

Results of the activities in the first and second quarters of FY 1979/1980 can be seen in the following table.

Table : 6.

Achievement of immunization program in the first and second quarters, FY 1979/1980.

Kecamatan	Population covered with BCG-DPT ₁	Achievement percentage	Smallpox-DPT ₂	%	TFT 1	%	TFT 2	%
Medang Deras	241	31,6	283	36%	102	9,9%	97	9%
Air Putih	441	28	362	23	253	12	189	9
Lima Puluh	204	10,8	210	11	259	9,9	207	8
Total	886	21 %	855	20,9%	605	10,7%	493	8,7%

4.2.2.5. Hygiene and Sanitation.

Activities of Hygiene and Sanitation section in FY 1979/1980 until end of November 1979 can be reported as follows.

Through financial assistance by the local government of North Sumatra, 200 family latrines have been constructed in the project area.

Distribution of the family latrines is as follows.

Table: 7.

Distribution of family latrine construction.

No.	Kecamatan	Village	Number of latrines
1.	Air Putih	Tanjung Rada	17 pieces
		Lima Sunda	32 "
2.	Medang Deras	Medang	34 "
		Sei. Dauh Koras	19 "
3.	Lima Puluh	Prarak	67 "
		Gantung	31 "
Total			200 pieces

In August 1979 a team of JICA experts made a survey on rural water supply to collect basic data.

In mid November the team came again to continue their survey until December.

Through financial assistance from local government of North Sumatra, the health education section has selected 3 villages to become health education intensive work areas, as follows :

- The village of Medang in Kecamatan Medang Deras
- " " of Tanjung Bada in Kecamatan Air Putih
- " " of Guntung in " Lima Puluh

4.2.2.7. Health laboratory.

In an effort to support the activities of the Asahan Health Project, the health laboratory in Medan has functioned as referral laboratory.

The health laboratory has got some equipment assistance and some experts from JICA.

The experts have taken part in training for laboratory workers and also in examination of specimens.

4.2.2.8. Health status and household survey.

In March 1979 the project has conducted a survey on health status and household in the three kecamatan, with two villages from each kecamatan as samples.

5. Problems and constraints.

- 5.1. Due to lack of fund, it seems to be very hard for the Indonesian side to do its responsibilities.

For implementation of the project it is not clear how much fund will be provided by the centre government and how much will be provided by provincial government. Handling cost provided by the central and local government is not sufficient for the equipment and materials donated by JICA. The cost of equipment and materials donated by JICA in FY 1979/1980 is approximately ¥ 100.000.000 but the handling cost provided by the Ministry of Health is only Rp.1.000.000,-

- 5.2. Integration of the Asahan Health project in to the existing projects in North Sumatra seems to cause some difficulties.

It is ...

It is evident that the existing projects are reluctant to include the budget for Asahan project in their budget proposals because they are afraid it may reduce the total budget for their own programs.

- 5.3. Traveling cost for project implementation has always been a problem for two years. Operational cost is not enough to support travel expense for the experts and project staff members.

When an expert wants to do his job in the project area, he needs a driver and gasoline for the car.

Provision of tickets between Medan and Jakarta for fellowship trainees who want to go to Japan has also been a problem.

Furthermore, it is always a problem to provide expenses for internal travel in Indonesia for the Japanese experts on duty relevant to the project.

- 5.4. Provision of furnished housing for short term experts has also been a problem due to lack of fund.

- 5.5. Limitation of terms of duty for long term experts up to one year needs to be renewed.

It seems that for adequate technical adaptation with situation in Indonesia, the experts need more than one year. Besides that rental houses for one year in Medan are relatively expensive.

- 5.6. Processing of fellowship to Japan seems to be very slow. Application forms (A₂, A₃) had been sent from Medan in May 1979, but in September 1979 JICA still questioned whether the forms had been actually processed from Medan.

6. Conclusion and suggestions.

- 6.1. Based upon experience till the second year of the technical cooperation project, it evident that there are many things relevant to the project that need to be improved.

6.2. It is

- 6.2. It is recommended that the central government be more responsive to the problems faced by the project.
- 6.3. Activities of the project are increasing from year to year. Consequently, it is necessary to provide expenses for project implementation more than last year.
- 6.4. Operational cost for the project needs to get more emphasis to facilitate the work of the Indonesian staff members and the Japanese experts.
- 6.5. If the Asahan Health Project could not be made a separate project, it is recommended that the fund to be used for implementation of Asahan Project be exclusively stated in the existing projects in North Sumatra.
- 6.6. Due to some reasons such as technical aspects, housing problems, provision of personal car by experts, it is recommended that the term of duty for long term experts be made more than one as year as necessary.
- 6.7. It is recommended to speed up fellowship processing for the Indonesian staff members in Japan.

DETAILED PLAN OF TECHNICAL ACTIVITIES

Technical activities to be conducted in FY 1980/1981 and their details are as follows :

1. KINDS OF ACTIVITIES.

- 1.1: Promotion of communicable disease control activities
- 1.2. Improvement of health care delivery services through public hospital in Kisaran, health centers in Medang Deras, Air Putih and Limapuluh.
- 1.3. Improvement of health laboratory services
- 1.4. Promotion of health education activities
- 1.5. Promotion of other related health fields mutually agreed upon as necessary such as : Bacteriology, Entomology, Malaria Parasitology, Ecology etc.

2. DETAILS OF ACTIVITIES

TABLE : 8.
Activities and target of Malaria Control

No.	Activities	Unit	Kecamatan Medang Deras		Kecamatan Air Putih		Kecamatan Limapuluh		TOTAL
			Target		Target		Target		
			Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	
2.1.1	Blood specimen examination (1*)	Blood Specimen	2500	-	3000	-	2750	-	8.250.
2.1.2	Treatment	Person	2500	-	3000	-	2750	-	8.250.
2.1.3	House spraying with insecticide (DDT *2)	House	3900	-3900	8500	-	11000	11000	38.300.

2.1.4. Entomological Survey (*3)

Schedule of Medical (Malaria) Entomology in the Asahan Health Project.

Practical starting date : July 1, 1979

Phase I. Preparatory 2 years (Juli 1979 - June 1981)

	Commencement	Completion
1. Geography and mapping (1/50000)	Jul 1979	Mar 1980
2. Mosquito faunal survey	Jul 1979	Mar 1980

- | | | |
|---|----------|----------|
| 4. Preparation of taxonomic key of Anopheline mosquitoes .. adults | | Dec 1979 |
| 5. Ditto larvae | | Jun 1980 |
| 6. Selection of study sites (2 or 3 sites) | | Dec 1979 |
| 7. Establishment of bait trap huts at the study sites | Jan 1980 | Mar 1980 |
| 8. Establishment of light trap station at the study sites | Jan 1980 | Mar 1980 |
| 9. Establishment of an insectary | ? | Mar 1980 |
| 10. Colonization and colony maintenance of vector mosquitoes at the insectary | Apr 1980 | Mar 1983 |
| 11. Biological survey on vector or suspected vector species | Apr 1980 | Mar 1981 |
| 12. Mapping (1/10000) | | Mar 1981 |
| 13. Investigation on control Measures | Apr 1981 | Jun 1981 |
- Phase II. Operation of Control Measures 1 3/4 years (Jul 1981 Mar 1981).
1. Insecticide susceptibility test of vector species.
 2. Training personnels for insecticide spray.
 3. Application of control measures to the pilot area.
 4. Expansion of control measures to whole project area.
 5. Reproduction of mosquito fishes.
 6. Dispersal of mosquito fishes.

Footnotes

- *1) Examination of blood specimens as malarionetric survey will be done once a year
- *2) Insecticide house spray will be done twice a year with an interval of 6 months except in Air Putih
- *3) Whole schedule up to the end of the project period is shown for better understanding.

Items 3 -12 in the preparatory phase will be conducted during FY 1980/1981.

Phase III

Phase III. Appraisal (Evaluation) 1 year (Apr 1982 - Mar 1983)

1. Evaluation of the result.
2. Investigation of the applied control measures.
3. Continuation, Improvement or alteration of control measures
4. Repetition of 1 to 3.

2.2. TUBERCULOSIS.

In FY 1980/1981, the tuberculosis section will conduct several activities as follows :

- 2.1.1. Besides the long term treatment with basic drugs, short term treatment will also be conducted with Rifampicin Ethambutol and I.N.H.
- 2.2.2. Continuation of tuberculosis treatment through the existing tuberculosis treatment centers.
- 2.2.3. Training of field works and microscopic technician.

2.3. WORM CONTROL.

- 2.3.1. Examination of blood and feces of 13,360 population (10% of the total population of the three Kecamatan).
- 2.3.2. Mass treatment for 133,560 population
- 2.3.3. Evaluation survey for 13,360 samples

2.4. IMMUNIZATION

TABLE : 9
COVERAGE TARGET OF IMMUNIZATION PROGRAM IN FY 1980/1981

No.	Kecamatan	Population	Target Population		
			BCG -Smallpox-DPT	T.F.T.	B.C.G. Re-vaccination
1.	Medang Deras	29.929.	897.-	1.197	1.496.-
2.	Air Putih	59.587.	1.787.-	2.383	2.979.-
3.	Limapuluh	66.041.-	1.981.-	2.641	3.302.-
TOTAL		155.557.-	4.665.-	6.221.	7.777.-

2.5. HYGIENE AND SANITATION

In FY 1980/1981 the Hygiene and Sanitation section in cooperation with JICA experts will start the construction of rural water supply system in the project area.

Detailed plan of the activities will be submitted later after the experts team finish the survey and the master plan.

2.6. HEALTH LABORATORY.

In FY 1980/1981 the Health Laboratory will continue the survey to identify the causes of enteric diseases in the project area including bacteria and parasites.

Kinds of activities that will be conducted include examination of rectal swab and feces of men and animals.

SCHEDULE OF BACTERIOLOGY AND PARASITOLOGY IN THE ASAHAN HEALTH PROJECT *4)

Practical Starting Date : May 28, 1979	<u>Commencement</u>	<u>Completion</u>
Phase I. Preparatory (ca 2 years)	May 1979	Mar 1981
1. Detection of enteropathogenic bacteria and enteric parasites in human and - animal feces	May 1979	Mar 1981
2. Sensitivity tests of isolated bacteria	May 1979	Mar 1981
3. Detection of cercaria in shellfishes	Sep 1979	Mar 1981
Phase II. Operation of Control Measures (2 year)	Apr 1980	Mar 1982
<u>Bacteria</u>		
1. Establishment of deep wells	Apr 1980	Mar 1981
2. Medication by the selected antibiotics - immediately after finding		
<u>Parasites</u>		
1. Installation of lavatory	Apr 1980	Jul 1981
2. Medication by anti-helminthic drug	Jan 1981	Mar 1982
Phase III. Appraisal (Evaluation) (1½ years)	Oct 1981	Mar 1983
1. Detection of enteropathogenic and enteric parasites in human and animal feces	Oct 1981	Mar 1983

Besides that the Health Laboratory will develop new fields of scientific activity such as :

- Entomology, especially laboratory work in malaria entomology.
- Virology, especially Enterovirus
- Parasitology
- Toxicology
- Water and air pollution

2.7. HEALTH EDUCATION.

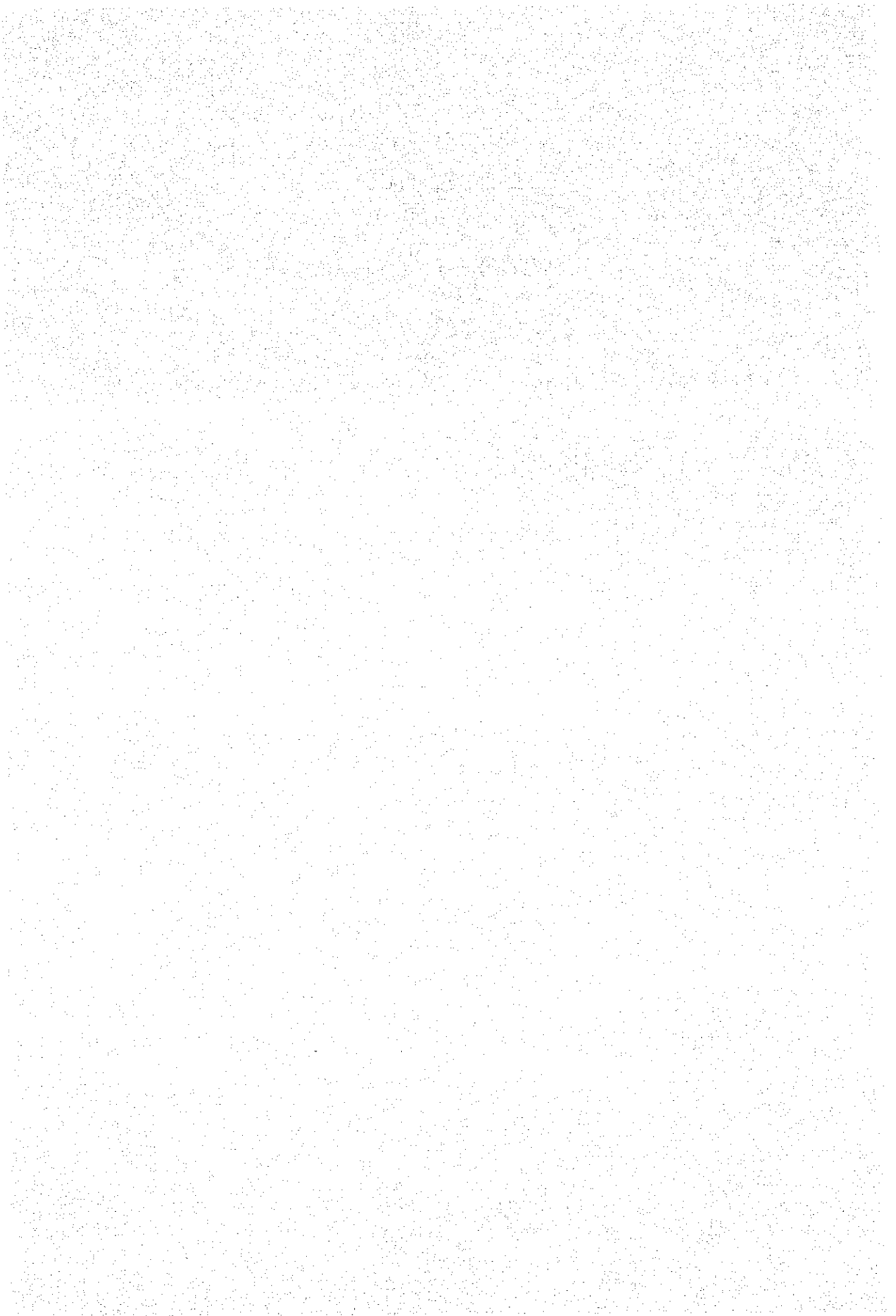
In an effort to support the health programs, health education activities will be promoted in project area in FY 1980/1981.

Activities will be conducted through :

- 2.7.1. Group approach, e.g. meetings in the community.
- 2.7.2. System approach through inter sectoral activities
- 2.7.3. Implementation of Intensive Health Education Area

9. 年次報告書 I (1979年)

本報告書は、プロジェクト・ベースによる技術協力専門家チームへの提出方要請に基づき、柳橋リーダーより提出があったもので、暦年の1979年1年間の事業報告である(1980年1月提出)



1 年間プロジェクト実施概要・年間実績概要

- i 供与機材の引取：1978年度供与機材の到着が大幅に遅れ、その大半が1978年度と年度を越して到着したためインドネシア側の準備した引取のための予算の執行に多大の迷惑をかけた。
- ii Sample survey areaの選定：1978年12月末から翌年2月にかけてProject areaの視察及び各村落の聞き取り調査を行い、重点的調査地区としてアサハン県の三郡から6か村を選定した。
- iii 予算調査：1979年3月26日から31日にかけて、インドネシア側の執行したHousehold surveyに同行し、技術者の訓練及び住民の民意（住民の意識）を把握するために特に病原性の腸内細菌の予備調査を行った。
- iv メダン衛生研究所における技術指導：左同所において細菌学を中心とする技術指導を行っている。また同所の関係者の強い要請に基づき、必要に応じて、関連職員への細菌学の講義、実習等を行った。
- v Field survey：5月28日から重点地区6か村において順次、腸管系の細菌及び寄生虫の調査を開始し、6か村中2か村の調査を終了した。判明した概要成績として、若干の赤痢保菌者が存在すること、寄生虫保有者が94.9%～98.6%に存すること、主要な寄生虫は回虫、鞭虫、鉤虫及び赤痢アメーバである。
- vi Project area内における水道調査団（団長、橋本道夫筑大教授）が11月23日から12月13日までメダン地区に来訪したが、この間業務の合い間に同調査団の実施調査等に極力同行して情報の提供を行うとともに意見交換をかわした。

以上、熊沢専門家担当分。

- vii Field surveyの実施：本プロジェクトの方針に従い衛生昆虫学諸分野のうち、マラリア媒介蚊調査に主力を注いだ。当地には日本のように有用な地図はなく、あったとしても古い時代のもので現在とはその概要が大幅に異っている。土地利用の改変によるもの、道路の改廃、新規取付、沼沢地の埋土等がそれである。その為、蚊学に必要な地理的、地文的概要を把握する為の調査を前半に集中して行った。これは継続して現在も行っており、これにより地理学的空白を順次詰めている。

昆虫学の実地的作業は携行機材を受領できた1979年7月から漸く開始することが可能となった。7月から12月までの大略6か月間に計6回延12日の野外調査を実施し、これによって、地理的概念把握の大半と蚊相の調査を終了した。また幼虫発生源調査の半ばを終り、2種のマラリア媒介種を推定し得た。さらに蚊の生態調査の為の研究サイトとしての適地を2か所決定することができた。大体において日程通り作業が進行している。

なお、採集された蚊のうち、成蚊の分類整理も終了し、プロジェクト地域の完備した、

Reference collection を用意することができた。

- viii Project area 内の Indrapura の保健所内に新ブレハブ・ラボラトリーが建設されることとなつが、この為、日本から3名の専門家がメダンに來訪した。この専門家と同行し、敷地の視察、設計粗案の作成、建設業者との接触到立ち合い、密に相談するとともに、十分な意見交換を行った。

以上、田中専門家担当分。

年間実績に対する自己評価及び相手国関係者の評価振り

- i Sample survey area の選定：調査地区を選定するに当り、Plantation area をはずしたことに若干の問題があるにしても、日本側で選定した6か村に対して、インドネシア側から、この選定の是非に関するコメントは一切聞かれない。この地区選定作業中に短期派遣の専門家が当該地区及びイナルムアルミニウム製煉所建設地附近の村落で、マラリア調査のため、現地人から採血を行った。この結果の報告が未着であり、当チームの専門家が現地の仕事に出向くたびに、その結果を聞かれている。このことで関係者から多大の不評を買っている。

※時間のないままに短兵急な調査をし、しかもインドネシア側に滞在中か、帰国しても短期間に調査成績の出せないものは極力さけてほしい。調査成績の結果を出すまでの時間を約束していくべきであった。今後の当チームの業務遂行上に悪影響を与えたり、日本人全体の信用にかかわるような問題は、前もって充分根拠しをしておいて現地側と接触するようにしなければいけないと思う……プロジェクトリーダーの個人的意見。

