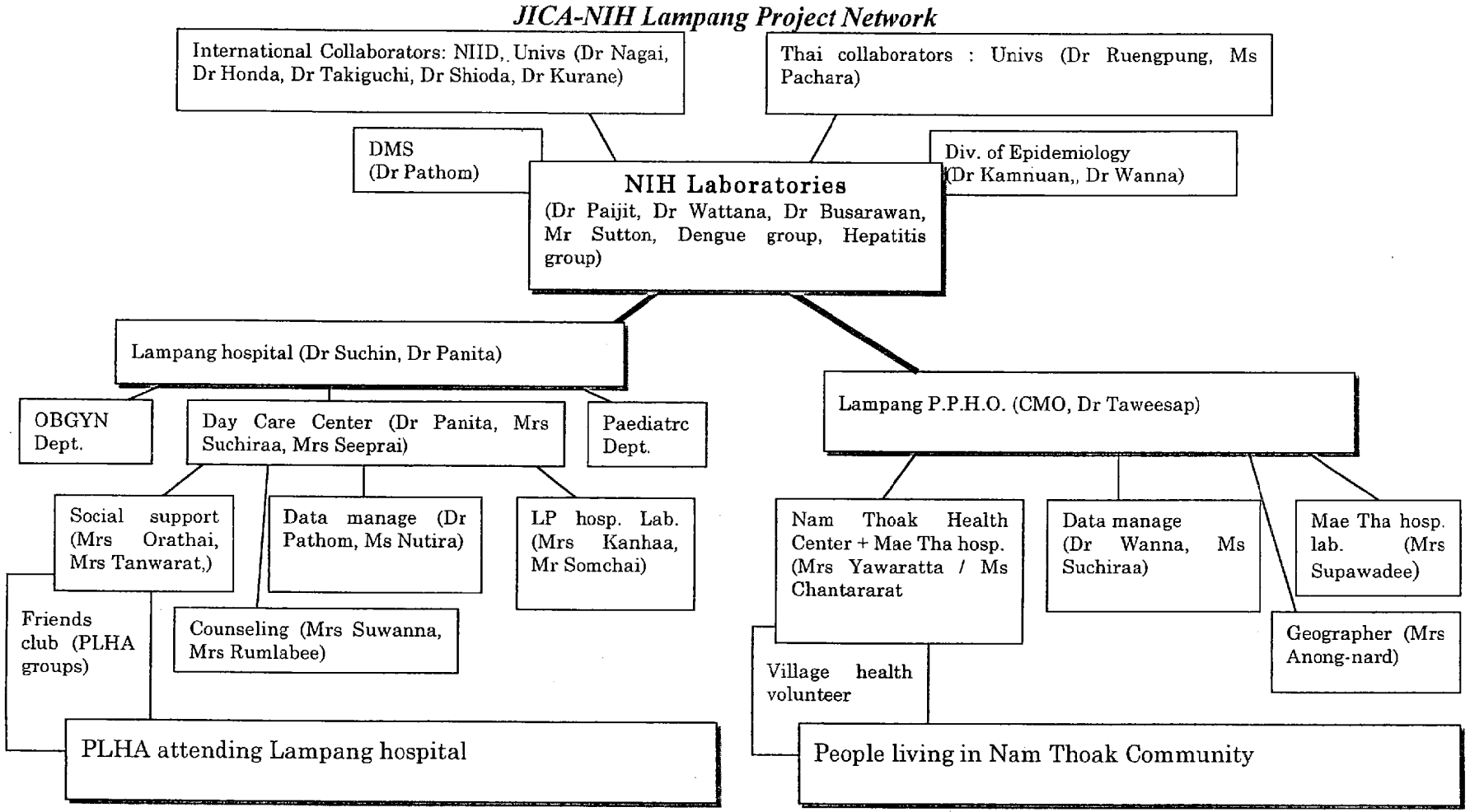
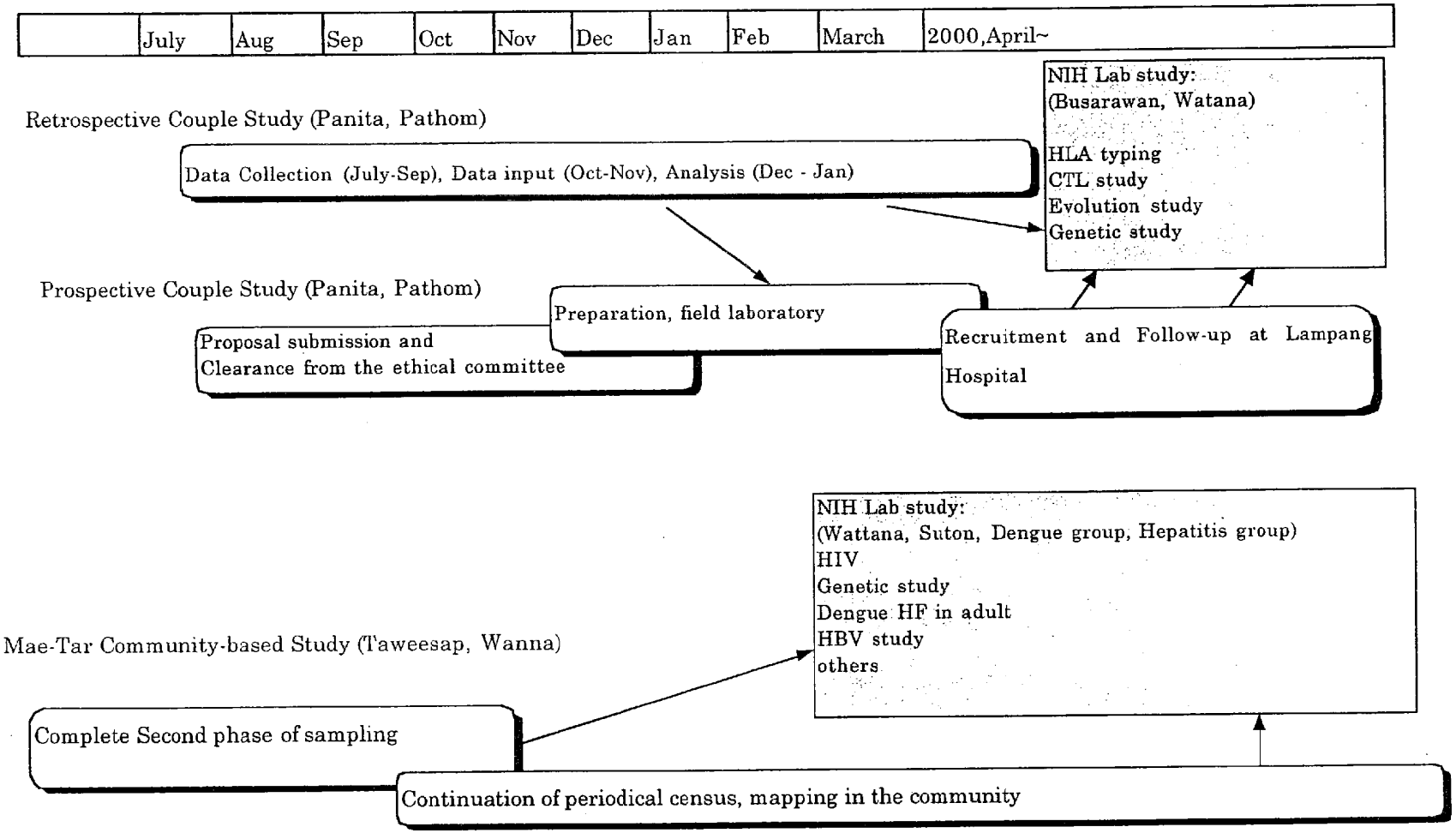