- ii メダン衛生研究所における技術指導：Field survey の進行とともに細菌検査室を中心とする技術が飛躍的に上昇、改善された。これまではコレラ菌の不完全な同定がやっとでチフス菌や赤痢菌の同定は全くできなかったが、現在までの技術指導の結果、腸管系細菌感染症の同定はほぼ確実にできるようになった。熊沢専門家の紹介した検査技術、方法は附属検査技師学校のカリキュラムに取入れられるようになった。※きつと若い人々の間に定着することであろう。さらに試験所長がField survey に関する熊沢専門家のレポートをジャカルタの中央医学生物学研究所に送付したところ、その内容を極めて高く評価し、今後は腸管系ウイルスの検査研究にも力を入れるよう指示があったとのことである。

※私（リーダー）が協力を受けている北スマトラ大学医学部学生の語るところによると、講義で熊沢専門家の名前を聞いたという。検査データは同専門家の手によると注釈をつけた講義を受けたという。同専門家の技術が高く評価されている一端を示すものである。

- iii 昆虫研究室を欠き、基礎設備、文献、行動予算も殆んどない現地の悪条件下で、かつ日本側からの送付機材の遅れの中で、諸作業が概ね日程通り消化できたことは、田中専門家

は、内容的には未だ十分満足できないとするものの、同人の能力の高いことと同人の頑張りが大きく力強いものであったという証左であろう。野外調査における衛生部職員の態度も、常に協力的であり友好的であった。野外における蚊の採集に関する限り、カウンターパートの養成・技術移転は済んだといえる。

研究室作業に関しては、未経験者の零からの指導・教育を試みたが、秀れた人材を得られず、所期の成果を挙げ得なかった。しかしインドネシア側はその必要性をよく理解し、人材の用意を約して呉れた。

昆虫学らしいものがスマトラになかったことから、この地に昆虫学を根付かせることにインドネシア側関係者から大きく期待されている。しかし昆虫学の重要性に関する一般の理解が十分であるとは云い難く、一般の人々を含めて目に見える形で実績をあげていくことで、より深い理解が得られるよう努力し、それがまた徐々であるが実現しつつあると、田中専門家は自負している。

指導的立場にある日本人専門家が自ら手を下し、泥にまみれて、野外調査等を率先して行っていること、彼の国との行動様式との相違もあり、関係者は驚きの目と敬意の念を含めて見ているようである。 ※上層階級、上流社会に属する人々は泥にまみれて働くことはまずあり得ないというのが、この国の実情であろう（リーダー）。

2 今後のプロジェクトの取進め方に対する意見

イ 明年度及び明後年度におけるプロジェクト実施計画策定に当っての意見

1 専門家について

- ① Project area で現在最も重大な問題、あるいは重大と考えられている保健上の問題はコレラ、赤痢、マラリアのほか結核、寄生虫（特に Helminth）及び皮膚病であろう。また今後 Project area に便所を設置することが寄生虫のコントロールに大きな意味をもつものと考えられる。よってこの領域の専門家の派遣が望まれる。

※ 53% の世帯は便所を有しない…… 1979 年の 3 月の Household survey の結果から（リーダー）。

- ② 専門家の語学力について：専門家は counterpart との communication の必要上、英語は必須であるのは勿論であるが、一般住民との接触にはインドネシア語が絶対に必要である。派遣専門家としての決定をみたら、インドネシア語を可及的速やかに習得することが望ましい。
- ③ 短期専門家の行方 Survey について：Project area において住民の身体に傷髪を加える調査を行う場合は十分な了解を取付けておく必要がある。一般に短期専門家の場合、調査に当って必要以上に慎重な配慮が求められる。

ii 水道問題について

- ① Project area 内での給水問題は極めて大きな問題である。給水地域を拡大する場合、いたずらに遠隔地に設置することなく、Project area 内にできる限り充実するよう努力してほしい。
- ② 併せて、メダン市には日本人も多数滞在し、お世話を受けることも多い。このメダン市は州政府の所在地でもあるが、このメダン市内に数地区のコレラ汚染地区が存し、常時コレラが発生しているため、簡易な給水施設でもよいので新規設置されることを願う。

※水道設置にあたっては第一に公衆衛生学上の視点から配慮されるのは勿論であるが政治的配慮も全く無視してしまわないようお願いします（リーダー）。

iii マラリア昆虫学、これはマラリア媒介種を確認し、コントロールの為に必要な生態学的資料を入手するものであり、以下の作業を行う。

- ① 蚊採集小屋の設置：3か所各2棟計6棟設置する。必要経費 Rp600,000
- ② ライトトラップの設置：3か所各1箇所、ジェネレーター各1個付属、
必要経費：僅少
- ③ 蚊飼育室の建設（衛研内の一部改装） 必要経費：インドネシア側負担
- ④ 野外調査（採集小屋、ライトトラップによるもの） 毎月2回各4日計8日
必要経費 日本人専門家出張費 Rp2,600,000 - 「イ」側負担 Rp7,506,000 -
- ⑤ 野外調査（幼虫発生源調査） 毎月2回各1日計2日
必要経費 日本人専門家出張費 Rp82,853 - 「イ」側負担 Rp1,296,000 -
- ⑥ 研究室作業 研究室技術員4名の要求「イ」側負担 Rp1,200,000 -

概略 以上の予算措置が講じられる必要がある。一覧すると「イ」側の負担が大きいことがわかるが、これはイ側の出張費が給与本俸と比較して格段に高く、かつ日本人専門家のそれを上回ることに由来するものである。

定員増要求も簡単にはいかず、予算も要求金額が配分されることは一般にはありえないので、計画の縮小も起きうるであろう。

現在「イ」側が負担すべき運転手の給与、出張費、ガソリン代を日本側で負担している実情にあり、チームの現地業務費の増加配分を考慮されたい。

研究機材の供給は、追加補充程度で落ちつく予定である。

ロ プロジェクト取進めに対する長期的観点からの意見

- i コレラ、赤痢を中心とする腸管系細菌感染症は、現在計画中の新規給水施設によってかなり改善されることと思われる。これに対して熊沢専門家の調査結果からでも明らかのように、地域住民の寄生虫罹患率は極めて高く、ほとんど全員が何らかの寄生虫を保

有している現状にある。これを改善するためには、単なる姑息的手段である駆虫薬の投与のみではいけなく、大便、下水等の衛生的処理が不可欠である。これほど濃厚に感染している寄生虫を Control すれば、栄養失調、貧血をはじめとする各種疾病に直接、間接に好影響を及ぼすことが考えられる。したがって、北スマトラ地域保健を考える場合、コレラ、赤痢の対策を目的とした給水施設に併せて便所を設置するとともに Project area 内に便所の設置もされることがよいであろう。

- ii マラリア対策はマラリア昆虫学に基礎を置き、大まかに云うと蚊の分類学にはじまって、蚊の生態学を経てコントロールに終る。従って分類専門家、生態専門家、コントロール専門家の3者の共同乃至は関係プレーによる作業実施が最も望ましい形となる。

本プロジェクトにおいてはまず分類専門家が着任し、次いで生態専門家の着任が決定しており、理想の型を現在のところとっている。1981年度にはコントロールの時期に入るので、1980年の8月頃までにコントロール専門家の人選を終って、おそくとも9月末までにコントロール計画の概要を提出し、予算請求することが望ましい。コントロール専門家が8月に着任し、プロジェクト終了まで在任すれば問題はないが、それができない場合は計画の提出だけでもよいであろう。

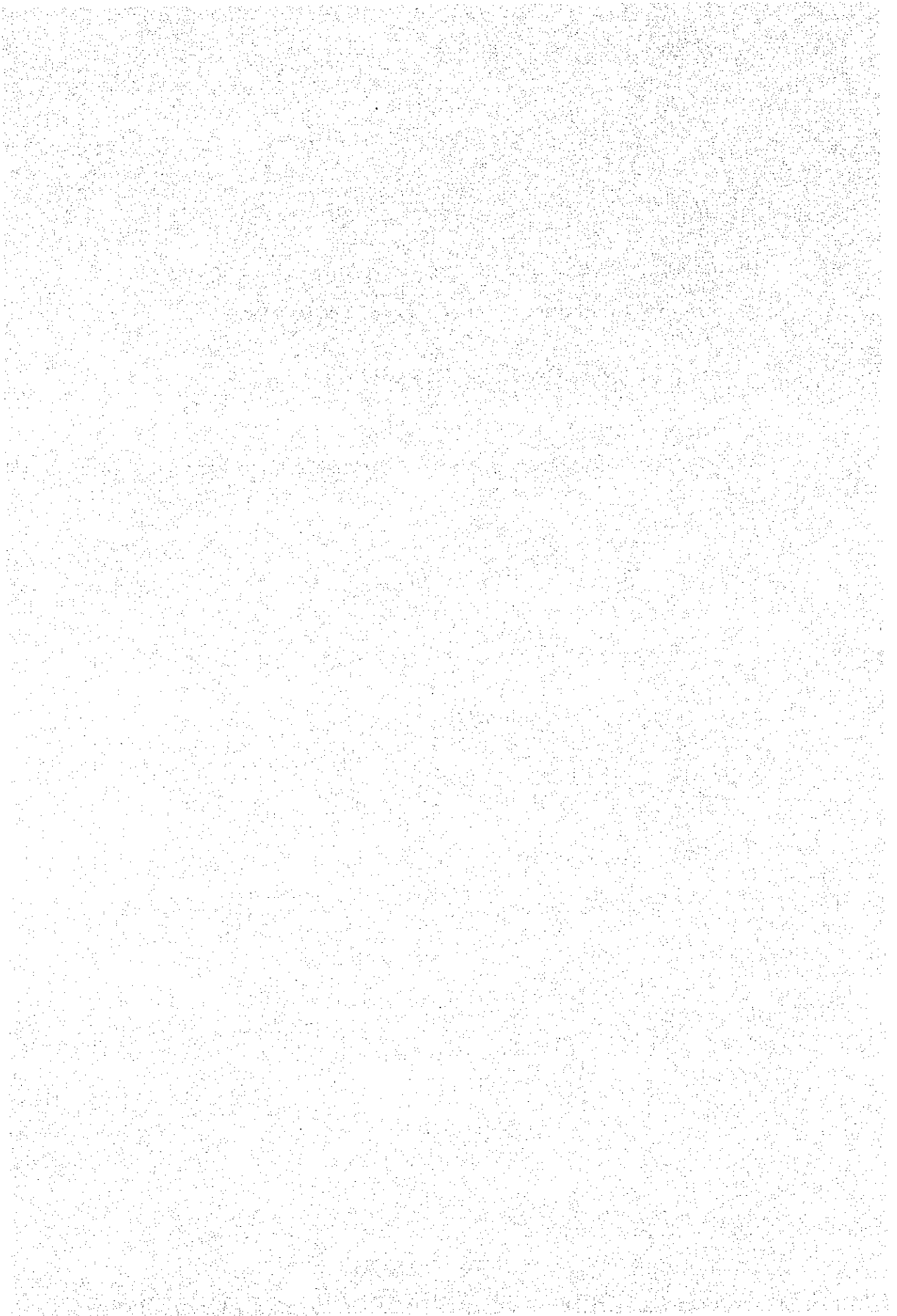
- iii 専門家の派遣にあたっては早期に内示の名でもよいから当チームに連絡してもらえらば、当該専門家と充分相談して心配のないかたちで赴任できるように協力することができるのであるが、現在このようなシステムはないので改善をはかってほしい。

長期専門家の場合、一般に赴任した年度は「イ」側で予算措置されていないので、現地業務費へのくいこみが多大になる。予想される長期専門家は、前年度予算要求時期に短期専門家として一度来「イ」し、次回からの業務が円滑に進むように地ならしのできるシステムを確立して欲しい。

- iv 明年度、本 Project Area の Model 村（数か村）に腸内感染症（赤痢、コレラ等）の予防及び根絶対策の一環として安全水の供給を行うため基盤整備費をもって簡易水道施設の建設が計画され、「イ」側医療関係者等より多大の期待が寄せられている。上記計画は本件感染症対策に著しい成果が期待できるので、同水道施設を Model 村のみならず広く Asahan 開発地域全域等に普及させることを求める声が現地で高まりつつあることに鑑み、明後年度より無償資金により、同種水道施設建設計画の拡充を図ることを願いたい。

10. Annual Report of the ASAHAN HEALTH PROJECT
in North Sumatra Fiscal Year 1979/1980

本報告書は、1980年3月に日本人専門家チームにより、1979/80予算年度1年間の協力活動をまとめたものであり、インドネシア側に対する報告書である。



1. Member list of the Japanese Expert Team

As of March 31, 1980

Name	Duration	Field of Assignment
TSGUO YANAGIHASHI (M.D.)	July 11, 1979 - July 10, 1980	(Team leader) public Health
NORICHIKAH KUMAZAWA (Ph. D)	Nov. 11, 1978 - Nov. 10, 1980	Epidemiological Bacteriology
KAZUO TANAKA (Ph. D)	Jan. 18, 1979 - Jan. 19, 1981	Medical Entomology
KOJI KANBARA (M.D.)	Jan. 31, 1980 Jan 30, 1981	Malaria Parasitology
TAKAYA IKEMOTO	Jan. 31, 1980 Jan. 30, 1981	Malaria Ecology
HIROSHI HASHIURA	May. 23, 1979 May. 22, 1981	(JICA coordinator)

2. In accordance with the Record of Discussion signed on October 10, 1977 and the Report of the First Steering Committee Meeting signed on March 10, 1979, We have carried out our duties in Fiscal Year 1979/1980.

Our activities and achievements are as follows.

3. Technical activities and achievements in FY 1979/1980
 by Epidemiological Bacteriologist
 (Morichika H. Kumazawa, PhD)

Survey for enteropathogenic bacteria and enteric parasites was finished in 3 villages, Sei Buahkeras and Limau Sundai in FY 1979/1980. Surveys in Perusak and Guntung were started in this fiscal year, which was not yet finished until the end of this fiscal year, because most inhabitants in these villages were not so cooperative to us.

1. Results of our survey in Sei Buahkeras

Surveys of enteropathogenic bacteria and enteric parasites in Sei Buahkeras were done from the 28th of May to the 20th of July in 1979. We have collected rectal swabs from 650 inhabitants and detected 4 strains of Shigella flexneri and strains of Shigella sonnei. Relationship between Shigella-positive cases and water supply systems are shown in Table 1.

Table 1. Relationship between Shigella-positive cases and water supply systems in Sei Buahkeras

<u>Hamlet</u>	<u>Semi-deep well</u>	<u>Shallow well</u>	<u>River</u>	<u>Total</u>
I	1/97*	-	-	1/ 97
II	0/80	-	-	0/ 80
III	-	1/63	-	1/ 63
IV	-	2/94	0/27	2/121
V	0/85	0/30	0/ 1	0/116
VI	-	3/85	-	3/ 85
VII	-	1/10	1/78	2/ 88
Total	1/262	7/282	1/106	9/650

*Number positive/number examined.

Positive rate of Shigella in inhabitants utilizing water from semi-deep well seems to be lower than that utilizing water from shallow well.

Drug sensitivity patterns of isolated bacteria are shown in Table 2.

Table 2. Drug sensitivity patterns of isolated bacteria

Bacterial strain	NA*	KM	PcA	PcC	PcS	CM	TC
Shigella flexneri 2a B-410	S**	S	S	R	S	R	R
Shigella flexneri 2a B-437	S	S	S	R	S	R	R
Shigella flexneri 2a B-830	S	S	S	R	S	R	R
Shigella flexneri 6 B-588	S	S	S	R	S	S	S
Shigella sonnei B-348	S	S	S	R	S	S	S
Shigella sonnei B-488	S	S	S	R	S	S	S
Shigella sonnei B-629	S	S	S	R	S	R	R
Shigella sonnei B-688	S	S	S	R	S	S	S
Shigella sonnei B-735	S	S	S	R	S	R	R

*Abbreviations : NA=nalidixic acid, KM=kanamycin, PcA=aminobenzylpenicillin, PcC=methylchlorophenylisoxazolylpenicillin, PcS=sulbenicillin, CM=chloramphenicol, TC=tetracycline.

**Abbreviations : S=sensitive, R=resistant.

We have collected feces from 235 inhabitants to examine prevalences of enteric parasites. The results are shown in Table 3.

Table 3. Positive cases of enteric parasites in Sei Buahkeras

Hamlet	Ascaris	Trichuris	Hookworm	Others	Any parasites
I	26/33*	31/33	19/33	0/33	32/33
II	16/17	16/17	11/17	0/17	17/17
III	17/20	14/20	10/20	0/20	18/20
IV	51/63	53/63	12/63	2/63***	59/63
V	15/23	20/23	8/23	0/23	22/23
VI	25/37	24/37	7/37	0/37	33/37
VII	31/42	42/42	35/42	0/42	42/42
Total	181/235	200/235	102/235	2/235	223/235

*Number positive/number examined.

**From 32 out of 33 specimens, at least one kind of parasite was detected.

***Enterobius vermicularis(1) and Entamoeba histolytica(1).

Positive rate of hookworms in Bataks was 55.3%(88/159), whereas that in Malays was 18.4%(14/76). The former was significantly higher than the latter. From the feces of pig bred by Bataks, 3 kind of parasites were detected at high rates, which were not able to be differentiated morphologically from 5 kind of human main parasites, Ascaris, Trichuris and hookworms, in this village. Correlations of pig feces to human hookworm infections has not yet examined, which will be done in FY 1980/1981.

2. Results of survey in Limau Sundai

Surveys of enteropathogenic bacteria and enteric parasites in Limau Sundai were done from the 6th of August to the 10th of December in 1979. We have collected rectal swabs from 1,266 inhabitants and detected one strain of Shigella dysenteriae 2 and 2 strains of Shigella sonnei. In this village, some hamlets aggregate to make blocks. Thus we compared the results between each blocks. Some inhabitants use simple sand filter to remove brown sediments in the well water. Relationships between Shigella-positive cases and water supply systems are shown in Table 4.

Table 4. Relationship between Shigella-positive cases and water supply systems in Limau Sundai

<u>Block(Hamlet)</u>	Shallow well		River	<u>Total</u>
	with filter	without filter		
Block A(I-IV)	1/395*	0/ 74	0/ 1	1/470
Block B(V-VII)	0/210	0/ 4	0/54	0/268
Block C(VIII-IX)	0/ 8	1/286	0/ 4	1/298
Hamlet X	0/ 92	0/ 29	0/ 3	0/124
Block D(XI-XIII)	0/ 1	1/ 49	-	1/ 50
Hamlet XIV	<u>0/ 5</u>	<u>0/ 46</u>	<u>0/ 5</u>	<u>0/ 56</u>
Total	1/711	2/488	0/67	3/1266

*Number positive/number examined.

From these data, correlations between Shigella-positive cases and water supply systems were not seen.

Drug sensitivity patterns of isolated bacteria are shown in Table 5.

Table 5. Drug sensitivity patterns of isolated bacteria

<u>Bacterial strain</u>	NA*	KM	PcA	PcC	PcS	CM	TC
Shigella dysenteriae 2 L-53	S**	S	S	R	S	S	S
Shigella sonnei L-1208	S	S	R	R	S	R	R
Shigella sonnei L-1266	S	S	R	R	S	S	S

*Abbreviations : NA=nalidixic acid, KM=kanamycin, PcA=amino-benzylpenicillin, PcC=methylchlorophenylisoxazolympenicillin, PcS=sulbenicillin, CM=chloramphenicol, TC=tetracycline.