JICA-NIH Lampang Project Network
International Collaborators: NIID, Univs (Dr Nagai, Dr Honda, Dr Takiguchi, Dr Shioda, Dr Kurane)
Thai collaborators : Univs (Dr Ruengpung, Ms Pachara)
DMS (Dr Pathom)
NIH Laboratories (Dr Paijit, Dr Wattana, Dr Busarawan, Mr Sutton, Dengue group, Hepatitis group)
Div. of Epidemiology (Dr Kamnuan,, Dr Wanna)
Lampang hospital (Dr Suchin, Dr Panita)
OBGYN Dept.
Day Care Center (Dr Panita, Mrs Suchiraa, Mrs Seeprai)
Paediatrc Dept.
Social support (Mrs Orathai, Mrs Tanwarat,)
Data manage (Dr Pathom, Ms Nutira)
LP hosp. Lab. (Mrs Kanhaa, Mr Somchai)
Friends club (PLHA groups)
Counseling (Mrs Suwanna, Mrs Rumlabee)
PLHA attending Lampang hospital
Lampang P.P.H.O. (CMO, Dr Taweesap)
Nam Thoak Health Center + Mae Tha hosp. (Mrs Yawaratta / Ms Chantararat
Data manage (Dr Wanna, Ms Suchiraa)
Mae Tha hosp. lab. (Mrs Supawadee)
Geographer (Mrs Anong-nard)
Village health volunteer
People living in Nam Thoak Community

Time Table of JICA NIH Lampang Project (revised)



資料 3

Agenda

of

the Discussions to review the activities of the Project for Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases

on 26th January 2000 at 10.00 a.m.

at Room A - 203, NIH

10.0 - 10.05 a.m. Welcoming Speech	- Dr. Paijit Warachit
10.05-10.10 a.m. Speech by Dr. Shudo Yamazaki	- Dr. Shudo Yamazaki
10.10 - 10.20 a.m. Report by counterpart of Dr. Kazuyoshi Sugiyama	- Dr. Raywadee Butraporn
10.20 - 10.25 a.m. Report by counterpart of Dr. Tatsuya Matsumi	- Dr. Busarawan Sriwanthana
10.25 - 10.30 a.m. Report by counterpart of Dr. Naokazu Takeda	- Dr. Yaowapa Pongsuwanna
10.30 - 10.35 a.m. Report by trainee in Molecular diagnosis of *Vibrio cholerae*	- Ms. Aree Thattiyaphong
10.35 - 10.40 a.m. Report by trainee in Molecular studies of dengue virus	- Ms. Areerat Sa-ngasang
10.40 - 10.50 a.m. Report on AIDS	- Dr. Wattana Auwanit
10.50 - 11.05 a.m. Summary of Emerging Disease Studies	- Dr. Paijit Warachit
11.05 - 11.20 a.m. Report on equipment supply	- Mr. Shin-ichiro Kojima
11.20 - Discussion	

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Request For JICA Ex pert for Bio-safety Control

1999 Fisical year

Expert name : Dr. K. Sugiyama,

Chief of Bio-safety Control and Research NIID

Duration: 2 weeks (19th January 2000 - 2nd February 2000)

Place : National Institute of Health, Department of Medical Sciences

Ministry of Public Health

Tentative Schedule and Scope of Work :

- Situation Analysis with the Thai NIH team and the chief of laboratory
- Lecture on the laboratory safety on infectious laboratory
- Presentation of situation analysis and Discussion
- Discussion with DMSc and NIH administrators, expert and NIH Bio-safety team

on the topic: The necessary equipment

Laboratory safety system management

Others

Wrap up and Report Writing

Counterparts: Chiefs of Thai NIH Laboratories and NIH Bio-safety Team

Contact Person : Raywadee Butraporn

Comment -Simple but extensive
-to ensure that the introduction of test is suitable for Thai samples, comparison with other methods is recommended.
-detailed analysis of data is needed for Thai participants.

Dr.Busarawan Sriwantana

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The Project for Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases

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Report of expert's activities, 1999

Position title : Study on causative agents of viral diarrhoea by electron microscopic technique and other techniques.

Duration : 22 November - 8 December 1999 (17 days)

Expert from : National Institute of Infectious Diseases (NIID)
Dr. Naokazu Takeda, Ph.D.

Aim of Dutiies : To prepare the diarrhoeal specimens for detecting the viral causative agents of viral diarrhoea by electron microscopic techniques.
To detect the causative agents of viral diarrhoea such as norwalk virus, calicivirus, astrovirus, coronavirus, adenovirus and other small round virus particles by electron microscopic techniques and other techniques.

Activities :
1. Detection of diarrhoea viruses eg. enteric adenovirus and astrovirus from 157 negative stools of rotavirus collected in 1998-1999 using latex agglutination test and enzyme linked immunosorbent assay (ELISA).
2. Implement RT-PCR technique for detection Norwalk-like viruse, Sapporo-like virus and Aichiviruses (SRVs). This activity is ongoing.

Expert's Recommendation :
1. Implementation of RT-PCR technique for detection of small round virus particles (SRVs) should be continued.
2. Antigenic differentiation of isolated Aichivirus strain in Thailand with the known reference serotype.

3. Molecular cloning of Sapporo-like viruses (SLV) and expression of the capsid protein as VLPs, and development of an ELISA in the detection of SLV in stool specimen.

Counterpart's comment :

1. All reagent using for detection of astro and enteric adenovirus by ELISA and latex agglutination test in this time are commercial kits which was hand carried by the expert (Dr. Naokazu Takeda). It is good for studying the size of problem of SRVs in Thailand in the first step but for future, in house preparation of reagents is needed.
2. To continue the study of antigenic and genetic property of SRVs in Thailand, the expert for guidance and fellowship for training should be provided.
3. SRVs use to be the causative agent of diarrhoeal outbreak in some area of the world which make it to be the interesting virus in the field of viral diarrhoea. The techniques for isolation and detection of these viruses are still limited, only some laboratories can perform the test. To study of both antigetic and genetic properties of these viruses will be useful for monitoring the emerge of these viruses in Thailand.

Fellow report

1. Name of Participant: Ms Aree Thattiyaphong
2. Affiliation: Enteric laboratory

Medical bacteriology Section

National Institute of health

Department of Medical Sciences

Ministry of Public Health, Tivanond Road, Nonthburi 11000,

Thailand.

Tel: (662) 951-0000 ext. 9412

Fax: (662) 591-5449

3. Requested title of training: Molecular genetical analysis of cholera germ
4. Objective of training:

Detection of cholera in environmental water.

5. Requested training topics:

5.1 PCR technique

5.2 PFGE technique

5.3 Detection of cholera in environmental water by molecular techniques or immonology

6. Training activities:

6.1 National Institute of Infectious Diseases

Director: Dr. Haruo Watanabe

Chieft of enteric section I: Dr. Toshio Shimada

Instructor: Mr. Eiji Arakawa

Training period: 6 weeks (Jul 5-Aug 6 1999, Sep 13- Sep 24 1999)

Training topic: 1. PFGE of *V. cholerae* 139

2. PCR of CT gene

6.1.1 Evaluation and comment:

Training course at NIID reaches the objective plan. However, it is appreciated if there is training schedule for participants to manage their own time. It will be more useful since NIID library is full of published journals and text books.

6.2 National Institute of Public Health

Instructor: Dr. Ito Kenitiro

Training period: (5 weeks) Aug 9-Sep 10 1999

Training topics:

1. Detection of CT and LPS gene of *V. cholerae* O1 in river water
2. HMA of *V. parahemolyticus trd* and *trh* genes

6.2.1Evaluation and comment:

The first topic has related and reached the objective plan but the time was limited and the outcome was not complete. The second topic, HMA of *tdh, trh* genes of *V. parahemolyticus* is also useful although it is not in requested activities.

6.3 Department of Bacteriology

Niigata University

Instructor: Prof. Tastuo Yamamoto

Duration of time 3 months: (Sep 27-Dec 20 1999)

Training topics:

1. Epidemiological investigation of V. parahemolyticus
2. Rapid Immunodiagnosis of cholera

6.3.1 Evaluation and comment:

Both topics are research works. Topic 1 could be set up the optimal condition for investigation. Topic 2 had a limited time (6 weeks) and could not be finished.

9. Acknowledment:

This training course had been granted by JICA. I am grateful to JICA, JICA experts and all above mentioned instructors and institutes.

10. Future plan

1. Detection of cholera in water.
2. Epidemiological investigation of *V. parahemolyticus*

JICA fellowship report (1999)

1. **Name**: Ms. Areerat Sa-ngasang

2. **Affiliation**: Arbovirus section, Virology I, National institute of Health, Department of Medical Science, Ministry of Public Health, Thailand

3. **Requested title of training**: PCR technique for serotyping of Dengue virus

4. **Training period**: 5 October - 23 December 1999

5. **Objective of training**

   5.1 New Polymerase Chain Reaction (PCR) technique including primer design

   5.2 Application of PCR technique i.e. Site-directed mutagenesis

6. **Training activities**

   6.1 Institute: Department of Virology I, National institute of infectious disease (NIID), Japan

   6.2 Instructors: Dr. Ichiro Kurane (Director of Virology I)

   Dr. Tomohiko Takasaki

   Dr. Ken-Ichiro Yamada

7. **Training topic**: Examination methods for dengue fever

   7.1 Dengue serotyping by reverse transcriptase polymerase chain reaction (RT-PCR) (Morita *et al*, 1991)

   7.2 Modification dengue virus isolation in C6/36 cell line using microplate

   7.3 Dengue virus plaque assay in Vero cell

   7.4 Dengue IgM/IgG antibody using PanBio rapid test kit

   7.5 Observation: genotyping of JE virus

   7.6 Observation: preparation of dengue 1 antigen from C6/36 cell (coat poly-L-lysine onto flask before use)

   7.7 Research methodology.

8. Evaluation and comments

8.1 The training topic is not the same topic as request.

8.2 The objective one of requested training is succeeded in but objective two is not.

8.3 It does not have a training schedule but instructors tell day by day.

8.4 It should have a training schedule before training at least 3 weeks for repairing sample or basic knowledge.

8.5 It should have a personal contract between trainee and instructor before training period.

8.6 The instructors take care well both of training and general living.

8.7 All training technique/methods can be applied to Arbovirus laboratory.

8.8 Training time is too short to do a research work.

9. Acknowledgement

I am deeply grateful to JICA for providing me a fellowship. I wish to express my deep thank to Department of Medical Science for giving me a opportunity to attend this training. Finally, I am very thankful to the instructors for the knowledge and experience, which they give to me.

10. Future Plan

10.1 To modify dengue virus isolation method from bottle to 24 well-plate

10.2 To try to propagation dengue virus in C6/36 cell line by using poly-L-lysine coated flask

10.3 To try to do plaque reduction neutralization test (PRNT) by using Vero cell

Report of the JICA's Technical Cooperation for
the Project for Strengthening of the National Institute of Health Capabilities for Research and Development of AIDS and Emerging Infectious Diseases

Date : January 26th, 2000

HIV study

1. Cohort of concordant couples study in Lampang province.

- Dr. Koya Ariyoshi submitted the proposal of "The study of HIV infection among the couple at Lampang province" to the Ethical Review Committee of Research Committee, Thai MoPH. The proposal has been approved.
- Dr. Koya Ariyoshi are now setting up the cohort coordinating office in Lampang hospital and the data of the retrospective couple study has been analyzed.
- Dr. Panita Pratheepwanich has managed the Day Care Center for recruitment of the couple for this study.
- Dr. Prathom Sawanpanyalert has assisted and shared the idea on creating study design and management of epidemiological and clinical data.
- Mrs. Kanha, chief of Lampang hospital laboratory, and staff will support the couple study for routine laboratory testing and sample preparation.
- Dr. Wattana Auwanit will develop the protocol for sample collection, sample preparation and sample storage.
- The prospective study may start with in May 2000.