**Abbreviations : S=sensitive, R=resistant.

We have collected feces from 512 inhabitants to examine prevalences of enteric parasites. The results are shown in Table 6.

Table 6. Positive cases of enteric parasites in Limau Sundai

Area	<u>Ascaris</u>	<u>Trichuris</u>	<u>Hookworm</u>	<u>Entamoeba histolytica</u>	<u>Giardia</u>	<u>Hymenolepis nana</u>	<u>Any parasites</u>
Block A	147/216*	198/216	174/216	19/216	4/216	1/216	213/216**
Block B	106/132	123/132	103/132	8/132	1/132	0/132	132/132
Block C	75/ 91	71/ 91	70/ 91	16/ 91	2/ 91	0/ 91	88/ 91
Hamlet X	31/ 36	26/ 36	30/ 36	0/ 36	0/ 36	0/ 36	35/ 36
Block D	13/ 23	16/ 23	20/ 23	1/ 23	0/ 23	0/ 23	23/ 23
Hamlet XIV	<u>11/ 14</u>	<u>13/ 14</u>	<u>9/ 14</u>	<u>0/ 14</u>	<u>0/ 14</u>	<u>0/ 14</u>	<u>14/ 14</u>
Total	383/512	447/512	406/512	44/512	7/512	1/512	505/512

*Number positive/number examined.

**From 213 out of 216 specimens, at least one kind of parasite was detected.

Ascaris, Trichuris and hookworms were highly prevalent in this village. By cultivation, 12 cases of Ancylostoma duodenale, 20 cases of Necator americanus and 2 cases of mix infections of A. duodenale and N. americanus were found from 34 hookworm positive cases in school children. Entamoeba histolytica were also highly prevalent in blocks A, B and C.

We have examined enteropathogenic bacteria and enteric parasites in 63 specimens of pigs in blocks A and B, the largest housing area in this village. Enteropathogenic bacteria was not detected from these specimens. On the other hand, 3 kind of enteric parasites were detected at high rates (Table 7).

Table 7. Enteric parasites detected from pig in Limau Sundai

Block	<u>Ascaris</u>	<u>Trichuris</u>	<u>Hookworms</u>	<u>Eimeria</u>
A	26/31*	11/31	21/31	12/31
B	<u>29/32</u>	<u>19/32</u>	<u>22/32</u>	<u>10/32</u>
Total	55/63	30/63	43/63	22/63

*Number positive/number examined.

From 22 specimens, Eimeria was also detected. Hookworm-positive pig feces were cultivated. The results are shown in Table 8.

Table 8. Cultivation of hookworm-positive pig feces

<u>Detected parasite</u>	<u>Block A</u>	<u>Block B</u>
<u>Ancylostoma duodenale</u>	5	2*
<u>Necator americanus</u>	3	6
<u>Trichostrongylus orientalis</u>	2	1*
<u>Strongyloides stercoralis</u>	1	0
Negative culture	<u>10</u>	<u>14</u>
Total	21	22

*One case was mixed infection of A. duodenale and T. orientalis.

Correlations of Ancylostoma duodenale and Necator americanus between human and pigs are not yet examined, which will be done in FY 1980/1981.

3. Results of survey in Perupuk

Surveys of enteropathogenic bacteria and enteric parasites in Perupuk were started at the 21th of February in 1980. However, enough amount of specimen for epidemiological analyses has not yet collected, because most inhabitants were not so cooperative to us. We have collected rectal swabs from 520 inhabitants and detected 2 strains of Shigella sonnei from the same family members in hamlet XII. Drug sensitivity patterns of isolated bacteria are shown in Table 9.

Table 9. Drug sensitivity patterns of isolated bacteria

<u>Bacterial strain</u>	NA*	KM	PcA	PcC	PcS	CM	TC
Shigella sonnei P-556	S**	S	S	R	S	S	S
Shigella sonnei P-561	S	S	S	R	S	S	S

*Abbreviations : NA=nalidixic acid, KM=kanamycin, PcA=amino-benzylpenicillin, PcC=methylchlorophenylisoxazolylpenicillin, PcS=sulbenicillin, CM=chloramphenicol, TC=tetracycline.

**Abbreviations : S=sensitive, R=resistant.

We have collected feces from 296 inhabitants and examined for parasites. The results are shown in Table 10. In this table, number in hamlets I to XI and XIII was summarized because social and geological conditions were similar each other but not in hamlet XII, and each number in each hamlet was few by the low cooperation of inhabitants to us.

Table 10. Positive cases of enteric parasites in Perupuk

<u>Hamlet</u>	<u>Ascaris</u>	<u>Trichuris</u>	<u>Hookworm</u>	<u>Protozoa</u>	<u>Any parasites</u>
I-XI, XIII	217/254*	228/254	85/254	11/254**	250/254
XII	<u>32/42</u>	<u>34/42</u>	<u>32/42</u>	<u>0/42</u>	<u>42/42</u>
Total	249/296	262/296	117/296	11/296	292/296

*Number positive/number examined.

**Giardia lamblia(9) and Entamoeba histolytica(2).

Hookworms are highly prevalent in hamlet XII. Correlations between hookworm infections and epidemiological backgrounds are not yet examined.

In addition to the above, he has provided technical guidance and advice on Bacteriology to Indonesian counterparts at Health Laboratory in Medan.

4. Some Problems in our field Survey.

(1.) For the examination of enteropathogenic bacteria, we must collect rectal swabs from all inhabitants in our selected area, which will reflect the decision of the site to built deep wells. However, in some areas, most inhabitants rejected to be taken rectal swabs. We found that their rejections had been resulted from their misunderstandings to our works. At any area, a majority of inhabitants didn't know about our project when we went at the first time. Thus we had to explain our project at every villages and every hamlets. Especially in Perupuk and Guntung, most inhabitants rejected to be taken rectal swabs and school children cried 'cirit' or 'pencirit' when they found our jeep in these village. When we went to a primary school in Guntung, the school was closed and a teacher explained to us that all parents ordered their children not to go to the school to avoid our survey.

In hamlet VI of Guntung, however, we have tried to explain our purposes repeatedly to some key persons and all inhabitants agreed to be taken rectal swabs.

When we take rectal swabs, we are accompanied by nurses in the health center. In some area, these nurses ask us extra fee and lunch. This might be caused from the lack of recognition about our project and also from the lack of counterbudget.

These problems mean that any trial about helath education has not been done in the project area, which is one of the most important things in our project.

(2.) When our survey was being conducted in Limau Sundai, some members of worm control section in Provincial Helalth Service of North Sumatra gave anti-helminthic drug to villagers without prior notice to our project office. Accordingly, our data of parasites were highly confused. We had pointed out this problem in our report. We discussed with members of worm control and agreed that medication should be done after completion of our survey.

However, we found out again the same medication had be^{en} done in Tanjung Muda

just before we start the survey in this village.

In the Plan of Action, we have agreed that control of parasites will start in January 1981 after completion of our survey. Thus, we would requested Indonesian side again to postpone the medication.

(3.) We have great difficulties in carrying out our field survey without list of inhabitants and maps of selected villages in the project area.

Therefore, it is requested to Indonesian side to provide us with above list and maps at the earliest opportunity.

5. Technical Activities and Achievements

in FY 1979/1980

by Medical (Malaria) Entomologist

(Kazuo Tanaka, Ph.D.)

(1) Introduction

According to the principle of the project, and partially owing to the shortage of man-power and budget, medical entomological work of the present expert has been limited almost to malaria entomology. All his activities has been planned and carried out in consultation and cooperation with Dr. Panjaitan, head of Vector-borne Disease Subdirectorate, and his staff.

"Schedule of Medical (Malaria) Entomology in the Asahan Health Project" was presented by the present expert during October 1979 (partially amended in November)(Appendix I). The work has been done according to this "Schedule" and practically commenced in July 1979 upon receipt of Tanaka's entomological equipment provided by JICA at his assignment here.

(2) Field Work

For the purpose of elucidation of the mosquito fauna and larval habitat in the project area, following field surveys were performed.

<u>No.</u>	<u>Date</u>	<u>Area</u>	<u>Participants</u>
1	July 9-10, 1979	Perupuk and Guntung	Tanaka, Tanjung, Hasibuan
2	July 23-24, 1979	Limau Sundai	Ditto
3	Sep. 10-11, 1979	Tanjung Muda	Tanaka, Pohan, Hasibuan
4	Sep. 24-25, 1979	Medang	Ditto
5	Oct. 8-9, 1979	Sungai Buahkeras	Ditto
6	Nov. 27-28, 1979	Medang	Ditto
7	Mar. 4-5, 1980	Perupuk and Guntung	Ditto and Ikemoto
8	Mar. 18-19, 1980	Tanjung Muda and Limau Sundai	Ditto

On the survey, adult mosquitoes were collected from human and livestock at night, and by net sweeping in the daytime. All kinds of larval habitats were checked.

W. Pohan, R. A. Tanjung and H. Hasibuan assisted the present expert all through the survey. They have been proved to be experienced field workers, especially in human biting collection. By introduction of better method of keepint collected material, and supply of certain equipment, they have contributed almost perfectly for the field work.

(3) Laboratory Work

Almost all the laboratory work has been done by the present expert himself.

Collected adult mosquitoes were identified, and about 2,000 of them were mounted on minuten pins or on triangle paper points. Collected larvae were reared in the laboratory up to the adult stage individually or in mass. All the reared adults were mounted and identified. Larval and pupal exuvia of individually reared ones were preserved in alcohol vials in association with the emerged adult. Whole larvae were fixed and preserved in alcohol vials. They are to be mounted by balsam as permanent specimens for further study.

In medical entomology, correct identification of species is essential, and laboratory technicians must have this ability. A complete reference collection of medically important insects must be always kept in the laboratory for training them and occasional reference. For this purpose, all the mounted adults were arranged in taxonomical order and ready to be used for it.

Upon request from PT. INALUM, the present expert identified all mosquitoes collected by them in the smelter site at Kuala Tanjung and the new town.

(4) Result and Discussion

(a) Mosquito Fauna

Obtained and identified adult mosquitoes are 5,439, which are classified into 53 species (Appendices II and III). Lien et al. (1975) reported the occurrence of 58 mosquito species from whole North Sumatra Province. Fifty three species from much narrower area, 3 districts of Asahan Regency, may well represent the mosquito fauna of the project area.

Among them, 15 species are not reported by Lien et al. (l.c.) from North Sumatra, 4 species are new to Sumatra, and additional 2 species are new to Indonesia. They are shown beneath.

1	<u>Anopheles (Anopheles) argyropus</u>	
2	" " <u>lesteri paraliae</u>	new to Sumatra
3	<u>Ficalbia jacksoni</u>	new to Indonesia
4	" <u>minima</u>	new to Sumatra
5	<u>Mimomyia (Mimomyia) aurea</u>	new to Sumatra
6	" " <u>chamberlaini metallica</u>	
7	<u>Mansonia (Coquillettidia) aureosquamata</u>	
8	" " <u>ochracea</u>	
9	" (Mansonioides) <u>annulata</u>	
10	<u>Culex (Lutzia) fuscanus</u>	
11	" " <u>halifaxii</u>	
12	<u>Aedes (Aedimorphus) culicinus</u>	new to Indonesia
13	<u>Uranotaenia (Uranotaenia) micans</u>	new to Sumatra
14	<u>Toxorhynchites (Toxorhynchites) sp. A</u>	
15	" " <u>sp. B</u>	

The project area may be roughly divided into 3 categories by the environmental conditions for mosquitoes, viz, 1) Coastal brackish water area, 2) Inland rice-field area, and 3) Rubber and oil palm plantation area.

In the coastal brackish water area, Culex (Culex) sitiens and Anopheles (Celia) sundaicus are abundantly bred from temporary ground pools, and Aedes (Lorrainea) sp. from Nipah marsh. The inland rice-field area is characterized by abundance of Anopheles (Anopheles) sinensis, Anopheles (Celia) vagus, Culex (Culex) fuscocephala, Culex (Culex) gelidus, Culex (Culex) vishnui-group, Mansonia (Mansonioides) indiana and Mansonia (Mansonioides) uniformis. They are bred in rice-field or temporary or permanent ground pools. Container breeders are relatively few in the project area; only Aedes (Stegomyia) albopictus is common throughout the area, however, it is especially numerous in rubber and oil palm plantation area.

(b) Zoophilism (Appendix IV)

Host preference of mosquitoes of the project area was roughly observed along with the faunal survey. Among the 53 species occurring in the project area, 34 species are known to be blood suckers on man and warm-blooded animals, 16 species are on cold-blooded animals, 2 species are non blood suckers, and 1 species is not certain.

In man-biting collection, 13.6-71.5% of obtained mosquitoes were An. sundaicus in coastal area, Perupuk, Medang, Sei Buahkeras and Pangkalan Dodek, and this species attack more frequently man than livestock. In Limau Sundai, 38.2% was An. vagus; however, this species is usually found many more on livestock.

Most common Cx. fuscocephala, Cx. gelidus, and Cx. vishnui-group were found much more frequently from livestock than man; 76.4-77.8% of mosquitoes obtained from buffaloes and 18.4-100% of mosquitoes obtained from goats were these 3 species in Perupuk, Limau Sundai and Tanjung Muda.

Ma. indiana and Ma. uniformis as well as An. lesteri paraliae and Ae. (Lor) sp. appear to be highly anthropophilic. In Sungai Buahkeras, 63% of mosquitoes obtained on man was Ma. uniformis, and also in Medang, Kuala Tanjung and INALUM New Town, it appears to be a dominant man-biter.

(C) Vector or Suspected Vector Species

A. Malaria Vectors

a. Suspected Primary Vector

An. sundaicus has been proved to be one of the main vectors in Java. Among the Anopheline species of the project area, it is definitely dominant in the region close to the sea coast, e.g., Sungai Buahkeras, Medang and Perupuk, and is strongly anthropophilic. In the recent malariometric surveys conducted in the project area, malaria patients and human parasite rate are evidently higher in the coastal region than in inland area. Thus, epidemiologically An. sundaicus is almost certain to be the primary malaria vector in the project area.

b. Suspected Secondary Vectors

1. An. lesteri (subsp. anthropophagus) is known as the principal vector in South China. In Japan, this species is doubted to have played an important role in epidemic of the past indigenous malaria (vivax). On the contrary, in Philippines (subsp. lesteri) and Malaya and Borneo (subsp. paraliae), it is not thought to be an significant vector. This species has not been known from Sumatra and its vector status has not been studied. Because of its abundance in the region near the sea coast with its breeding places in grassy ground pools, and high anthropophilism (apparently higher than in Malaysian paraliae, and higher than in sinensis), this species should be studied further for its vector potentiality.

2. Anopheles (Cellia) kochi. During 1919 to 1927, Dutch workers verified natural infection of this mosquito in North Sumatra (Kisaran, Sungai Baleh, Sungai Tuan, Tebing Tinggi, Tanjung Morawa and Belawan), and obtained the infection rate from 1.00 to 5.08%. This species is not very many in the project area, inhabiting ground pools of the inland area, thus should be noted as one of the secondary vectors

3. Anopheles (Anopheles) nigerrimus.

4. Anopheles (Cellia) annularis

Above two species have been proved natural infection by malaria parasite. However, they are rather rare in the project area, thus they might not be important vectors.

5. An. sinensis. This widely spread Asian species has been regarded as an important malaria vector. However, recent workers tend to deny its vector status. It was verified in South China. In Thailand, it was reported that there was no substantiated data available that incriminate sinensis as a vector of malaria or other human pathogens.

B. Vectors of Diseases Other than Malaria

a. Filaria Vectors.

1. Mansonia (Mansonioides) uniformis

2. " " borneae

3. Culex (Culex) pipiens quiquefasciatus

b. Japanese Encephalitis Vectors

1. Culex (Culex) fuscocephala

2. " " gelidus

3. " " vishnui-group

4. " " bitaeniorhynchus-group

c. Dengue and Dengue Haemorrhagic Fever Vectors

1. Aedes (Stegomyia) aegypti

2. " " albopictus

(D) Selection of a Biological Study Site

On the basis of the results of mosquito faunal survey and larval habitat survey, and of malariometric survey, it is the present expert's plan to select one or a few sites in the project area for biological investigation on vector or suspected vector species.

Village Perupuk in District Lima Puluh, is considered to be the most suitable place for such purpose, because of its exceptionally higher human parasite rate (7.26%) than in others (2.04% in the highest village) and of dominance of Anopheles sundaicus. Thus, at the end of December, the present expert decided Perupuk to be a primary study site, with the agreement of Dr. Panjaitan, head of Vector-borne Disease Subdirectorate. Other sites were not decided owing to the shortage of man-power.

(E) Bait Trap Hut

For collection of biological data on vector or suspected vector mosquitoes, establishment of 2 bait trap huts at the study site was planned. Its construction is now under preparation.

6. Some Problems in Entomological Work

(F) Laboratory for Entomology

(1) By the reason of the lack of laboratory in Provincial Health Service, an agreement was made among Dr. Tampubolon (Deputy Project Manager), Dr. Panjaitan (Head of Vector-borne Disease Subdirectorate), Dr. Sudiranto (Head of Regional Health Laboratory) and the present expert that the present expert should work at the Health Laboratory until a suitable laboratory is established in Provincial Health Service. Since this agreement, the present expert has worked at the Health Laboratory through this fiscal year. Unfortunately, the room provided for him lacks an insectary (mosquito rearing room), which is essential for entomological work. Modification of a part of the room into an insectary was planned, however it could not be realized owing to budgetary problem. Thus, an important work for vector control, establishment and keeping of laboratory colony of vector species, could not be initiated. /not

During February 1980, modification of 3 rooms at the project office into malariological and entomological laboratory was planned. Its realization is still doubtful, and problems remain in poor facilities of water and power supply available in Provincial Health Service.

(G) Assistant technicians for Laboratory Work

Since the present expert was assigned here, he has requested recruitment of 4 laboratory technicians, 2 for general laboratory work and 2 for insectary work. However, only one assistant worked for him for 4 months in this fiscal year. Owing to this lack of assistant technicians, entomological laboratory work has largely delayed.

-- APPENDIX I --

SCHEDULE OF MEDICAL (MALARIA) ENTOMOLOGY
IN THE ASAHAN HEALTH PROJECT

Practical Starting Date: July 1, 1979

Phase I. Preparatory.....2 years (July 1979 - June 1981)

	<u>Commencement</u>	<u>Completion</u>
1. Geography and mapping (1/50000)	July 1979	Mar 1980
2. Mosquito faunal survey	July 1979	Dec 1979
3. Larval habitat survey	July 1979	June 1980
4. Preparation of taxonomic key of Anopheline mosquitoes.....adults		Dec 1979
5. Ditto.....larvae		June 1980
6. Selection of study sites (2 or 3 sites)		Dec 1979
*7. Establishment of bait trap huts at the study sites	Jan 1980	Mar 1980
**8. Establishment of light trap station at the study sites	Jan 1980	Mar 1980
9. Establishment of an insectary	?	Mar 1980
***10. Colonization and colony maintenance of vector mosquitoes at the insectary	Apr 1980	Mar 1983
11. Biological survey on vector or suspected vector species	Apr 1980	Mar 1981
12. Mapping (1/10000)		Mar 1981
13. Investigation on control measures	Apr 1981	June 1981

*) Purpose: Confirmation of vector species and collection of biological data, and also faunal survey. 1. Parasite rate, 2. Zoophilism, 3. Endo- or exophilism, 4. Seasonal prevalence, 5. Age construction.