2. Experts

HLA Typing

Name of Expert :

Dr. T. Matsumi (Wakunaga Pharmaceutical Co.)

Period of visiting : 10th – 21st January 2000 (2 weeks)

Activities :

- Setting up the workshop on HLA Typing by commerciall test kit.
- Evaluating the sensitivity and specificity of commercial test kit for HLA typing in Thai blood samples from Lampang.
- Testing HLA typee in the samples of Thai couple from Lampang for further CTL study.

Thai counterparts :

Dr. Busarawan Sriwanthana, Dr.Chantanee Buranathai, Mrs Nuanchan Ruechusasawat and Mrs Siriphan Saeng-Aroon.

3. Fellowship :

None.

HLA Typing

Expert : Dr. Tatsuya Matsumi

Counterparts: Dr.Busarawan Sriwantana
Dr.Chantanee Buranathai
Mr.Nuanchan Ruechusartwat
Ms.Siripan Wongwanit

Achievment -technology transfer for HLA typing using low resolution test was obtained.
-some Thai samples were typed and results were helpful for other studies such as CTL study.

資料 4

Schedule for

Special lecture

"The Principle of Bio-safety and laboratory practice"

NIH Conference room Building 1

Friday 28th January 2000

08.30 - 09.00 AM. Registration

09.00 – 09.30 AM. Opening ceremony :

: Reporting by Dr. Wattana Uwanich (NIH-Chairman of Bio-safety committee)

: Welcome address by Miss Suntharee Rojnaphot (Senior Principal Medical Scientist)

09.30 – 10.10 AM. Lecture 1. Principle of Biosafety (biosafety in microbiological laboratories)

by Dr. Takashi Kurata , Deputy Director-General,NIID

10.10 - 10. 30 AM. Break (cafeteria 1st floor NIH building)

10.30 -11.20 AM. Lecture 2. Practical aspects of Biosafety in NIID

by Dr.. Kazuyoshi Sugiyama, Chief of Bio-safety Control and Research , NIID

11.20 – 12.00 AM. Lecture 3. Biosafety of animal experiments
by Dr. Toshihiko Asano, Chief of Experimental animal Division, NIID

12.00- 01.00 PM. Lunch (Guest lunch room - 2nd floor NIH building)

01.00- 01.40 PM. Lecture 4 Facility and equipments BSL-2L3 (Biosafety cabinets)
by Dr. Katsuaki Shinohara (Senior researcher , Division of Bio-safety Control and Reseach NIID)

01.40 – 02.30 PM. Lecture 5 Safety in Radioisotope laboratory & Molecular-biological laboratory)
by Dr. Hideaki Maekawa (Supervisor of Radiation Control in NIID

02.30 –02.45 PM. Break (Cafeteria 1st floor NIH building)

02.45 – 03.15 PM. NIH – Biosafety situation analysis
by Dr. K. Sugiyama and NIH team

03. 15 – 03.30 PM. Policy for NIH biosafety by Dr. Paijit Warachit

03.30- 04.00 PM. Closing ceremony

Remark:
1. English will be used in this seminar.
2. 100-120 audience, the laboratory personnels in NIH building including other division related NIH, will attend this seminar.

参　考

PART 1

SUMMARIES OF NOTIFIABLE DISEASES

Table 1 - Reeported Cases by Month,Thailand, 2539 (1996)

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Acute Diarrhoea	981072	113078	96702	93722	86454	92844	93230	83984	71829	64983	64820	66310	53116
2	Food Poisoning	82281	7506	6785	7593	7202	7618	7255	7240	7337	7062	6588	5995	4100
3	Dysentery - Total	54795	5508	4496	4715	4686	5526	6456	5737	4211	3771	3591	3443	2655
	- Bacillary	2048	186	196	207	197	210	223	208	147	113	134	122	105
	- Amoebic	1225	75	89	104	86	77	116	145	114	103	114	110	92
	- Unspecified	51522	5247	4211	4404	4403	5239	6117	5384	3950	3555	3343	3211	2458
4	Enteric Fever - Total	12982	829	735	729	878	1171	1507	1475	1379	1373	1248	1005	653
	- Typhoid	6894	441	413	399	498	697	784	807	668	654	647	522	364
	- Paratyphoid	488	24	33	13	22	11	9	20	118	160	47	18	13
	- Unspecified	5600	364	289	317	358	463	714	648	593	559	554	465	276
5	Hepatitis - Total	8160	820	665	662	687	682	761	718	727	762	687	605	384
	- Hepatitis A	202	16	15	14	6	25	19	19	20	25	11	26	6
	- Hepatitis B	1314	134	85	91	109	98	121	109	134	157	100	83	93
	- Hepatitis Non A-B	156	15	10	13	13	9	9	13	10	20	22	14	8
	- Hepatitis Unspecified	6488	655	555	544	559	550	612	577	563	560	554	482	277
6	H.conjunctivitis	251645	10627	10099	9724	7371	7889	9618	13088	20393	54131	74648	23702	10355
7	Influenza	45272	3895	3438	3628	3504	5275	5253	4277	3968	3247	3343	2874	2570
8	Rubella	1416	102	176	186	156	99	105	198	125	103	61	59	46
9	Chickenpox	40674	6498	7878	9814	3938	2115	1442	1282	1429	1666	1541	1541	1530
10	Pyrexia of Unknown origin	186559	13573	12465	14160	13796	19069	22422	20380	17058	15296	15597	13247	9496
11	Meningococcal infection	49	2	4	6	4	2	3	2	5	11	4	5	1
	- Meningitis	48	2	4	6	4	2	3	2	5	10	4	5	1
	- Meningococcemia	1	-	-	-	-	-	-	-	-	1	-	-	-
12	Poliomyelitis	1	-	1	-	-	-	-	-	-	-	-	-	-

Table 1 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
13	Measles - Total	5760	543	555	644	349	362	405	471	544	536	560	412	379
	- Without Complication	5569	517	541	624	331	349	400	461	528	517	538	397	366
	- With Complication	191	26	14	20	18	13	5	10	16	19	22	15	13
14	Diphtheria	53	-	-	-	-	1	6	22	13	1	2	6	2
15	Pertussis	77	10	6	3	2	7	4	12	14	6	3	7	3
16	Tetanus Total	367	52	44	28	27	36	31	39	23	21	29	21	16
	- Tetanus exc.Neo.	336	49	44	26	26	34	28	36	19	13	26	20	15
	- Tetanus neonatorum	31	3	-	2	1	2	3	3	4	8	3	1	1
17	Dengue haemorrhagic fever - Total	37929	458	423	709	1041	3774	7404	7720	6160	4270	2977	1985	1008
	- Without shock	33645	409	384	598	926	3400	6538	6828	5485	3795	2612	1761	909
	- With shock syndrome	559	12	9	15	16	52	118	121	91	49	31	32	13
	- Dengue fever	3725	37	30	96	99	322	748	771	584	426	334	192	86
18	Encephalitis - Total	516	43	32	26	41	59	84	61	39	36	35	38	22
	- Japanese B	29	3	1	2	2	2	2	6	1	7	-	1	2
	- Unspecified	487	40	31	24	39	57	82	55	38	29	35	37	20
19	Malaria	57808	3513	2251	2583	3653	7824	7634	5926	4360	3997	4364	5680	6023
20	Pneumonia	143426	12675	12300	14062	9649	10345	10949	11700	14914	17042	13761	9728	6301
21	Tuberculosis - Total	24994	3357	2298	2506	2014	2270	2080	2114	2059	1993	1765	1545	993
	- Pulmonary T.B.	23070	3138	2118	2267	1867	2115	1915	1963	1901	1839	1607	1426	914
	- T.B.meningitis	673	70	66	56	48	54	63	68	66	48	57	48	29
	- T.B. other organs	1251	149	114	183	99	101	102	83	92	106	101	71	50
22	Leprosy	509	138	55	45	41	35	45	28	36	29	27	18	12
23	Yaws infectious	5	2	-	-	1	1	-	-	-	1	-	-	-

Table 1 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
24	Sexually transmitted diseases	21156	2048	1651	1713	1511	1743	1940	1948	2112	1886	1797	1614	1193
	- Syphilis	2749	307	247	250	183	198	243	214	268	235	227	243	134
	- Gonorrhoea	5124	554	471	439	423	396	466	474	459	434	430	352	226
	- N.S.U./C	5608	477	393	450	363	505	555	573	551	540	434	432	335
	- Chancroid	257	25	25	17	17	16	24	23	29	16	29	19	17
	- Lympho granuloma venereum	151	53	29	2	1	9	3	5	29	12	3	3	2
	- Others	5117	422	327	416	385	436	409	415	520	440	481	461	405
	- Unspecified	2150	210	159	139	139	183	240	244	256	209	193	104	74
25	Rabies	77	6	8	9	7	7	5	6	4	8	6	6	5
26	Leptospirosis	358	2	1	3	2	2	9	11	25	28	130	82	63
27	Scrub Typhus	1210	52	44	34	43	62	132	175	141	166	184	128	49
28	Anthrax	19	3	9	2	-	-	2	-	-	-	3	-	-
29	Trichinosis	153	27	32	70	-	-	1	3	4	16	-	-	-
30	Occupational Hazard - Total	3407	224	283	319	223	370	432	354	341	339	245	173	104
	- Pesticide poisoning	3175	211	252	283	203	346	411	336	326	323	229	156	99
	- Lead poisoning	29	1	3	3	4	1	3	3	3	5	1	-	2
	- Mn,Hg,As poisoning	54	2	6	5	5	8	8	5	6	1	4	3	1
	- Petroleum products poisoning	73	7	17	4	8	5	3	6	4	5	4	9	1
	- Gas vapor poisoning	44	1	3	15	1	5	5	2	1	2	5	3	1
	- Pneumoconiosis	32	2	2	9	2	5	2	2	1	3	2	2	-
31	Caisson's Disease	8	-	2	1	1	1	-	-	1	-	1	-	1
32	Mumps	40182	5340	5125	4767	3037	2334	2824	3532	3646	3454	2663	1925	1535
33	Amoebiasis,other organs	16	3	1	1	-	2	1	3	1	-	2	2	-

Table 1 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
34	Capillariasis	3	1	-	-	-	-	-	-	1	-	-	-	1
35	Murine typhus	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Scarlet Fever	3	-	1	-	-	-	1	-	-	1	-	-	-
37	Herpes Zoster	335	4	8	12	34	48	47	27	41	32	29	29	24
38	Tropical Ulcer	47	5	8	3	6	6	7	3	-	2	3	-	4
39	Vaccine Sensitivity	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Snake bite	8337	378	303	505	735	971	831	735	829	875	901	774	500
41	Reye's syndrome	15	-	2	2	2	-	1	2	1	1	2	1	1
42	Meningitis - Total	1575	142	96	138	103	162	138	146	144	134	155	126	91
	- Eosinophilic	184	18	18	15	10	18	12	8	12	20	16	16	21
	- Purulent	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Aseptic	2	1	-	1	-	-	-	-	-	-	-	-	-
	- Cryptococcal	7	1	-	-	-	-	-	4	-	-	1	1	-
	- Unspecified	1382	122	78	122	93	144	126	134	132	114	138	109	70
43	Meningo-Encephalitis	2	-	2	-	-	-	-	-	-	-	-	-	-
44	Drug Poisoning	1867	167	145	183	190	169	151	175	172	147	143	135	90
45	Mushroom Poisoning	623	3	1	6	29	130	114	111	120	87	13	6	3
46	Cassava Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
47	Accidental poisoning by Other Poisons	6	-	-	2	-	2	2	-	-	-	-	-	-
48	Accidental poisoning by													
	Petroleum products	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Poisoning by other noxious													
	Foodstuffs	-	-	-	-	-	-	-	-	-	-	-	-	-
50	Suicide by liquid substance													
	poisoning and drugs	4498	353	360	400	389	365	436	396	378	408	349	352	312

Table 2 - Reeported Deaths by Month,Thailand, 2539 (1996)