***) Purpose: Same as above. 1. Parasite rate, 2. Phototropism, 3. Seasonal prevalence, 4. Age construction.

***) Purpose: Confirmation of vector species and collection of biological data. 1. Transmission experiment, 2. Longevity, 3. Insecticide susceptibility.

Phase II. Operation of Control Measures.....1 3/4 years (July 1981 - Mar 1983)

1. Insecticide susceptibility test of vector species.
2. Training personelle for insecticide spray.
3. Application of control measures to the pilot area.
4. Expansion of control measures to whole preject area.
5. Reproduc ion of mosquito fishes.
6. Dispersal of mosquito fishes.

Phase III. Appraisal (Evaluation).....1 year (Apr 1982 - Mar 1983)

1. Evaluation of the result.
2. Investigation of the applied control measures.
3. Continuation, improvement or alteration of control measures.
4. Repetition of 1 to 3.

APPENDIX III.

Mosquito Collection from
Asuaran Project Area
from July 1979 to March 1980

	Dempuank & Quising		Limaun Sundai		Tinjung Muda		Kuching		Medang		Sungai Bukaras	
	July 9-10, 1979 Mar. 4-5, 1980		July 23-24, 1979 Nov. 19, 1980		Sep. 10-11, 1979 Nov. 19, 1980		Dec. 1979 ~ Feb. 1980		Sep. 24-25, 1979 Nov. 27-28, 1979		Oct. 7-9, 1979	
	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)	Adult Col. (emerged adults)
1. <i>An. (Ano) argyropus</i>												
2. " " <i>lesteri parvialae</i>												16
3. " " <i>nigerimus</i>												63
4. " " <i>peditaeniolatus</i>												7
5. " " <i>sinensis</i>												26
6. " (Col) <i>annularis</i>												158
7. " " <i>kochi</i>												(57)
8. " " <i>Sundaius</i>												8
9. " " <i>fessellatus</i>												517
10. " " <i>vagus</i>												304
11. <i>Fic. jacksoni</i>												4
12. " " <i>minima</i>												209
13. <i>Mi. (Nm) aurea</i>												1
14. " " <i>chamberlaini</i>												1
15. " " " <i>var. miniflca</i>												1
16. <i>Ma. (Coq) lucionensis</i>												111
17. <i>Ma. (Coq) aurorahamata</i>												1
18. " " <i>nigrosignata</i>												1
19. " " <i>ochracea</i>												81
20. " " <i>annulifera</i>												30
21. " " <i>bonneae</i>												21
22. " " <i>indiana</i>												231
23. " " <i>uniformis</i>												979
24. <i>Cx. (Cx.) pipiens quinquefasciatus</i>												23
25. " " <i>fuscocephala</i>												20
26. " " <i>gelidus</i>												319
27. " " <i>sitiens</i>												617
28. " " <i>vishnui-group</i>												570
29. " " <i>bitaeniorhynchus-group</i>												989
30. " (Lep) <i>sp. A</i>												11
31. " " <i>sp. B</i>												10

(2)

	Perbuk & Gundung July 199-10, 1979 Mar. 4-5, 1980		Limau Sundi July 23-24, 1979 Mar. 19, 1980		Tanjung Muda Sep. 10-11, 1979 Mar. 18, 1980		Kuala Tanjung 8 Dec. 1979 ~ Feb. 1980		Medang Sep. 24-25, 1979 Nov. 27-28, 1979		Bungai Bunkers Oct. 2-3, 1979	
	Larval Col. (Grouped adults)		Larval Col. (Grouped adults)		Larval Col. (Grouped adults)		Adult Col.		Larval Col. (Grouped adults)		Larval Col. (Grouped adults)	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
32 Cx (Lop) sp. C												6
33 " " sp. D												4
34 " (?) sp.												31
35 (Lut) fuscaus	1		1									7
36 " " halifaxii												1
37 Ae (Ssg) aegypti		1										1/2
38 " " albopictus			8	4	24	20			21	29		96
39 " " sp.					1							1
40 (Ada) culicinus					2	1						3
41 " " vexans nocturnus												7
42 " " sp.												(1)
43 (Yeo) lineatopennis												17
44 " (Lor) sp.							3					144
45 U1 (Pfc) sp. A	1						2		16	6		2
46 " " sp. B									1			1
47 (Lut) lateralis									11	11		23
48 " " sp. B												1
49 " " sp. C												1
50 " " mearns									1	1		2
51 " " sp. E												4
52 Tx (Tox) sp. A												7
53 " " sp. B												4
	120	155	1	811	89	80	67	396	75	75	14	911
					13	571	10	695	77	80	29	243
					#	#	#	#	#	#	#	#
												5,439
Total												

- APPENDIX IV -

Mosquitoes Collected from Man and Livestock

	Perupuk July 9, 1979			Limau Sundai July 23, 1979				Tanjung Muda Sep 10, 1979				
	M	B	G	M	B	G	P	M	B	G	P	S
1 An (Ano) pedtaeniatus								(6.7)	(6.6)	(2.6)		
2 " " sinensis				5	2							
3 " (Cel) kochi									1	4		
4 " " sundaicus	60	10	1									
	(32.1)	(3.3)	(1.7)									
5 " " tessellatus								(1.7)	2	1		
									(1.2)	(2.5)		
6 " " vagus		2		29	31			1	16	11		1
		(2.7)		(37.2)	(12.4)		(5.6)		(9.8)	(27.5)		(3.6)
7 Mac(Mnd) annulata					1			(6.7)		(2.5)		(3.6)
					(6.4)							
8 " " annulifera	1											
	(0.5)											
9 " " bonneae												2
												(15.1)
10 " " indiana	16	6	2	5				(6.7)	2			
	(17.6)	(2.6)	(3.3)	(6.4)					(1.2)			
11 " " uniformis	16			8	1				2			
	(15.3)			(16.5)	(6.4)				(13.3)			
12 Cx(Cur) fuscocephala				12	76	1	5		55	3	1	14
				(15.7)	(21.6)	(2.4)	(25.6)		(31.7)	(7.5)	(7.1)	(51.6)
13 " " gelidus	16	62	7	5	42	12	5	4	39	6	3	5
	(8.6)	(26.3)	(11.7)	(6.4)	(16.8)	(24.3)	(25.6)	(26.7)	(32.4)	(15.6)	(27.3)	(17.8)
14 " " sitiens	31	46	41		21							
	(16.6)	(15.1)	(28.3)		(9.4)							
15 " " irshnui-group	175	4	10	79	22	9	5	33	16	6	7	
	(59.4)	(6.7)	(13.2)	(31.6)	(6.7)	(44.6)	(33.3)	(26.2)	(25.6)	(54.5)	(25.6)	
16 Ae(Stg) aegypti												
17 " " albopictus												1
												(0.5)
18 " (Adn) vexans nocturnus		1			2				4			
		(0.3)			(6.3)				(2.5)			
19 " (Ner) lineatipennis				2					16			1
				(2.6)					(6.7)			(9.1)
20 " (Lor) sp.	53	3	4		1							
	(28.3)	(1.6)	(6.7)		(6.4)							
Total	189	315	60	76	251	35	26	15	163	46	11	28

M - Man
B - Buffalo
G - Goat
P - Pig
S - Sheep

Numerals above - Number of mosquito collected
Numerals in parenthesis - % of the total

7. Technical activities and achievements in FY 1979/1980
 by Malaria parasitologist
 (KOJI KANBARA, M.D.)

Since February 21, 1980, the survey for the malaria prevalence has been performed in the project area using the examination of blood and splenomegaly.

The first survey had been done at the desa Perupuk from February 21, to March 10 and the next survey has been begun at the desa Guntung since March 17.

All the inhabitants were examined at the beginning of the survey, but the children aged from 0 to seven years were selected later as the object to be examined according to the previous results.

The results obtained at Perupuk is shown in the following table 1.

Table 1: Malaria parasite examination in children 0 to 7 years old at Perupuk.

Lorong.	No. of Person examined	Plasmodium vivax	Plasmodium falciparum	Mix-infection	Parasite rate
I	19	4	1	-	26.3%
II*	4	-	-	-	-
III	43	1	-	-	2.3%
IV*	5	1	-	-	20.0%
V	36	5	1	-	16.7%
IX	15	-	-	-	-
X	67	2	-	-	3.0%
XII	28	-	-	-	-
Total	217	13	2	-	6.9%

* : Lorong two and four are not clear to have high malaria prevalence for lack of enough samples. But the spleen rate in the children 0 to 12 years old is 22% (5/22) at Lorong two and 43% (3/7) at Lorong four

The malaria parasites rate is 6.9% and it corresponds with the results (7.26%) gained by the malaria section in the Provincial Health Service, North Sumatra on 1979.

However, the most interesting fact found here is a marked difference of malaria prevalence among the subvillages, so called Lorong.

Lorong one, two, four and five show considerably higher prevalence of malaria compared with other Lorongs.

The condition causing this difference should be investigated in the following survey.

8. Technical activities and achievements in FY 1979/1980
 by Malaria Ecologist
 (TAKAYA IKEMOTO)

The knowledge of the causes of growth and decline of malaria patients and vector mosquito populations in the project area are essential for establishing integrated measures for malaria control. In such a view point, malaria ecologist has started from February 6, 1980 to guide his counterparts to conduct field survey about the ecological studies on vector mosquito, the human host and the parasite which react with one another and also with their wider biological and physical environment.

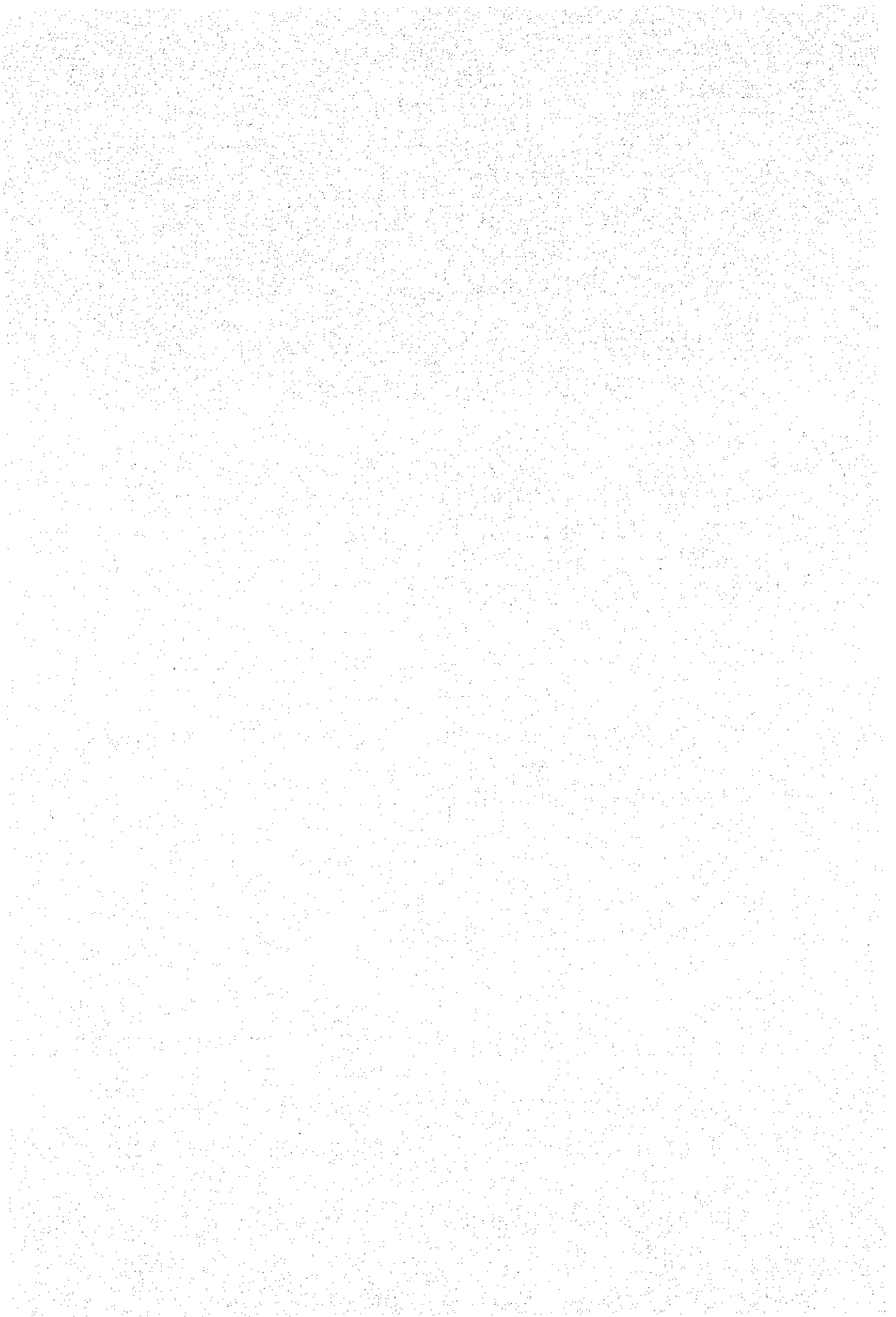
Table 1 shows one of the data about the biting collection of the vector mosquito, Anopheles sundacus, through the night at Perupuk, Lima Puluh in Asahan district. In this village An. sundaicus was high density over night especially outdoor condition. They will continue ecological survey in this area with the purpose to field the best strategy of malaria control.

Table 1. Man-hour density of An. sundaicus caught by biting collection at Perupuk, March 25-26, 1980.

o'clock	19	20	21	22	23	0	1	2	3	4	5
Outdoor											
<u>An. sundaicus</u>	27.5	38.0	40.5	43.5	47.0	40.5	58.0	45.0	47.5	37.5	29.0
Other <u>An. spp</u>	0	1.5	0	0	0	0	0	0	0	0	0.5
Indoor											
<u>An. sundaicus</u>	12.5	17.0	29.5	24.5	17.5	17.0	17.5	23.5	9.0	14.5	7.0
Other <u>An. spp.</u>	0	0	0	0	0	0	0	0	0	0	0

11. PROGRESS REPORT OF THE ASAHAN HEALTH
IMPROVEMENT PROJECT IN NORTH SUMATRA

本報告書は、1980年4月9日付にて、インドネシア北スマトラ州衛生部がまとめたプロジェクトに関する事業経過報告書である。



INTRODUCTION.

Within the development program in North Sumatra, upon cooperation with the Government of Japan, the Government of Indonesia is establishing two main projects, i.e. Hydroelectric Power Project at Asahan River and Aluminium Smelter Plant at Air Putih District in Asahan Regency.

As the industrial development progresses, a vast number of people will be expected to move into the area. Therefore a special emphasis should be placed on predicting and controlling the undesirable impacts on health and Social conditions of the people around the project site. For this purpose it is necessary for the health machinery to prepare for the possible outbreak of acute epidemic diseases, that might interfere with the health condition of the labors in the afore-mentioned projects.

Based on this reason, it is considered necessary to step up the health condition of the people around the project area, and for this purpose the government of Indonesia and the government of Japan agreed to develop a cooperative program.

In September 1977 a Japanese implementation survey team, organized by JICA visited the Republic of Indonesia for the purpose of working out the details of a technical cooperation project in the field of the promotion of health in North Sumatra with special attention to the Asahan area.

The team exchanged views and had a series of discussions with the authorities concerned of the government of Indonesia concerning the desirable measures to be taken by both governments for the successful implementation of the project.

As a result of the survey and discussions, both parties agreed to sign the Record of Discussions on October 10th, 1977 in Jakarta.

Based on the Record of Discussions, the Asahan Health Improvement Project was established on April 1st, 1980.

1. To promote communicable disease control activities.
2. To improve health care delivery services.
3. To improve health laboratory services.
4. To improve health education activities.
5. To promote other related health fields mutually agreed upon as necessary.

SITUATION ANALYSIS.

The Regency of Asahan is located about 150 km to the South, from Medan. The regency covers an area of 4.681 km² with a population of 651.016 (in 1978). Administratively, the regency is divided into 15 districts and 221 villages.

The sickness rate is high (94 0/00 in 1976).

The outstanding diseases are: Malaria, Influenza, Ulcer, Diarrhea, Bronchitis, Anaemia, Eye Disease, Lung tuberculosis.

Hygiene and sanitation condition of the people is poor.

The main water source is a well, which is often dry in dry season.

In view of limited funds, the health improvement project in Asahan regency has the priority at three districts at the surrounding area of Aluminium Smelter project, namely :

1. Medang Deras district
2. Air Putih district
3. Limapuluh district

Total population of the 3 districts is 134.133 people
(23.077 households)

COOPERATION SCHEME.

In an effort to achieve the objectives of the project, the government of Japan and the government of Indonesia are requested to take some measures according to the Record of Discussions.

The Government of Japan is requested to take some measures as follows :

1. Provision of services of experts
2. Provision of equipment and materials
3. Provision of fellowship for training programs in Japan for Indonesian staff members.

The government of Indonesia is requested to take some measures as follows :

1. Recruitment of counterpart personnel
2. Provision of office space with incidental facilities
3. Provision of running expenses^{for} project implementation
4. Provision of Transportation cost
5. Provision of furnished housing for short term experts
6. Provision of free medical service in government facilities, etc.

ACTIVITIES OF THE PROJECT.

Activities of the project are carried out in accordance with the outline of the project. Promotion of communicable disease control is limited in several fields only, due to limitation of fund, such as :

- Malaria control
- Tuberculosis control
- Hygiene and Sanitation program
- Immunization program
- Worm control

Promotion of health care delivery services is focused on improvement of facilities in the Regency Health Service of Asahan, Public Hospital in Kisaran and Health Centers in Medan Deras, Air Putih and Limapuluh. Besides that, technical guidance is offered and fellowship is provided for Indonesian staff members in an effort to improve their skill and technical know-how.

Promotion of health laboratory services is carried out by improvement of laboratory equipment and provision of materials for the health laboratory in Medan. In addition to that, the service of Japanese experts has played a great role in the improvement of the laboratory services.

For the improvement of the ability of the laboratory personnel, some Indonesian staff members have been awarded technical training fellowship in Japan.

For the purpose of widening the coverage area of the health laboratory, a new laboratory building will soon be built in Indrapura under JICA'S assistance program.

This new laboratory will be used by the Japanese experts together with their Indonesian counterparts in an effort to improve health laboratory services to the people around the project area.

ment of educational facilities and provision of technical guidance to the staff members. By the arrival of educational equipment from Japan, the educational activities are expected to be more effective than before.

Promotion of other health related fields is carried out under mutual agreement between both sides. Some fields are promoted such as Bacteriology, Entomology, Parasitology and Rural Water Supply program. Since rural water supply is one of the major problems in the project area, a series of teams of Japanese water supply experts have visited the project area for the purpose of working out the details of master plan for the development of rural water supply system for the community in the area. By the visit of these teams the Indonesian staff members have got a very good chance to improve their skill on rural water supply techniques.

PROBLEMS AND CONSTRAINTS.

Basically, there is no fundamental problem faced by the project that can not be solved. The main problem is only time constraint. Both Indonesian and Japanese governments use fiscal year systems which are started in the month of April every year. Everything that can be done in one fiscal year must be planned several months ahead of April before budget allocation is decided. Therefore if an expert arrives in Indonesia at the end of a fiscal year, it will be very difficult to provide counter budget to support his operational activities. If the number and the kinds of experts who are coming to Indonesia can be made known in advance, planning for counter budget could become easier.

In our experience in the last two fiscal years, the equipment and materials that were sent from Japan, arrived in Indonesia mostly at the end of the fiscal years. Complicated procedures for tax free imported goods into Indonesia make it take more time before the equipment and materials can be distributed to the designated places. Furthermore the project has not got a special warehouse at this moment so that processing of the equipment and materials for the project can not be done separately. Because of all of these factors the experts may have to wait a long time for the delivery of equipment and materials. The project has always endeavoured to get rid of this particular problem by one way or another. An idea to have a special warehouse has been proposed to the Indonesian government but it has not been approved. Another effort has been introduced by submitting the application forms for equipment and materials to JICA early in February so that JICA can have more time to arrange transport of the equipment and materials to Indonesia.

Problem faced by the Indonesian government to provide sufficient counter budget to cope with the problems of operational cost has been solved gradually.

The counter budget in FY 1979/1980 has been increased. In FY 1980/1981 the counter budget is expected to be increased again so that it can cope with the necessary expenses for the construction of the Laboratory in Idrapura and other operational expenses.

CONCLUSION.

After two years of experience the project has been running more and more smoothly. Problems are solved bit by bit according to resources availability. Both Indonesian and Japanese sides have been doing activities which are always increasing from time to time, in quantity as well as in quality, in spite of the problems mentioned before.

Thanks to the Japanese experts who have been doing their jobs very well. They have been working very enthusiastically to make the project successful even though the road condition in the project area is very poor.

Language barrier does not seem to be a problem for them.

Cultural barrier does not seem to be a problem either. They can easily manage how to work with the Indonesian people.

The Indonesian staff members really enjoy technical guidance offered by the Japanese experts by which they can improve their knowledge and skill.

At this moment there are six Japanese experts working for the project and we will be very happy to have more.

It is evident that more and more Indonesian staff members are interested in getting training fellowship in Japan. Unfortunately JICA can only provide five fellowships per year. We really wish we could get more.

The equipment and materials supplied by JICA in extensive amount have played a great role in the promotion of health service deliveries in the project area. Supply of vehicles has helped solve most part of the transportation problems. Laboratory equipment and materials have enabled us to do many kinds of laboratory examinations that we have never been able to do before.

We really hope that the activities of the project can be expanded with other health fields in the future so that the people in the project area can enjoy better health.

Medan, April 9, 1980.

LIST OF EXPERTS

FY 1978/1979.

Short term expert

- Dr. A. Ishii
- Dr. M. Yasuno
- Dr. K. Matsuno

Long term expert:

- Mr. H. Tanaka (Statistician)
- Dr. N. Kumazawa (Bacteriologist)
- Dr. K. Tanaka (Entomologist)

FY 1979/1980

Short term expert

First group:

- Dr. M. Hashimoto - Public Health
- Mr. K. Onogawa - Sanitary Engineer
- Mr. K. Myoshi - JICA staff

Second group:

- Dr. J. Yamamoto - (JICA)
- Dr. Uematsu - Public Health
- Dr. Michishita - (JICA)

Third group:

- Mr. K. Kobayashi) Department of Public
- Mr. H. Ushijima) Construction
- Mr. A. Sakashita)

Fourth group:

- Dr. M. Hashimoto - Public Health
- Mr. K. Onogawa - Sanitary Engineer
- Mr. K. Miyoshi - JICA staff
- Mr. K. Yamazaki - Water Supply Engineer
- Mr. S. Sasaki - Water Supply Engineer
- Mr. M. Sekine - Hydrogeologist

Long term experts:

- Dr.N.Kumazawa - Bacteriology
- Dr.K.Tanaka - Entomology
- Mr.H.Hashiura - JICA Coordinator
- Dr.T.Yanagihashi - Team leader
- Dr.H.Kanbara - Malaria Parasitologist
- Mr.T.Ikemoto - Malaria Ecologist

ANNEX : 2

EQUIPMENT AND MATERIAL ASSISTANCE

F.Y.	1978 / 1979	Total	¥	50.000.000.-
F.Y.	1979 / 1980	Total	¥	100.000.000.-

COUNTER BUDGET FROM INDONESIAN GOVERNMENT

F.Y.	1978 / 1979	Rp.	32.570.000.-
F.Y.	1979 / 1980	Rp.	62.772.000.-

LIST OF FELLOWSHIP AWARDED

F.Y. 1978 / 1979.

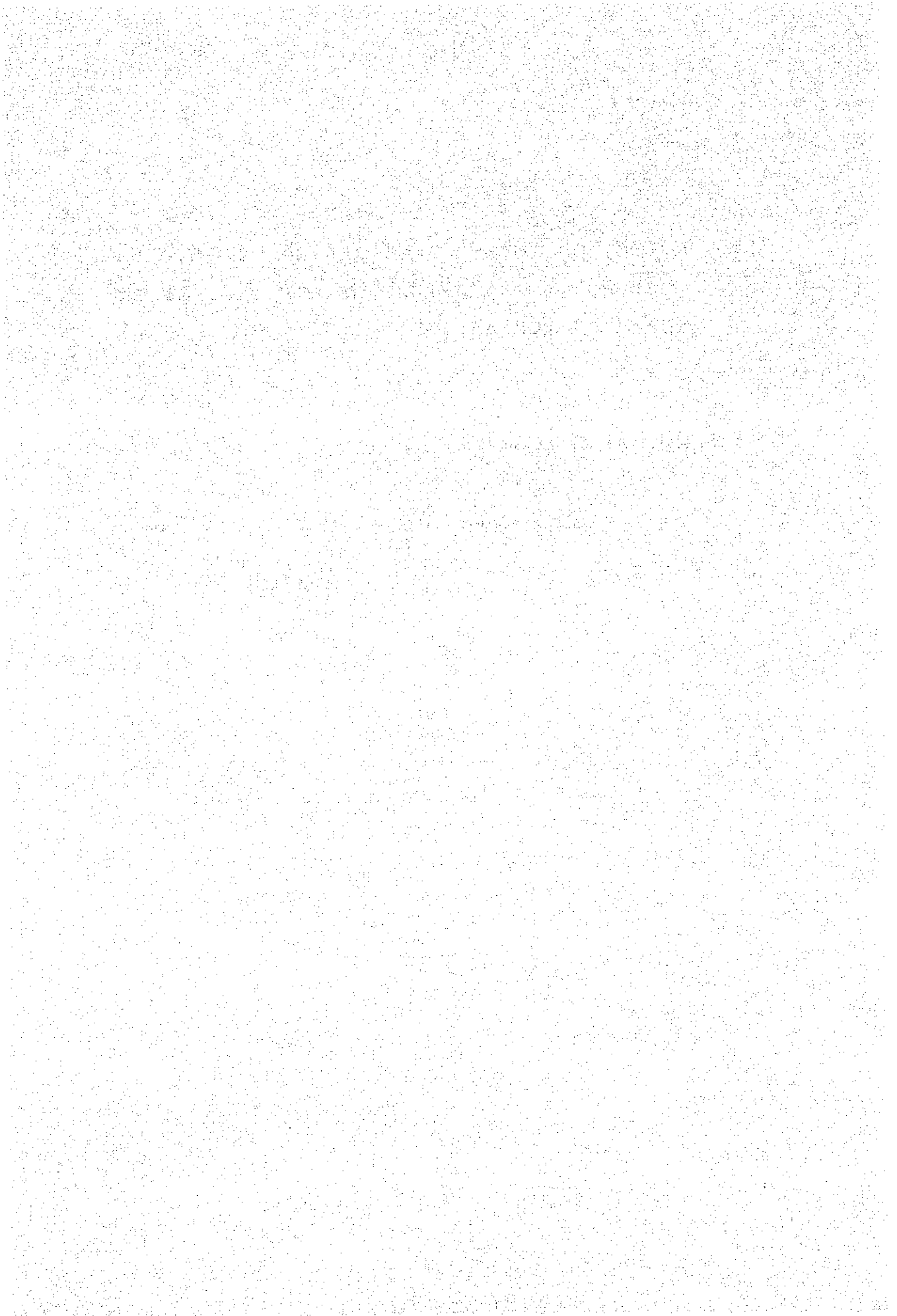
1. Dr. L.A. Lolong (Observatory visit)
2. Dr. Mangasa Siregar (Observatory visit)
3. Dr. R.Tampubolon (Public Health Management)
4. Dr.R.Sudiranto (Laboratory Management)
5. Mr. Wesly Pohan (Entomology)

F.Y. 1979/1980.

1. Dr.R.P. Purba (Parasitology)
2. Mr.Hari Sutikno (Sanitary Engineering)
3. Mr.Marcus Ginting (Food Microbiology)
4. Dr.M.S. Lubis (Clinical Chemistry)

12 REPORT OF THE THIRD STEERING COIMMITTEE MEETING OF THE ASAHAN HEALTH PROJECT IN NORTH SUMATERA

本議事録は、1980年11月8日北スマトラ州トバ湖畔のパラバトにて開催された第3回ステアリング・コミティー会議の議事録である。本会議は、ちょうど訪伊していた、プロジェクト巡回指導調査団も参加したものである。



I. INTRODUCTION :

The third Steering Committee was held under the chairmanship of dr. R. Soebekti, MPH, the Director General of Community Health, on the 8th of November 1980 at Parapat.

The meeting was attended by representative from Indonesian Side and Japanese Side (List of attendants : Annex 1).

In the meeting, the progress report of the project during FY 1979/80 and April-September FY 1980/81 was reviewed and discussed.

The plan of action for FY 1981/82 was submitted to the Steering Committee.

II. PROGRESS REPORT :

Progress report of the project activities in FY 1979/80 and April-September FY 1980/81 was submitted by the Project Manager and explained by respective section. (Details : Annex : 2).

III. PLAN OF ACTION 1981/1982 :

1. INTRODUCTION.

In General the activities FY 1981/1982 will be a continuation of activities conducted in FY 1980/81, but a special attention will be given to the development of control plan in the field of communicable diseases.

2. ACTIVITIES WITH PRIORITIES.

Among the activities in FY 1981/1982. high priority will be given to Malaria Control Programs, Epidemiological Study on Enteropathogenic Bacteria and Enteric parasites, Health Education Tuberculosis Control and Environmental Sanitation will be conducted to enable to develop a pilot control program.

3. SUPPORTING SERVICES.

3.1. Experts :

JICA will dispatch experts for the project according to the priority of activities as listed in Annex : 3.

The project manager will select suitable counterpart personnel for the expert and inform the Japanese Team Leader of their names and qualifications.

3.2. Fellowships :

JICA will accept trainee according to the priority as listed in Annex : 4.

Priority will be given to the personnel who work with the experts.

3.3. Equipment and materials :

According to the priority order, JICA will supply equipment and materials necessary for the communicable diseases control, health care delivery services, health laboratory services, health education activities and other health related fields mutually agreed upon as necessary.

The list and specification of these equipment and materials will be prepared by Project Manager in close consultation with Japanese Experts and JICA.

To speed up the equipment supply program, the application forms should be submitted to Japanese Embassy, Jakarta, not later than February 28th, 1981.

3.4. Indrapura Health Laboratory :

The above Laboratory will be scheduled to be completed within FY 1980/81.

After completion of the Laboratory, Indonesian Side will be responsible for the operation and maintenance of the facility at its own expense.

The facility should be utilized for Field Laboratory services as well as Training of Medical and Paramedical Personnel with coordination with the University of North Sumatra.

3.5. Rural Water Supply Facilities :

From the standpoint of prevention and control of Communicable diseases (Cholera, dysentery, etc.), Rural Water Supply Facilities (Fodder facilities) are being constructed at five selected places in project area within FY 1980/1981. After completion of them, the Villagers concerned (the users of the facilities) of each rural community and/or Local administrations should maintain the above facilities at their own responsibility to ensure smooth utilization of safe water on a long term basis.

This project should be expanded in the future to improve Health and Sanitary Conditions in the project area.

4. PROPOSED BUDGET.

4.1. Budget proposal from the Government of Indonesia 1981/1982, will be worked out by planning units within the Ministry of Health and Local Government during the first week of January 1981.

4.2. Budget allocation from JICA in 1981/1982 for equipment and materials for the project is to be about 50,000,000 Yen.

Budget for Japanese experts and fellowships will be provided separately from above mentioned budget.

Note : Japanese team explained that above figure does not mean any commitment and is subject to change according to the availability of the equipment and materials in Japan.

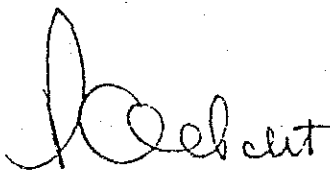
IV. RECOMMENDATIONS :

1. Clearance of equipment and materials.

- Indonesian Side is requested to provide sufficient budget for the handling cost.
- Shipping of temperature-controlled goods such as sera with special message to the consignee should be made separately from other goods so that quick clearance of the goods could be possible.

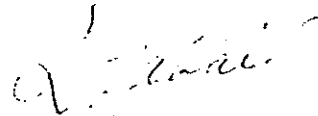
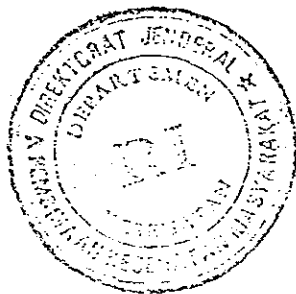
2. For quick inspection and delivery of the equipment sent from JICA, Indonesia Side is strongly requested to prepare a special warehouse (sufficient storage space) for the project in Medan.
3. If it is not possible or acceptable, Japanese Side requests the Provincial Health Services of North Sumatera to make every possible effort to simplify and speed up the administrative procedure for delivery of the equipment from its warehouse to designated places.
4. Indonesian Side is requested to make further efforts to obtain more running costs for the project.
5. Indonesian Side is requested to recruit sufficient number of drivers for the work of Japanese Experts on duty, and is also requested to provide garages for the vehicles of the project.
6. Indonesian Side requests JICA to make every possible effort to provide round trip tickets between Medan and Jakarta for fellowship trainees.
7. Due to long procedure of equipment supply from Japan, it is strongly suggested that equipment and materials which are available in Indonesia, be purchased in Indonesia.
8. The number and kind of experts that will be requested to JICA should be based on felt need by the project and be adjusted to the counter budget availability.

Signed at Jakarta, February 20, 1981



Dr. Soebekti MPH

Director General of
Community Health,
Republic of Indonesia.



Dr. Ryoji TAKAI

Leader of Japanese Expert
Team.

LIST OF PARTICIPANTS OF THE STEERING COMMITTEE MEETING
ON THE ASAHAN AREA HEALTH DEVELOPMENT PROJECT (OFA-13),
PARANGT, NORTH SULAWESI, NOVEMBER 8, 1980.

No.	Name :	Occupation :	Address :
1.	dr. R. Soebekti, MPH	Director General of Community Health.	Jakarta.
2.	Prijono Ashari BSc.	Program Preparation and Reporting Div, Directorate General of Community Health.	Jakarta.
3.	dr. Santoso Karo Karo MII	Program Preparation and Reporting Div, Directorate General of Community Health.	Jakarta.
4.	Dra. Setyaningsih	Sub Directorate of Pathology.	Jakarta.
5.	dr. Kumara Rai MPH	Directorate General of C.D.C.	Jakarta.
6.	Drs. Sumali	" "	Jakarta.
7.	Zulkarnaen	Foreign Relations Division	"
8.	dr. H. Tanjungbolon MII	Asahan Health Project	Kedau.
9.	Adhi Nugroho BSc	" "	"
10.	Usuluddin Gajah	" "	"
11.	Moch. Amir Nasution	" "	"
12.	dr. T.M. Panjaitan SKM	Chief of Administration,	"
13.	dr. Adil Harajat SKM	Planning Division, Provincial Health Dept. Office.	"
14.	dr. Hadi M. Abdnago SKM	Controlling Division, Provincial Health Dept. Office.	"
15.	dr. R. Sudiranto	Provincial Health Lab.	"
16.	dr. A. Hakim Hidayat	Provincial Community Health Services.	"
17.	dr. P.E. Kuntze MSc.	Wam & Cholera Section	"
18.	W. Furba BSc	Hygiene & Sanitation	"
19.	dr. J. Simandjuntak	TB Control	"
20.	dr. A. Sitompul	Chief of CXC Unit	"
21.	dr. D.T. Agustin Hitam	Chief of HE Unit	"
22.	T. Sianturi BSc.	Staff Wam & Cholera Section	"
23.	P.M. H. Sidauruk BSc	" "	"
24.	D. Pasaribu	Regional Planning Council	"
25.	dr. Inran Nasution	Chief, Indrapura Health Center.	Indrapura.
26.	dr. Husni Thamrin Nasution	Chief, Asahan Health Office.	Kisaran.
27.	dr. Rustam Effendi Lubis.	Chief, Tegayawan Health Center.	Kedang Mearas.

No. :	Name :	Occupation :	Address :
28.	Dr. H. Takai	JIC Team Leader	Soerab.
29.	Dr. K. Tanaka	JIC Expert	"
30.	Dr. G. Kumazawa	"	"
31.	Dr. H. Hambara	"	"
32.	Mr. H. Maehiwa	" (coordinator)	"
33.	Mr. T. Tsujimoto	"	"
34.	Mr. T. Ikemoto	"	"
35.	Mr. A. Kojima	JIC Jakarta Office	Jakarta
36.	Mr. H. Miyamoto	"	"
37.	Mr. K. Teshima	Embassy of Japan	"
38.	Mr. I. Wakisaka	JIC Mission	Soerab.
39.	Mr. H. Yasuio	"	"
40.	Mr. C. Fujioka	"	"
41.	Mr. Koji Tanabe	"	"
42.	Mr. Masahiro Obata	Consulate General of Japan.	"

I. BACTERIOLOGY :

1. Finding the endemic sites of cholera in the project area :
 - a. Site of survey : Pangkalan Dodek, Tanjung Tiram.
 - b. Preliminary survey to register the cases of cholera since the beginning cholera epidemic in 1970.
 - c. Survey to find healthy carriers or mild cases.
2. Examination of drinking water in the selected 4 villages :

Specimen : water from deep and shallow wells and rivers including newly constructed deep wells (target : 400 specimen).

Target : Enteropathogenes , organic substances and inorganic substances.

II. MALARIOLOGY :

Activities for the malaria control programme (M.C.P.) will be the continuation of the activities conducted in the previous report period.

The Special malariological survey on malaria endemic-city, vector biology and their relationship at Perupuk shall be continued at least up to the end of May 1981. Based upon the result obtained through this special survey, measures for control will be investigated. Village Perupuk should be given the first priority of application of control measures.

Through the control phase, parasitological and entomological assesement will be carried out to evaluate the result of control.