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Acute Diarrhoea	397	37	35	27	41	33	58	37	30	24	22	29	24
2	Food Poisoning	35	2	3	7	4	4	2	1	3	3	3	-	3
3	Dysentery - Total	21	1	2	2	-	5	3	3	3	-	1	-	1
	- Bacillary	3	-	-	-	-	1	1	1	-	-	-	-	-
	- Amoebic	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Unspecified	18	1	2	2	-	4	2	2	3	-	1	-	1
4	Enteric Fever - Total	2	-	-	-	-	-	1	-	-	1	-	-	-
	- Typhoid	1	-	-	-	-	-	-	-	-	1	-	-	-
	- Paratyphoid	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Unspecified	1	-	-	-	-	-	1	-	-	-	-	-	-
5	Hepatitis - Total	34	4	5	2	2	4	3	3	3	1	5	1	1
	- Hepatitis A	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Hepatitis B	5	-	2	-	-	-	-	-	1	1	1	-	-
	- Hepatitis Non A-B	2	-	-	-	-	-	1	-	-	-	1	-	-
	- Hepatitis Unspecified	27	4	3	2	2	4	2	3	2	-	3	1	1
6	H.conjunctivitis	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Influenza	3	-	-	-	1	-	-	1	-	-	-	1	-
8	Rubella	1	-	-	-	-	-	-	-	-	1	-	-	-
9	Chickenpox	4	-	2	-	1	1	-	-	-	-	-	-	-
10	Pyrexia of Unknown origin	107	9	7	7	7	8	16	16	10	5	7	9	6
11	Meningococcal infection	13	1	-	-	-	-	-	1	2	6	-	3	-
	- Meningitis	12	1	-	-	-	-	-	1	2	5	-	3	-
	- Meningococcemia	1	-	-	-	-	-	-	-	-	1	-	-	-
12	Poliomyelitis	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
13	Measles - Total	2	1	-	-	-	-	-	-	-	-	-	1	-
	- Without Complication	2	1	-	-	-	-	-	-	-	-	-	1	-
	- With Complication	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Diphtheria	5	-	-	-	-	-	2	1	-	-	-	2	-
15	Pertussis	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Tetanus Total	38	2	2	5	2	3	4	6	2	4	2	4	2
	- Tetanus exc.Neo.	34	2	2	5	2	2	4	6	1	2	2	4	2
	- Tetanus neonatorum	4	-	-	-	-	1	-	-	1	2	-	-	-
17	Dengue haemorrhagic fever - Total	116	1	-	3	4	12	29	21	22	6	9	8	1
	- Without shock	73	-	-	2	3	8	22	14	13	4	3	4	-
	- With shock syndrome	40	1	-	1	1	4	7	7	8	2	5	3	1
	- Dengue fever	3	-	-	-	-	-	-	-	1	-	1	1	-
18	Encephalitis - Total	49	4	1	1	3	11	9	4	4	4	3	3	2
	- Japanese B	1	-	-	-	-	1	-	-	-	-	-	-	-
	- Unspecified	48	4	1	1	3	10	9	4	4	4	3	3	2
19	Malaria	151	8	3	6	11	36	17	14	13	10	12	13	8
20	Pneumonia	1080	131	110	116	87	97	92	101	80	96	70	63	37
21	Tuberculosis - Total	295	40	31	29	29	32	17	21	24	24	18	12	18
	- Pulmonary T.B.	232	31	28	20	22	26	12	19	23	17	11	9	14
	- T.B.meningitis	29	2	3	5	3	4	3	1	-	2	2	2	2
	- T.B. other organs	32	7	-	4	4	2	2	1	1	5	5	1	-
22	Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Yaws infectious	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
24	**Sexually transmitted diseases**	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Syphilis	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Gonorrhoea	-	-	-	-	-	-	-	-	-	-	-	-	-
	- N.S.U./C	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Chancroid	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Lympho granuloma venereum	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Others	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Rabies	77	6	8	9	7	7	5	6	4	8	6	6	5
26	Leptospirosis	19	-	-	-	-	-	2	-	-	1	5	4	7
27	Scrub Typhus	7	-	-	-	-	1	1	2	1	-	-	1	1
28	Anthrax	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Trichinosis	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Occupational Hazard - Total	32	1	5	1	2	2	6	5	2	1	1	2	4
	- Pesticide Poisoning	32	1	5	1	2	2	6	5	2	1	1	2	4
	- Lead Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Mn,Hg,As Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Petroleum Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Gas vapor poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Pneumoconiosis	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Caisson's Disease	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Mumps	6	1	2	1	-	-	-	-	-	1	1	-	-
33	Amoebiasis,other organs	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Continued

No.	Diseases	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
34	Capillariasis	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Murine typhus	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Scarlet Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Herpes Zoster	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Tropical Ulcer	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Vaccine Sensitivity	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Snake bite	15	-	-	2	1	1	1	2	2	-	2	1	3
41	Reye's syndrome	1	-	-	-	-	1	-	-	-	-	-	-	-
42	Meningitis - Total	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Eosinophilic	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Purulent	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Aseptic	-	-	-	-	-	-	-	-	-	-	-	-	-
	- Cryptococcal	1	-	-	-	-	-	-	1	-	-	-	-	-
	- Unspecified	62	3	2	5	8	11	2	6	7	3	8	4	3
43	Meningo-Encephalitis	-	-	-	-	-	-	-	-	-	-	-	-	-
44	Drug Poisoning	6	-	-	-	-	1	1	1	-	2	-	1	-
45	Mushroom Poisoning	4	-	-	-	-	1	-	2	-	1	-	-	-
46	Cassava Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
47	Accidental poisoning by Other Poisons	6	-	-	2	-	2	2	-	-	-	-	-	-
48	Accidental poisoning by													
	Petroleum products	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Poisoning by other noxious													
	Foodstuffs	-	-	-	-	-	-	-	-	-	-	-	-	-
50	Suicide by liquid substance													
	poisoning and drugs	177	10	18	17	15	10	19	14	16	18	15	17	8

Table 11 Top -Ten Morbidity Rate of Diseases under Surveillance Thailand,1996 (2539)

Rank	Diseases	Cases	Deaths	Morbidity Rate (Per 100,000 Pop)
1	Acute Diarrhoea	981072	397	1631.96
2	Haemorrhagic conjunctivitis	251645	-	418.60
3	Pyrexia of Unknown origin	186559	107	310.33
4	Pneumonia	143426	1080	238.58
5	Food Poisoning	82281	35	136.87
6	Malaria	57808	151	96.16
7	Dysentery - Total	54795	21	91.15
8	Influenza	45272	3	75.31
9	Chickenpox	40674	4	67.66
10	Mumps	40182	6	66.84

Table 12 Top - Ten Mortality Rate of Diseases under Surveillance Thailand,1996 (2539)