The activities for malaria control are as follows :

1. Malariometric Survey (M.S.) or Parasitological Survey.

Around 5,000 blood specimens will be axamined in three Kecamatan.
2. Treatment.

Presumptive and radical treatment will be given against about 5,000 suspected and identified cases.
3. House Spraying Activity.

Insecticide house spzray will cover 15,000 houses in three Kecamatan.

4. Entomological and Ecological Activities :
 - a. Biological survey on vector or suspected vector species at Perupuk.
 - b. Establishment of insectary in the entomological laboratory.
 - c. Colonisation and colony maintenance of vector species.
 - d. Insecticide susceptibility test.
 - e. Application of control measures.
 - f. Entomological and ecological assesement in sprayed areas.
5. "Special Malariological Survey".

This will strengthen the programme activity by obtaining more detailed background information on parasitological, entomological, ecological and epidemiological aspect of malaria, and the obtained information may be applied not only to the project area but also to other malarious areas in Sumatera.

This work will be carried out through the activities of Malarimetric Survey and Entomological and Ecological Activities.

III. PARASITOLOGY

1. Differentiation of species of hookworms in the project area
 - a. To culture hookworms to distinguish Necator and Ancylostoma.
 - b. To analyse anaemia in cooperation with malaria program.

Specimen : faeces from school children in the selected 6 villages.

2. A pilot control activity should be done in a selected area for finding out the more appropriate method.

Further study on the intestinal parasite other than helminth will be conducted in the selected villages of project area. According to the result obtained, the villages in the rice field have higher parasite prevalence, especially remarkably higher hookworm infection than those in sea-side.

In the selected village, following survey will be done :

- a. Anti-helminth-treatment at different intervals.

Mass-treatment with combantrin will be done at various intervals in certain period, to determine more effective and more economic administrative way,

- b. Species determination of hookworm,
- c. Health Education to villagers for prevention of parasite infection,
- d. Improvement of environmental condition.

IV. T.B.

The prevalence of the sputum positive cases has been estimated at 0.6% among the adult inhabitants in the project area. It is twice as high as the average in Indonesia. So, the priority should be given on TB programme in the project.

Though the area covered by the project is very much characterized the TB Programme in the area is under the administration of the national/provincial/regencial TB programme. Therefore, the selected control measures include immunization by the BCG vaccination to the eligible age group, the passive and active case-finding by the direct smear microscopy of the sputum specimens collected from the patients with some respiratory symptoms and attending in the health institutions, and primarily ambulatory treatment by the effective chemotherapy.

For the effective implementation of the activities, the training of the medical/paramedical staff and the evaluation of the activities will be needed.

Moreover, epidemiological/operational research should be strengthen to make appropriate control programme.

For the implementation of the programme, the following activities will be performed in the project area :

1. Training of the staff at the Indrapura Local Health Laboratory in the Asahan Regency :
 - a. Training of the medical officer.
 - b. Training of the sputum collector.
 - c. Training of the microscopist.
 - d. Training of the nurse in charge especially in BPU/BKIA.
 - e. Training of the personnel in charge of the defaulter action.
 - f. Training of the BCG vaccinator.

2. Evaluation of the case-finding and the treatment in the health centres.
3. The trial short-term treatment using Rifampicin.
4. Evaluation of the BCG vaccination by scar examination.
5. Commencement of the operational research for TB control.

V. HEALTH EDUCATION.

The health education should be taken in consideration based on the information-data obtained by the project activities in the last two years.

The water supply facilities will be completed at the end of FY 1980/1981. In this occasion, health education activity should be taken place to establish "self protective organization" against enteropathogenic infection by participation of the public using the above facilities.

For the health education, following basic activities should be considered :

- a. Improvement of the community organization for health,
- b. Enhancement of "the growth in community capacity" accepting health education,
- c. Promotion of "the will to change" in the behaviour or community" ,
- d. Promotion of people's participation.

In consideration of the above the following two activities will be carried out for the first step :

- a. Study of community structure in related with health condotion.
- b. Promotion of school health activities (U.K.S.).

LIST OF EXPERT REQUESTED

I. Long term experts :

1. Ecologist.
2. Parasitologist.
3. Malariologist.
4. Bacteriologist.
5. Expert on other health related field mutually agreed upon as necessary.

II. Short term experts :

1. Health Education.
 2. TB Bacteriologist.
 3. Specialist on Hygiene and Sanitation.
 4. Expert on other health related field mutually agreed upon as necessary.
-

FELLOWSHIPS REQUESTED

1. Public Health Management.
 2. Environmental Health.
 3. Health Education.
 4. Rural Water Supply.
 5. Health Statisticians.
-

REPORT OF THE THIRD STEERING COMMITTEE MEETING OF THE

ASAHAN HEALTH PROJECT IN NORTH SUMATERA , AT PARAPAT, NOVEMBER 8, 1980

I. INTRODUCTION

The third steering committee was held under the chairmanship of Dr. R. Soebekti MPH , the director General Of Community Health , on the 8th of November, 1980 at Parapat

The meeting was attended by representative from Indonesian side and Japanese side (List of attendants : Annex 1)

In the meeting , the progress report of the project during FY 1979/80 and April - Sept. FY 1980/81 was reviewed and discussed.

The plan of action for FY 1981/1982 was submitted to the steering committee (List of name of experts and Indonesian Officials, Annex : 1)

II. PROGRESS REPORT

Progress report of the project activities in FY 1979/1980 and April - Sept. FY 1980/1981 was submitted by the Project Manager and explained by respective section.

(Details : Annex 2)

III. PLAN OF ACTION 1981/1982

1. INTRODUCTION

In General the activities FY 1981/1982 will be a continuation of activities conducted in FY 1980/1981, but a special attention will be given to the development of control plan in the field of communicable diseases .

2. ACTIVITIES WITH PRIORITIES

Among the activities in FY 1981/1982 , high priority will be given to Malaria control program , Epidemiological study on enteropathogenic bacteria and enteric parasites, health education and tuberculosis control .

3. Supporting services.

3.1. Experts

JICA will dispatch experts for the project according to the priority of activities as listed in Annex 4.

The project manager will select suitable counterpart personnel for the expert and inform the Japanese Team Leader of their names and qualifications.

3.2. Fellowships

JICA will accept trainees according to the priority as listed in Annex : 5.

Priority will be given to the personnel who work with the experts.

3.3. Equipment and materials

According to the priority order, JICA will supply equipment and materials necessary for the communicable diseases control, health care delivery services, health laboratory services, health education activities, and other health related fields mutually agreed upon as necessary.

The list and specification of these equipment and materials will be prepared by Project Manager in close consultation with Japanese Experts and JICA.

To speed up the equipment supply program, the application forms (A.4) should be submitted to Japanese Embassy, Jakarta, not later than February 28th, 1981.

3.4. Indrapura Health Laboratory

The above Laboratory will be scheduled to be completed within FY 1980 / 1981.

After completion of the Laboratory, Indonesian side will be responsible for the operation and maintenance of the facility at its own expense.

The facility should be utilized for Field Laboratory services as well as Training of Medical and Paramedical Personnel.

3.5. Rural Water Supply Facilities

From the standpoint of prevention and control of Communicable diseases (cholera, dysentery etc).

Rural Water Supply Facilities (Model Facilities) are being constructed at five selected places in project area within FY 1980/1981.

After completion of them, the Villagers concerned (the users of the facilities) of each rural community and/or Local Administrations should maintain the above facilities at their own responsibility to ensure smooth utilization of safe water on a long term basis.

This project should be expanded in the future to improve Health and Sanitary Conditions in the project area.

4. Proposed budget.

4.1. Budget proposal from the Government of Indonesia 1981/1982, will be worked out by planning units within the Ministry of Health and Local Government during the first week of January 1981.

4.2. Budget Allocation from JICA in 1981/1982 for equipment and materials for the project is to be about ¥ 50,000,000.

Budget for Japanese experts and fellowships will be provided separately from above mentioned budget.

Note : Japanese team explained that above figure does not mean any commitment and is subject to change according to the availability of the equipment and materials in Japan.

IV. Miscellaneous.

1. Clearance of equipment and materials.
 - Indonesian side is requested to provide sufficient budget for the handling cost.
 - Shipping of temperature-controlled goods such as sera with special message to the consignee should be made separately from other goods so that quick clearance of the goods could be possible.
2. For quick inspection and delivery of the equipment sent from JICA, Indonesian side is strongly requested to prepare a special warehouse (sufficient storage space) for the project in Medan.
3. If it is not possible or acceptable, Japanese side requests the Provincial Health Service of North Sumatra to make every possible effort to simplify and speed up the administrative procedure for delivery of the equipment from its warehouse to designated places.
4. Indonesian side is requested to make further efforts to obtain more running costs for the project.
5. Indonesian side is requested to recruit sufficient number of drivers for the work of Japanese Experts on duty, and is also requested to provide garages for the vehicles of the project.
6. Indonesian side is requested to install telephones at the Japanese Team Leader's office and at the Indrapura Health Center.
7. Indonesian side requests JICA to make every possible effort to provide round trip tickets between Medan and Jakarta for fellowship trainees.

PROYEK PENGEMBANGAN KESEHATAN ASAHAN (SUMATERA UTARA)-

OTA. 43 DI- PARAPAT. - (8 Nop. 1980).

N A M A	JABATAN	ALAMAT
Dr. R. Soebekti. MPH	! Dirjen. Bin. Kes. Mas. Dep. Kes. R.I.	Jakarta
Priyono Ashari B.Sc	! PPL. Ditjen. Bin. Kes. Mas. Dep. Kes. R.I.	"
Santoso Karo Karo	! PPL. Ditjen. Bin. Kes. Mas. Dep. Kes. R.I.	"
Dra. Setyaningsih	! Ka. Sub. Dit. Patologi Dit. Lab. Kes.	"
Dr. Kumara Rai	! Di. jen. P3M. Dep. Kes. R.I.	"
Dr. Sumali	! " " "	"
Zulkarnaen	! H.L.N. Dep. Kes. R.I.	"
Dr. I. Tampubolon. MPH	! Asahan Health Project	Medan
S. Adhi Nugroho B.Sc	! " " "	"
Usuluddin Gajah	! Staff A.H.P.	"
Moch. Amir Nasution	! Staff A.H.P.	"
Dr. T.M. Panjaitan. SKM	! Ka. Tata Usaha Din. Kes. Prop. Dati I Sumut.	"
Dr. Adil Parapat. SKM.	! Ka. Bid. Perencanaan Kanwil. Dep. Kes.	"
Dr. Hadi M. Abednego. S.K.M.	! Ka. Bid. Pengendalian Kanwil. Dep. Kes.	"
Dr. R. Sudiranto	! Kep. Laboratorium Kesehatan	"
Dr. A. Hakim Hidayat	! Pembinaan Kes. Din. Kes. Prop. Dati I Sumut.	"
Dr. F.E. Munthe M.Sc	! Ka. Sie P2 Cacing/Kholera Din/Kes/Prop. Dati I S.U	"
W. Purba B.Sc	! Ka. Sub. Dit. Hygiene/Sanitasi Din. Kes. Prop. Dati I S.U.	"
Dr. J. Simanjuntak	! Ka. Sie T.B.C. Din. Kes. Prop. Dati I Sumut	"
Dr. A. Sitompul	! Dir. Da. P3M Din. Kes. Prop. Dati I Sumut.	"
Dr. DT. Agustin Hitam	! Ka. Unit P.K.M. Din. Kes. Prop. Dati I Sumut.	"
T. Sianturi B.Sc.	! Staff. Kholera/Cacing Din. Kes. Prop. Dati I Sumut.	"
PM.H. Sidauruk B.Sc.	! " " "	"
P. Pasaribu	! BAPPEDASU	"
Dr. Imran Nasution	! Pimp. Puskesmas Indrapura	Indrapura
Dr. Husni Thangis Mst.	! Kepala Dinas Kesehatan Kab.	Kisaran

: N A M A	: JABATAN	: ALAMAT
! Dr. R. TAKAI	! JICA Team Leader	! Medan
! Dr. K. TANAKA	! JICA Expert	! "
! Dr. N.H. Kumazawa	! "	! "
! Dr. H. Kanbara	! "	! "
! Mr. H. Hashiura	! " (Koordinator)	! "
! Mr. T. Tsujimoto	! "	! "
! Mr. T. IKEMOTO	! "	! "
! Mr. A. KOJIMA	! JICA Jakarta Office	! Jakarta
! Mr. M. Miyamoto	! "	! "
! Mr. K. TESHIMA	! Embassy of Japan	! "
! Mr. I. Wakisaka	! JICA Mission	! Medan
! Mr. M. Yasuno	! "	! "
! Mr. C. Fujioka	! "	! "
! Mr. Kaji Tanabe	! "	! "
! Mr. Masahiro OBATA	! Consulat General of Japan	! "

1. BACTERIA

1. Finding the endemic sites of cholera in the project area

- 1) Site of survey : Pangkalan Dodek , Tanjung Tiram
- 2) Preliminary survey to register the cases of cholera since the beginning cholera epidemic in 1979 .
- 3) Survey to find healthy carriers or mild cases .

2. Examination of drinking water in the selected 4 Villages.

Specimen : water from deep and shallow wells and rivers
including newly constructed deep wells (Target :
400 Specimen)

Target : Enteropathogenes , organic substances and inorganic substances

2. MALARIA .

Activities for the malaria control programme (M.C.P.) will be the continuation of the activities conducted in the previous report period .

The Special malariological survey on malaria endemic city, vector biology and their relationship at Perupuk shall be continued at least up to the end of May 1981 . Based upon the result obtained through this special survey , measures for control will be investigated. Village Perupuk should be given the first priority of application of control measures .

Through the control phase , parasitological and entomological assessment will be carried out to evaluate the result of control .

The Activities for malaria control are as follows :

1. Malariometric Survey (M.S.) or Parasitological Survey .

Around 5,000 blood specimens will be examined in three kecamatan .

2. Treatment .

Presumptive and radical treatment will be given against about 5,000 suspected and identified cases .

3. House Spraying Activity .

Insecticide house spray will cover 15,000 houses in three kecamatan .

4. Entomological and Ecological Activities .

(1) Biological survey on vector or suspected vector species at Perupuk .

(2) Establishment of insectary in the entomological laboratory .

- (3) Colonization and colony maintenance of vector species .
- (4) Insecticide susceptibility test .
- (5) Investigation of control measures .
- (6) Application of control measures .
- (7) Entomological and ecological assessment in sprayed areas .

5. " Special Malariological Survey " .

This will strengthen the programme activity by obtaining more detailed background information on parasitological , entomological, ecological and epidemiological aspect of malaria, and the obtained information may be applied not only to the project area but also to other malarious areas in Sumatera . This work will be carried out through the activities of 2. Malarimetric Survey and 4. Entomological and Ecological Activities .

3. PARASITES.

1. Differentiation of species of hookworms in the project area
purpose: 1) To culture hookworms to distinguish Necator and
Ancylostoma .
2) To analyze anemia in cooperation with malaria program .

Specimen : feces from school children in the selected 6 villages .

2. A pilot control activity should be done in a selected area
for finding out the more appropriate method.
Further study on the intestinal parasite other than helminth
will be conducted in the selected villages of project area.
According to the result obtained, the villages in the rice field
have higher parasite prevalence , especially remarkably higher
hook-worm infection than those in sea - side .

In the selected village, following survey will be done:

- 1) Anti- helminth-treatment at different intervals.
~~Mass~~^{Mass} - treatment with combasteria^{ntvix} will be done at various
intervals in a certain ^{period}, to determine more effective
and more economic administrative way.
- 2) Species determination of hookworm,
- 3) Health Education to villagers for preventing ^{on} ^{of} parasite
infection ,
- 4) Improvement of environmental condition.

4. T.B.

The prevalence of the sputum positive cases has been estimated at 0.6 % among the adult inhabitants in the project area . It is twice as high as the average in Indonesia . So, the priority should be given on the TB programme in the project .

Though the area covered by the project is very much characterized the TB programme in the area is under the administration of the national/provincial/regencial TB programme . Therefore , the selected control measures include immunization by the BCG vaccination to the eligible age group , the passive case-finding by the direct smear microscopy of the sputum specimens collected from the patients with some respiratory symptoms and attending in the health institutions, and primarily ambulatory treatment by the effective chemotherapy .

For the effective implementation of the activities, the training of the ~~the~~ medical /paramedical staff and the evaluation of the activities will be needed.

Moreover, epidemiological/operational research should be strengthen to make appropriate control programme.

For the implementation of the programme , the following activities will be performed in the project area :

1. Training of the staff at the Indrapura local Health Laboratory in the Asahan Regency
 - 1) Training of the medical officer
 - 2) Training of the sputum collector
 - 3) Training of the microscopist
 - 4) Training of the nurse in charge especially in BPU/BKIA .
 - 5) Training of the personnel in charge of the defaulter action .
 - 6) Training of the ECG vaccinator,
2. Evaluation of the case - finding and the treatment in the health centres,
3. The trial short-term treatment using Rifampicin,
4. Evaluation of the BCG vaccination by scar examination and tubercōlin test,
5. Estimation of the risk of infection by tubercōlin test,
6. Commencement of the operationalⁿ research for TB control.

5. HEALTH EDUCATION

The health education should be taken in consideration based on the information data obtained by the project activities in the last two years.

The water supply facilities will be completed at the end of FY 1980/81. In this occasion, health education activity should be taken place to establish "self protective organizations" against entropathogenic infaction by participation of the public using the above facilities.

For the health education, following basic activities should be considered.

- 1) Improvement of the community organization for health,
- 2) Enhancement of "the growth in community capacity" accepting health education,
- 3) Promotion of "the will to change in the behavior of community,
- 4) Promotion of people's participation.

In consideration of the above, the following two activities will be carried out for the first step:

- 1) Study of community structure in related with health condition.
- 2) Promotion of school health activities (U.K.S.)

List of Expert requested

I. Long term experts

1. Ecologist / Entomologist
2. Parasitologist
3. Malariologist
4. Bacteriologist
5. Expert on other health related field mutually agreed upon as necessary

II. Short term experts

1. Health Education
2. T.B. Bacteriologist
3. Specialist on hygiene & sanitation
4. Expert on other health related field mutually agreed upon as necessary.

ANNEX : 5

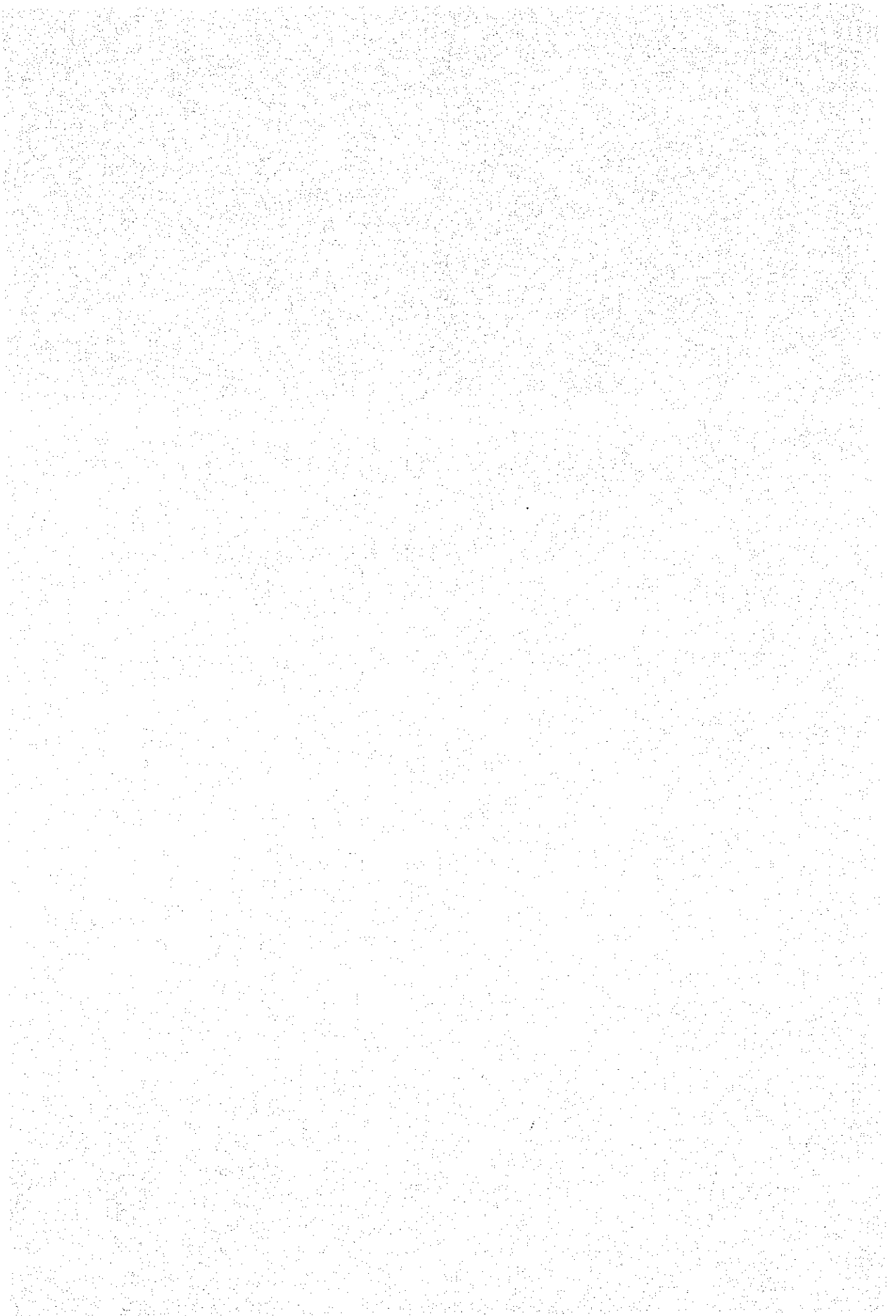
Fellowships requested

1. Public health Administration.
2. Health Educations.
3. Health Sanitarian.

13. A Report of JICA Mission For Asahan Health

Improvement Project (OTA-43)および衛生教育部門についての報告書

本報告書は、1980年11月5日から同年11月21日まで訪伊した、プロジェクト巡回指導調査団が、帰国前にジャカルタにてとりまとめ、インドネシア側に提出したものである。また、衛生教育部門についての報告書は、同部門担当団員である藤岡千秋氏の報告であり、限られた時間内での調査であるが、村落レベルでの保健衛生活動の聞き取り調査結果を含むものである。



A REPORT OF JICA MISSION FOR
ASAHAN HEALTH IMPROVEMENT PROJECT(OTA-43)

At JAKARTA

November 21, 1980

JICA Mission for Asahan Health Improvement Project
Japan International Cooperation Agency

1. Introduction

The JICA mission for Asahan Health Improvement Project-OTA-43 organized by Japan International Cooperation Agency-JICA and headed by Professor Ichiro WAKISAKA, visited the Republic of Indonesia from November 5, 1980 to November 21, 1980 for the purpose of working out the details of the technical cooperation plan concerning the OTA-43 Project through exchange views and opinions, reconnaissance in the Project area, and interim review of the Project activities.

During its stay in Indonesia, the Mission exchanged opinions, especially at the Third Steering Committee and the Executing Board of the Project, and conducted reconnaissance in the Project area.

The Mission has compiled this report as a result of the activities.

2. Member of the Mission

- | | |
|---------------------------------|--|
| (1) Leader;Public Health | Ichiro WAKISAKA
Professor of Public Health, Dep.
Public Health, Kagoshima University, |
| (2) Member;Health Education | Chiaki FUJIOKA
Associate Professor of Health
Science, Osaka Kyoiku University, |
| (3) Member;Environmental Health | Masayuki YASUNO
Head of Aquatic Ecology Laboratory,
National Institute for Environ-
mental Studies, |
| (4) Member;Cooperation Planning | Koji TANABE
Incharge for Asahan Health Improve-
ment Project, Dep. of Project Imple-
mentation, Bureau of Public Health
and Medical Cooperation, JICA. |

3. Implemented Schedule

November 1980:

- | | |
|-----------|--|
| 5th (Wed) | Arrived at Medan; Meeting with Experts Team and Pj. Project Manager at IKES. |
| 6th (Thi) | Meeting with Consulate General of Japan in his Office; Left Medan for Parapat. |
| 7th (Fri) | Visited to Power Site Construction Office of INALUM. |

- 8th (Sat) Attended to the Third Steering Committee of the Project at Parapat.
- 9th (Sun) Left Parapat for Medan.
- 10th (Mon) Meeting with Project Team, and Discussion among the Mission.
- 11th (Tue) - 13th (Thi)
 Visited to the Kantor Dokab Asahan, Puskesmas Indrapura, Puskesmas Lima Puluh and BPU Guntung, and reconnaissance in the Project area - Desa Tanjung Muda, Purpuk and Guntung; observation in the Smelter Site of INALUM.
- 14th (Fri) Meeting with officials concerned and Experts at IKES.
- 15th (Sat) Discussion among the Mission.
- 16th (Sun) (Rest)
- 17th (Mon) Meeting with Project Manager, Dr. Helmi Djahar; Discussion about the Plan of Action for FY 1981-1982 at the Executing Board Meeting at IKES.
- 18th (Tue) Reporting to Consulate General of Japan; Left Medan for Jakarta.
- 19th (Wed) Reporting to the Representative of JICA in Jakarta; Meeting and Reporting at Dit. Jen. P3M, Depkes.
- 20th (Thi) Reporting to the Chairman of the Steering Committee of the Project, Dr. Soebekti; and to Officials in Embassy of Japan.
- 21st (Fri) Left Jakarta for Tokyo.

4. Review of the Project Activities

The Mission recognized the Project is progressing satisfactorily, although there are many constraints.

The health situation in the Project area has been clarified in details from the survey in the selected villages. Therefore, it is the time to make a trial of disease control. Feasibility studies of control of communicable diseases should be commenced next year.

Health education is of great importance in performing any activities in the Project area. Participation of villagers to health promotion programe is essential. However, there has been no specific approach. The wells under construction will be utilized for this purpose.

5. Recommendations

- (1) There seems to be problems of coordination. Sufficient discussion seems to be lacking among the officials concerned.
- (2) Coordination with more close relationship between the Project Manager and the Leader of Experts Team will be expected.
- (3) To obtain the support for the Project activities, contact with more people of various levels, officials and unofficials from Desa to Provincial Government.
- (4) To obtain the good cooperation for the Project activities, inform the plan of action, the progress and the results of the activities to whom concerned of various levels.
- (5) The Executing Board meeting is expected to be held twice a year at least.
- (6) The Leader of Experts Team should have an independent room in the Project Office.
- (7) Experts relating to malaria control have worked at their home besides at the Office, because of the poor facilities in the Office. This curious situation should be noticed.
- (8) Health education: "Directions for Arranging Annual Health Scheme at Provincial Level 1980-81" (National Programme) have been excellently developed. The activity of health education for the Project area should be carried out based on the above Programme. Among other things, the following two activities will be most important at present:
 - i) Promotion of health educational approach in Puskesmas level,
 - ii) Promotion of people's participation in community activities.
- (9) To enhance minuteness of plans for promotion of health condition, method of data collection should be rearranged.

6. Aknowledgement

In conclusion of this report, first of all the Mission wishes to thank Dr. R. Soebekti MPH, Chairman of the Steering Committee of the Project in Jakarta, and Dr. H. Djahar, Project Manager in Medan.

Also to thank Mr. Masuda, Consulate General of Japan in Medan, Mr. K. Teshima, First Secretary of Embassy of Japan, Mr. M. Miyamoto, Representative of JICA in Jakarta, Dr. R. Takai, Leader of Japanese Experts Team for the OTA-43 Project, and other Indonesian and Japanese officials concerned in Medan and Jakarta.

Terima Kasih Banyak.

衛生教育部門について（巡回指導調査報告）

藤岡千秋

北スマトラ地域保健プロジェクトに係る衛生教育業務の現状と問題点、並びに支援の必要性などについて検討し、今後この分野で支援をするとしたら、どのような側面で何が出来るかについて、その可能性をチェックした。

I 現状と問題点

a. National level

保健省内部には Dr. R. Soebekti をはじめ Director の Dr. T. Tranyoto など衛生教育に通じた指導者は多く、衛生教育の Department も置かれており、すぐれた Program を持っている。

b. Provincial Health Service level（州レベル）

州では国レベルの Program の Scheme に基づいて組織が出来、業務を行なっている。

北スマトラ州でも上記により Health Education の Section が置かれている。Chief は MD で（Dr. Ogustin Datu Itam）その下に 6 人の staff が配属されている。

衛生教育の業務内容は職員の衛生教育研修（県及び保健所）小学校の先生を対象とした衛生教育研修などの計画、実施、予算の配分などが主な仕事のようなものである。

この Section での meeting で出された、本プロジェクトに関係のある問題点は次のようなことであった。

- 1) Health Service の各部門との連絡調整が必要であるが、多忙で仲々 Chief（相手の）に面会することが出来ない。
- 2) National program に基づいて配分された予算しかなく独自の事業は出来ない（困難である）。
- 3) Asahan 県の JICA 協力 Project については、協力して実施したいが、話し合いが出来ない（R. TAMPUBOLON と話し合いが出来ないということか？）。
- 4) 衛生教育の推進については各保健所長を衛生教育の責任者に任命してある。保健所長は多忙である。

衛生教育の本来の目的である住民の衛生思想の向上、住民の健康行動の面については、理論としてわかっているが現状ではマンパワーの育成（行政側の指導者の育成）に止まっているようである。

なお、日本側のチームリーダー（Dr. 高井）は衛生教育に大変強い関心を示されているが、衛生教育 Section との話し合いはまだ一度もないとのことである（高井先生は今後積極的に接触したいとのことでした）。

c. 県及び保健所 level

Project area の Asahan 県衛生部及び Indrapura と Lima Puluh の両保健所，同出張所 (BPU, BKIA)，深井戸予定地 (Tanjung Muda) を視察・調査した。

(勝坂，藤岡，田辺及び高井チームリーダー 計4名)

○ 県では事業の概要を聴取した。(資料1)

○ 第一線機関である保健所では，その組織・人員・管内の状況などについて聞いた。

(資料2・3)

○ 村長，住民組織の代表者に面談し，受け入れの状況について打診した。(資料4)

1) 県の考え方も公衆衛生というより治療指向的であったし，まだ行政組織内部のメンバー育成に目が向けられているようである。

2) 保健所も県とほぼ同じ考え方である。

3) 従って地域住民に関する資料が極めて少ない。

4) 保健所(県も含めて)の持っている統計資料の大部分は行政ノルマに対する達成度であった。

5) 衛生教育活動も一方的なもので県の資料によると1979年度県内で行なわれた活動は，

Lecture 420件 映画3件 ポスター・スライド3件 D.K.I 7件

主に Water supply の Health Education が実施されている。

6) 住民の主体性を育成するとか，住民の組織的努力を通じて……などと云うことは今後の課題のようである。

〔資料1〕 ASAHAN 県衛生部

1. 北部(3郡)，中部(4郡)，南部(8郡)の3地域に區別されており，郡に1か所の保健所を設置している。保健所活動を運営するために地区に診療，投薬を中心業務とする B.P.U. 及び母子保健，家族計画業務のための B.K.I.A. を設置している。
2. 保健所では一般検診，救急治療，歯科，眼科，視力，聴力の各検査，投薬，歯科指導に関する学校保健の推進校を設定している。
3. 学校保健をすすめるため，1978，1979年に小学校の先生を対象とする Health Training を行なった(一コース10日間，一回30人)。経費は1回225,000 Rp(≒7万円)，Training が終了したのは推進校の70%である。
4. 学校には School Health Kit をユニセフが援助，カバー率約50%である。
5. 学校には School Health Insurance の制度を作っており，生徒1人当たり25Rp徴収している。経費が不足するので校庭に農園を作っているところもある。
6. Community Health Education は行なっているが講演が主体である。

7. 深井戸の計画は JICA 5 本である。

出来あがった後の管理を重視する必要がある。

管理の仕方については、まだ決っていない。

以上、学校保健及び地域保健教育に関する県の説明を聞いた。

〔資料2〕 Air Putih Kecamatan (郡)にある Indrapura 保健所の概況

アサハン県アイル・プティッ郡を所管するプロジェクトエリア内の保健所であるが、県の中央保健所の役割も持っており、看護婦の研修施設、入院施設、各科診療施設を持っている。

管内人口	48,762 人
＃ 面積	243.71 Km ²
＃ 村数	22 村
部落数	146
B. P. U.	10 か所
B.K.I.A.	6 か所

(一施設当り 1.5 人 駐在, 補助看護婦及び助産婦 (16 人))

保健所には 20 の Activity Section がある。

母子保健, 家族計画, クリニック (疾病), T. B., 栄養,
環境衛生, C.B.C., 細菌, 行政, 統計, 免疫, 衛生教育,
歯科衛生 (U.K.G.S.), 検査, コレラ, マラリア, 寄生虫,
V.D

保健所としては Lima Puluh の方が一般的なので詳述する。

Indrapura では衛生教育についての特別な活動はみられなかった。

所長は週 2 回 INA LUM の診療所に勤務している。

〔資料3〕 Lima Puluh 保健所管内の状況

アサハン県 (Asahan) リマプル郡を所管するプロジェクトエリア 3 郡中の 1 つの郡を受持つ保健所 (Puskesmas) である (1 郡に 1 つの保健所が設置されている)。

<管内の面積, 人口等>

面積 (Km ²)	人口 (人)	村数 (Desa)	部落数
23955	約 58,500	22	192

マラッカ海峡に接する海岸地帯で湿地帯の多い地域である。

<職業構成>

農 業	漁 業	商 業	日 雇	公務員	残(その他)
45%	15%	4%	32%	1%	3%

<人種構成>

マレー MELAYA	ジャワ JAWA	タパヌリ TAPANULI	その他 D.L.L.
60%	15%	15%	10%

- ・ジャワ系は主にプランテーション従業員
- ・その他は、中国系、インド、パキスタンなど

<学校の状況>

種 別	学 校 数	生 徒 数	教 員 数
小 学 校	45	11,047	228
中 学 校	2	817	27
高 等 学 校	1	50	10
宗 教 学 校	11	148	?

- ・宗教学校はイスラムで小学校、中学校の合計

○学校保健は保健所が担当しており、学校保健の重点校を指定して(小学校)一コース10日間の研修を行なっている(県のレベルで実施)。

学校保健研修の修了者は 1978年→10名(10校)

1979年→10名(10校)

である。1980年度の予定は未定である。

○保健所は、学校と協力して毎月数校宛(2校)学童の健康診断及び身体計測を行なっている。

1校当り、年に1回は健康診断を実施(身長・体重・内科・眼科)

実施は保健所の看護婦

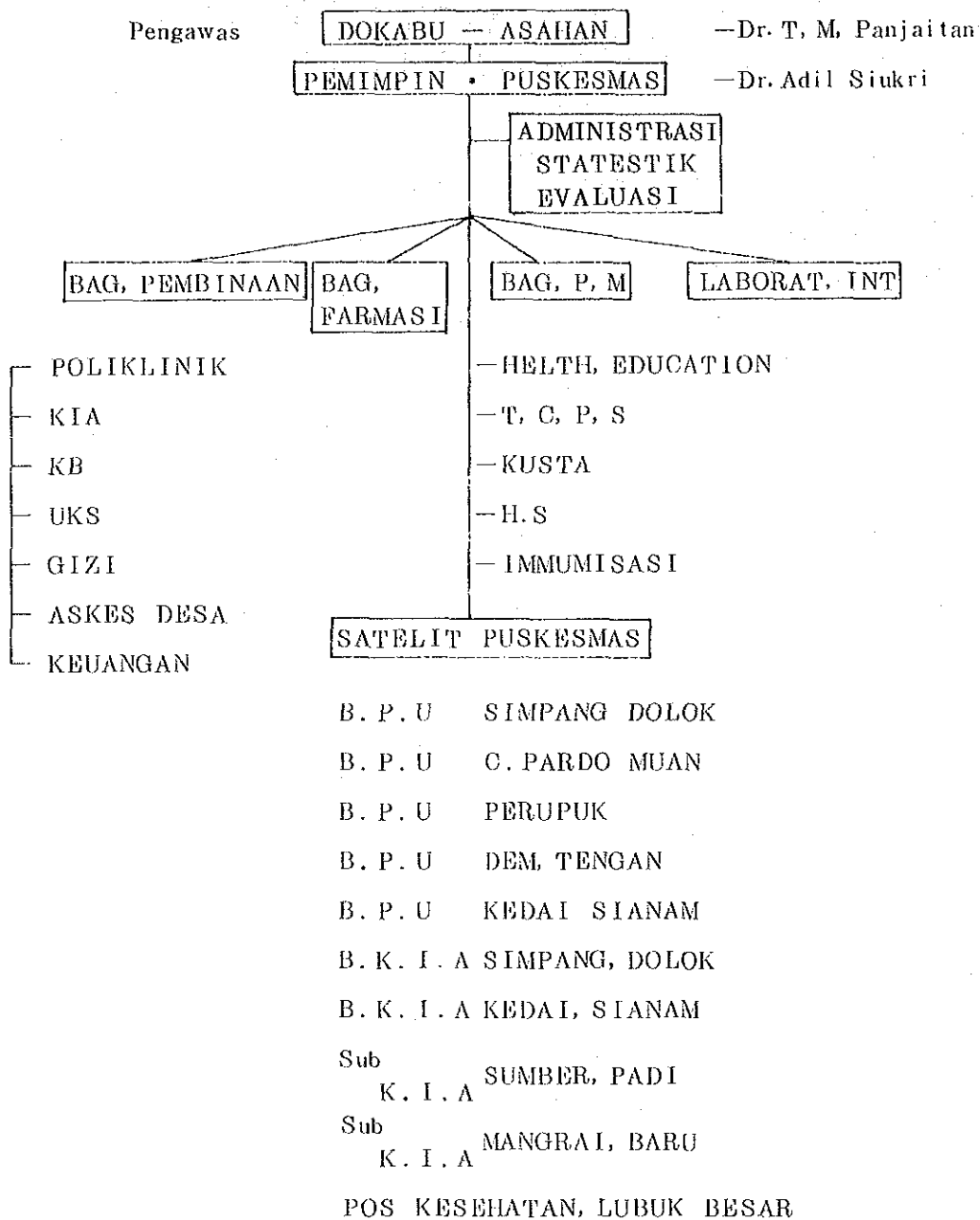
○学校には(小学校?) School health kit がユニセフから援助されており、