Rank	Diseases	Cases	Deaths	Mortality Rate (Per 100,000 Pop)
1	Pneumonia	143426	1080	1.80
2	Acute Diarrhoea	981072	397	0.66
3	Tuberculosis - Total	24994	295	0.49
4	Suicide by liquid substance	4498	177	0.29
5	Malaria	57808	151	0.25
6	Dengue Haemorrhagic Fever - Total	37929	116	0.19
7	Pyrexia of Unknown Origin	186559	107	0.18
8	Rabies	77	77	0.13
9	Encephalitis - Total	516	49	0.08
10	Tetanus - Total	367	38	0.06

Table 13 Top - Ten Case Fatality Rate of Diseases under Surveillance Thailand,1996 (2539)

Rank	Diseases	Cases	Deaths	Case Fatality Rate (%)
1	Rabies	77	77	100.00
2	Meningococcal Infection	49	13	26.53
3	Tetanus - Total	367	38	10.35
4	Encephalitis - Total	516	49	9.50
5	Diphtheria	53	5	9.43
6	Reye' syndrome	15	1	6.67
7	Leptospirosis	358	19	5.31
8	Suicide by liquid substance	4498	177	3.94
9	Tuberculosis - Total	24994	295	1.18
10	Occupational Hazard - Total	3407	32	0.94

Fig.1 Reported Cases of Leptospirosis per 100,000 Population, by Region,Thailand,1992-1996.

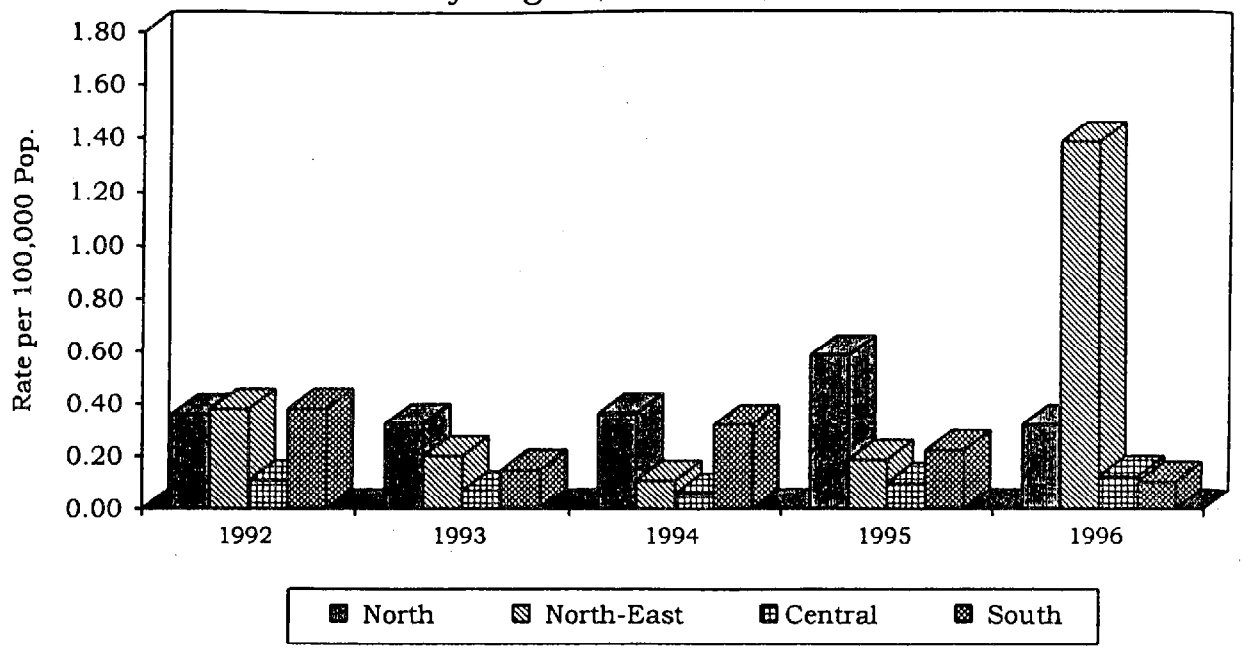

Fig.3 Reported Cases of Leptospirosis per 100,000 Population, by Age-Group,Thailand,1996.

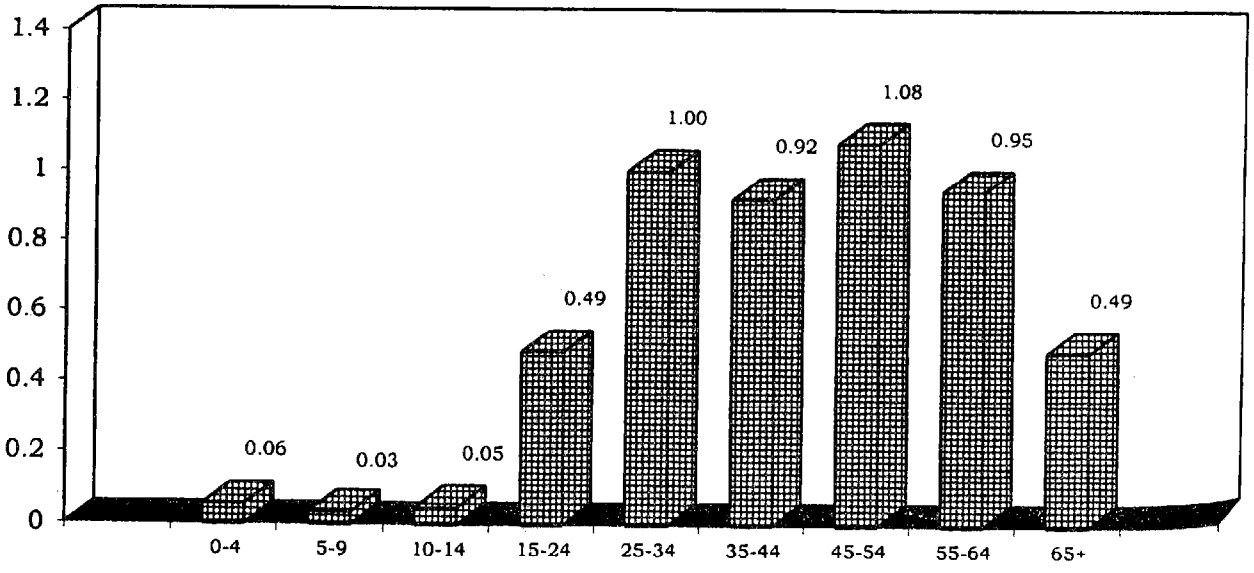

Fig. 2 Reported Cases of Leptospirosis per 100,000 Population, by Province,Thailand,1996.(2539)

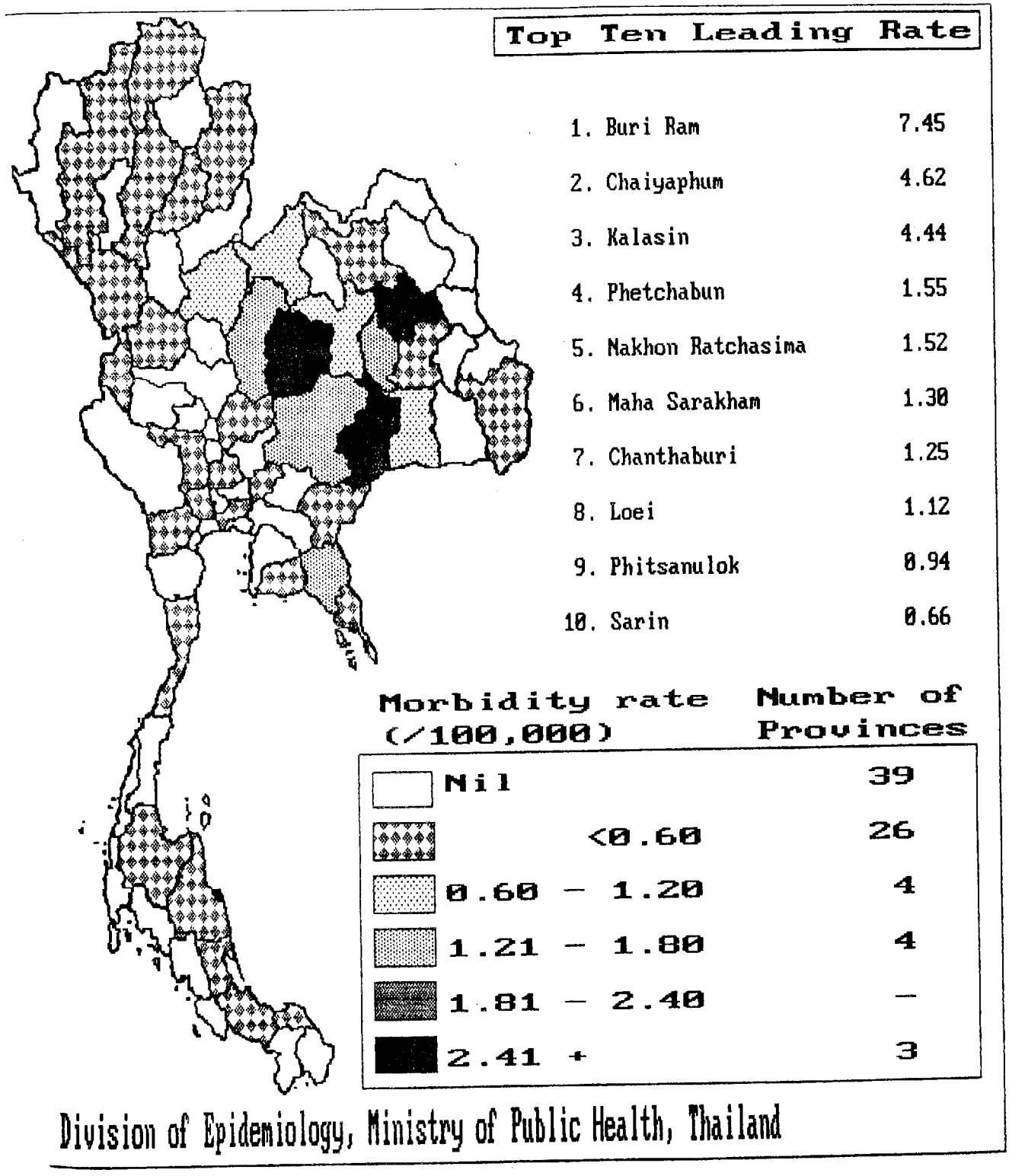

Fig.4 Reported Cases of Leptospirosis by Month, Thailand,1992-1996.

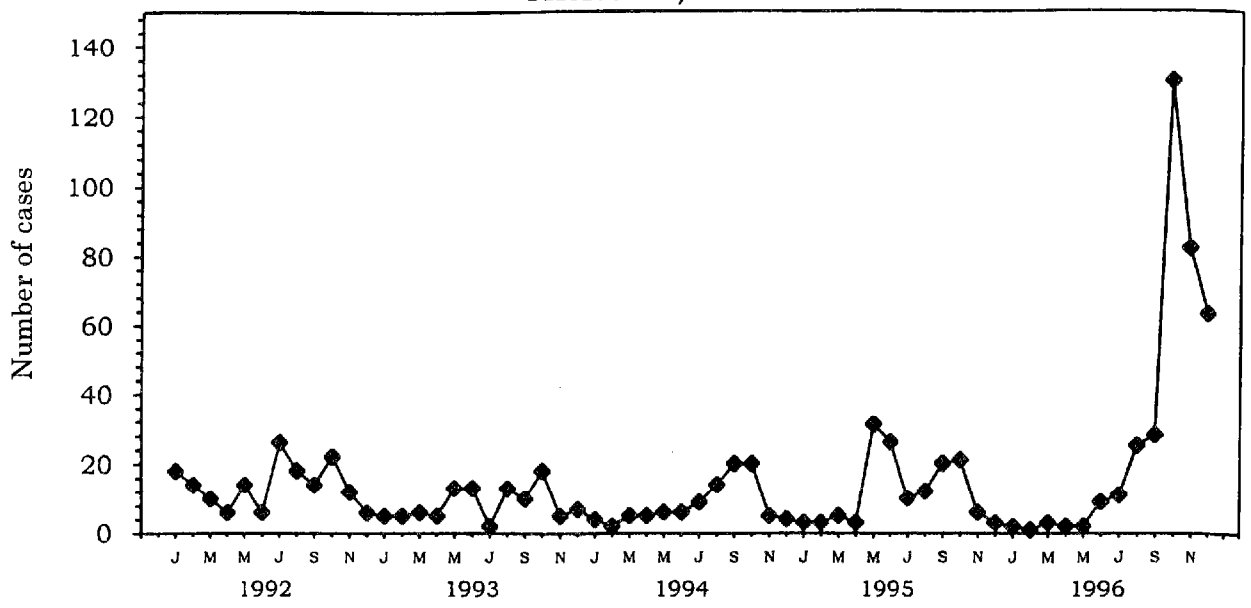

Fig.5 Reported Cases of Leptospirosis per 100,000 Population, by Year,Thailannd,1987-1996.