約半数の学校には設置されている(アサハン県全体で≒50%設置)。

○病気数は月別では8月、10月が多い(主に熱帯潰瘍、カゼ)。

<保健所の組織及び機構>

STRUKTUR ORGANISASI PUSKESMAS L. PULUH



保健所は診療部門，公衆衛生，検査など医療と保健両方を受持っており，主な部落には支所又は出張所を設置している。

- B.P.Uには看護婦又は助産婦が勤務しているということであったが、実際は部落内から選定された人が勤務し、投薬をしているのが実状のようである。
- B.K.I.A及びSub K.I.Aには助産婦が勤務し、助産及び母子保健指導に当ることになっているようである。
- これらの施設に保健所の看護婦は毎日行っており、又保健所長は月2回巡回しているという話であった。
- 地域住民の保健活動については村単位に役所側5人、住民代表5人の保健協議会有一些あるようであるが、この保健所では聞くことは出来なかった。
- 足としてはJICAから援助(供与)したオートバイが使われていた。

〔資料4〕 村長との面談(ALI, Junhari)

プロジェクトエリア内のIndrapura保健所所在地の村長及び地区衛生協議会々長と面談することができた。いくつかの質問を試みたので地域の状況を知るための資料として記録したい。

- 地域の中に保健・衛生のことについて話し合う組織はあるのか。

「Community healthを育成発展させるための協議会有一些ある。メンバーは、ロロン(組)の代表10人で組織している。

任期は特に定めていない。性別(委員の)は男性8人、女性2人であり、会合は月に1回開催している。協議会の主な議題は、清潔、環境衛生に関することであり、困ったことは保健所長に相談して出来るものから実施(改善)している。」

- 現在、最も困っていることは何か(保健・衛生上の問題で)。

「男性はアサハプロジェクト(INALUM)の労働に出かけて夕方帰って来るだけとなり、昼間は女と子供だけとなるため協議会の会合が出来にくくなったことである。」

- インドネシア政府と日本が協力して保健衛生の活動を行なっている。具体的には郡内数か所で深井戸を掘る計画を進めているが、知っているか。

「知らない」

(保健所の敷地内に現在掘っているのがこの計画であり、後数か所掘ることが決まっていることを話したら、「誰が決めたのか」とおこっていた。)

- もしこの地区に井戸を掘ったら、後の維持管理は地域の中で出来るか。

「十分出来る」

- アサハプロジェクト(INALUM工業Project)によって地域住民の生活に何か変化があったか。

「生活は良くなった。性病が増えた(主観的)。将来INALUMの労働がなくなったら他

の地方から働きに来た人達が定職もなく村に居残るのではないかとということが心配だ。土地の人達は仕事がなくなっても農業をすればよいので別に困らない。子供達が大人になった時の働き場所としては望ましい。」

村長の意見の概要は前記の通りであったが、

- ① 県や保健所で行なっている事業が住民には全く伝わっていない様子であり、特にプロジェクトの一環として行っている井戸の掘削は地域住民の保健対策に対する重要な手がかりになるものであり、計画、場所の選定の段階から住民又は住民の代表（村長）と相談して行なうべきではなかったのか、又、誰のための何のための事業なのかという疑問を感じた。
- ② アサハプロジェクトに対しては、各種の生活を乱す要因はあるにしても悪意は持っておらず、むしろ好意的であるように見受けた。
- ③ 村長も快よく対応してくれたし、地域の住民も気楽に応じてくれるので、地域住民の考え方を聴取すること、又話し合いをすることに特別な困難はないように感じた。

II 今後の課題と提言

A 地域公衆衛生活動における衛生教育活動

1. 健康領域における地区組織活動の育成と促進

Community Organization が重要であると言うと、「住民に保健サービスを提供するために地域の中にサービスを提供するための組織（ex B.P.U, B.K.I.A など）を整備している」といった行政側の組織化の返事が返ってくることからすると、今の段階では住民側にまで目が向けられていない現状が察せられる。

本来、保健行政は地域住民の保健水準を向上させ、一般的には生活の質を向上させるために情報の提供や技術的サービスの提供などにより支援することが主な機能であり、健康な生活を築き上げていくのは住民自身であることは当然である。

住民が自分達の住んでいる地域の中から健康上の問題に気づき、自分達の力でその問題を解決するために立向って行くことが必要であることを悟らせることや、そのための話し合い（住民相互の）の場、共同して立向える組織化の問題、又、地域の問題を解決するための保健計画の樹立、行政機関の資源としての利用などの、地域住民が健康的に生活する可能性を増強させる活動に重点を置くことが必要である。

2. 衛生教育活動の促進

Community Organization は衛生教育の重要な方法論でもあるが Community Organization を促進、育成するためにも地域保健計画の基本としての情報をひろめる活動をあげる事が出来る。その情報のテーマとして、健康と栄養、疾病の拡がり方とその結果、地域社会全体及び自分の生活環境に対する患者の責任、家族の健康、水と生活などである。

この種の情報は、Communityの状況を認識させることを目的とすると共に、住民が外からの力（援助）ではなしに自分達の為に自分達の力で何とかしようとする、主体的な問題解決に向わせることを目的としたものでなくてはならない（教育の意味）。

単にスライドや映画、又はお説教（講演）を行ない知識を与えることではなく、自から考え、解決のための活動を起すことを目的としたものでなくては無意味であり、そのための技術援助が必要である。

B 学校保健活動の促進

変容性の高い学童期の健康習慣の育成は重要である。そのためには具体的な学校保健活動の内容として、

1) 小学校では推進校は1校1人当りのHealth Trainingが終っているので、この先生達を活用して

— Health guidance

— School health counseling

— 保健所活動とタイアップしたdisease controlの組織活動の育成

など具体的な学童による実践活動や先生による学童の指導体制の充実が望まれる。

2) 研修（先生の）の継続と強化

C 地域及び学童の健康に関する基礎的データの整備

地域保健計画を立てるにしても学校保健指導をするにしても現在の段階では、生活構造、疾病構造など基本的な統計資料が極度に不足しており、先ずこれらの基盤整備が急務である。

D 職員の研修

州、県、保健所の各スタッフ（医師、歯科医師、助産婦、看護婦、その他各セクションの担当者）即ち衛生従事者の住民に目を向けた教育的配慮に対する研修の必要性（発想の転換）。

とりあえず援助が必要と思われることは上記の点であろう。

III 感想

今回北スマトラ州のプロジェクトエリアを巡回して私自身大変勉強になり感謝しております。

現地を視察して、確かに住民の住んでいる環境は悪いし病気も各種あり、公衆衛生面では大変多くの問題を持った国ですが、気候も良く、食べ物は美味しく、風光明媚、特に良く整備された広大なプランテーション（ゴム、油ヤシetc.）は素晴らしいものでした。

一般住民は川添の湿地帯に住んで、水と一体となった生活を営んでおりましたが、素朴な

がら一生懸命生活している姿に接することが出来ました。又都市ではその機能が極めて未分化ですが、交通、流通の発達と共に都市集中化現象も見ることが出来ました。とにかく動き、変化に対する活気は感じられ、将来に期待出来る国の様です。出発前に想像していたより、はるかに良好であり、予備知識もなく出向いた事を深く恥じている次第です。

住民の生活を見ると、公衆衛生施設や医療資源の乏しい中で、又劣悪な環境条件（疾病、寄生虫、衛生害虫、水、住宅 etc.）の中で人間が平然と生活していることは驚きであり、人間の生活の知恵の素晴らしさを感じました。

即ち、この国には自然環境に調和した素晴らしい生きざま、文化があったということです。このような中で「今なさねばならないことは何か」「如何になすべきか」を考える時、

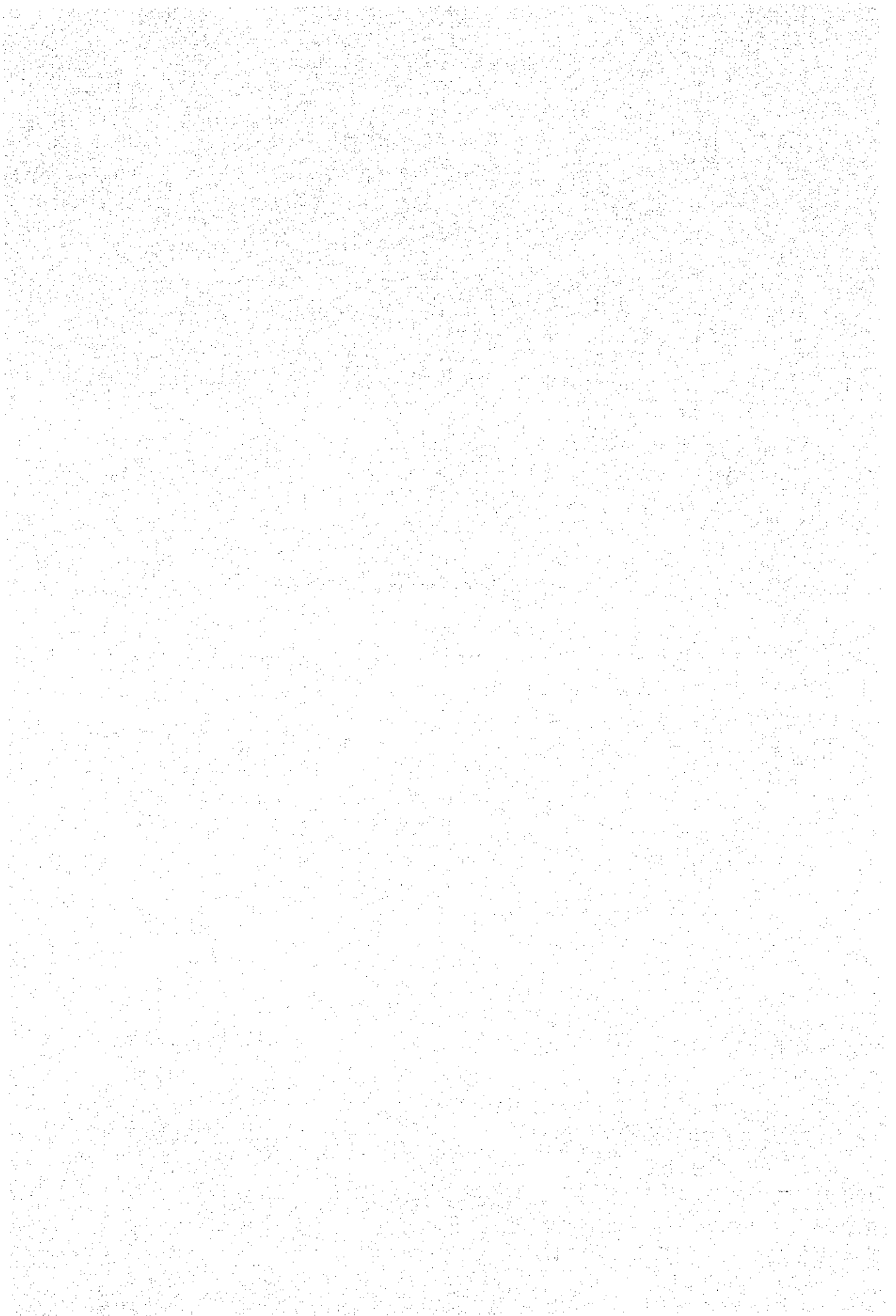
例えば、コレラ、赤痢などの急性伝染病に対しても患者を隔離する Agent 対策の施設も、汚物の処理施設も持ち合せていない状態、又小学校に保健教育施設として洋式の（手洗施設を付けたトイレトペーパー使用の）便所を作ったら、紙を使う習慣がなく便所から後始末をするため水の流れている川まで往復しなければならないこと、又 INALUM の話では、上下水の完備した事務所の便所で、現地人は便器の上に足を乗せて用便し、水を流して、それで後始末をするので便所が汚れて仕方がないという話を伺った。

以上の例から考えると、我々の持っている文化を押付けても成功するものではなく、現地の文化なり生活様式の中で疾病を予防し環境を改善することを考えなくてはならず、そのためにもっと住民との対話を拡充して永年にわたって築いて来た住民の生活の知恵を集結し、どのようにすれば健康な生活を築くことが出来るかを、住民と共に考える姿勢が必要であることを強く感じた。

以 上

1.4 年次報告書 II (1980年)

本報告書は、暦年1980年1年間の活動を、高井リーダーがとりまとめたものである。



(1) 昭和55年度事業実績

専門家の派遣調査団の受入等

氏名	業務内容	1	2	3	4	5	6	7	8	9	10	11	12
柳橋次雄	チームリーダー	54.7.11~						7/10					
高井録二	チームリーダー 結核対策					55.6.2						~58.3.31	
橋浦広志	業務調整	54.5.23~										~56.5.22	
熊沢教真	腸管系感染症対策 (疫学)	53.11.17~										11/16	
田中和夫	マラリア対策 (衛生昆虫学)	54.1.18~										~56.1.17	
神原広二	マラリア対策 (マラリア寄生虫学)	55.1.31										~56.3.28	
池本孝哉	マラリア対策 (生物環境学)	55.1.31										~56.1.31	
山崎英気	施行管理 (水道)												
辻本徹文	"												

長谷川理事 巡回指導視察団 8月27日~29日

牛島博之氏 Indrapura Local Labo 調整調査団 9月18日~9月27日

坂下昭雄氏 " "

椋周二氏 " "

脇坂一郎氏 指導調査団 11月4日~11月17日

安野正之氏 " "

藤岡千秋氏 " "

田辺耕治氏 " "

チームリーダーの交替，任期満了に伴う熊沢専門家の帰国はスムーズに実施された。

また上記3件の調査視察団はいずれも短期間の滞在であったが，適切な指導調整がなされた。

昭和55年度の当初目標計画

1. 伝染病対策の促進

マラリア対策，結核対策，衛生施設・設備対策，予防接種計画，寄生虫対策

2. 医療給付の促進

アサハン県衛生部，キサラン公立病院，プロジェクト地区内の3保健所の設備改善と
技術指導ならびに従事者の日本での研修

3. 衛生検査業務の促進

メダン衛生試験所（国立）の設備改善資材供与ならびに専門家による機能の促進
インドラブラ地域衛生試験所の建設

4. 衛生教育活動の促進

機器の供与

5. その他合意をみた項目

水供給施設の供与

以上が日イ両国間で合意をみていた今年度の当初目標である。

Malaria対策：

Main Vectorの確定と特別研究地区の指定（終了）

(Adult Larvae)
Malarionetric Survey（神原）、Fauna Population Survey（田中）、Man bite
/ hour collection（池本）によりMain VectorがAno Sundaicusと決定され、海
岸に近い村の部落にEndemic diseaseとしてMalariaが発生していることが明らか
となった。この条件に好適なDesa Perupukを特別研究地区に指定した。

Perupuk村Lorong I, IIにおける基礎観察（継続）

1980年6月から1年間の予定で Malarionetric Survey, Man bite hour
collectionが開始され毎月1回実施されており、control開始後の同様な観察と比
較対照しControl measureの適正化がはかれる。Malaria metoric Surveyによ
るParasite rateは8月に、Man bite hour collectionによるVector Population
は乾期の終り頃5、6月に最高となり、この時がControl実施に好適であることが知
られた（池本＝屋内、屋外、田中＝Trap House）。

感染可能期間の推定とその季節消長

5月から11月にわたりPerupuk Lorong IIで捕獲された1,143匹の雌Ano Sundaicus
の解剖所見から感染可能期間が推定され、7月に最長で9月の45倍に達することが
知られ、6、7月がControlの適期であることが推定された（池本）。

その他の知見

直接Control measureに直ちにつながらないとはいえ、今後役立つと思われる多数
の知見がえられている。そのうちLarvae生息の塩分濃度（池本）、雨期または降雨
とAno Sudaicus Populationの非関連性についての考察（池本）は示唆的なもので
ある。

附：他に2、3の実験室内研究が予定され、いづれも重要なものであるが「イ」側の都
合で実現をみるにいたらなかった。counterpart国内研修 Dr. H Nainggalon

結核対策（今年度より新規開始）

National TB Program の北スマトラ州、アサハン県への普及状況

National TB Program は Direct Smear Test によつて患者を発見し、1年間の SM、INH による治療を行うのを骨子とし、その無料給付が保障されている。その機能は保健所が中心的に果たすこととなっている。北スマトラ州では普及浸透がおくれており、州内 179 保健所のうち 80 保健所が機能をもつようになった。Asahau 県では 15 保健所中 7 保健所が TB Program に参加した（1980 年 8 月現在）。従つて州衛生部はまずいかにしてすべての保健所を TB Program に参加させるかを考えねばならない。

Project area 内保健所は 1978 年から TB Program を実施した。しかし、いづれの保健所も患者発見数はなお少なく、発録・治療の上に幾多の問題をもっているばかりでなく検査室は感染からの安全の考慮がかけていることがあきらかとなった。これらを考慮して、保健所の下部機構である BPU（無医診療所）の TB Program への参加が勧告され、実施の段階となった（高井）。また検査室の必要最少限度の改善が勧告され（高井）目下財源が検討されている。

一方 TB Program に参加する Key Person の教育訓練が不十分であるので Project Area 3 郡を含む Asahan 県下の TB Program に参加している保健所長のための Seminar の開催（計画中）、保健所結核担当者・BPU 看護夫／婦への患者発見・治療の運営上の訓練（近日実施予定）、BPU 看護夫／婦・検査従事者への採痰・塗抹・同定（以上共通）・染色・鏡検及び Recording についての技術訓練（実施中）がはかられている。

これらの一連の Staff の訓練、施設整備は 1980/1981 Fy 中に終了の予定。Project area 内 3 保健所が TB Program の州内での model 保健所となったときには、他の疾患の対策を TB 対策に Integrate することができる。

衛生施設・設備対策：未実施

予防接種計画：未実施

寄生虫対策：

指定された 6 ケ村の寄生虫検査（前年度よりの継続、今年度終了・熊沢）

1786 検体が検査され、Ascaris 77.3%、Trichuris 88.1%、Hookworms 60.4% のほか、Hymenolepsis nana、Enterobius Vermicularis Entamoeba histolytica（29.6%）、Giardia lamblia が発見された。これらの保虫者には保健所を通じて投薬が行なわれた。総合保虫率は 99% である。Ascaris 保虫率は多くの村で 0 才代ですでに 50% に達する程で姑息的な投薬駆虫では問題解決が困難であろう。

Hookworm は重要寄生虫であるが、*Ancylostoma duodenale* と *Nekator americana*

は1:2の割合のようである。今後の精査が必要。Hookwormは水田地帯と畑その他の地帯では差が大きく前者で約80%,後者で30~40%の寄生率である。培養検査を実施し対策に反映させたい。

当初目標に上っていない伝染病対策

腸管系病原性菌の調査(熊沢)

Project Area内6ヶ村の一般住民3,729名のRectal Swabが採種され検査の結果Shigella 17株, Salmonella SP 1株, V. parahemolyticus 5株が分離同定された。V. choleraはこの検診では発見されなかった。Shigellaは川水または浅井戸の水の使用者に高率に発見され、深井戸ではすくなくSei Buah Keras村ではその差が有意であった。給水施設の改善が望まれた。Shigella, Salmonellaその大多数がCM, TCに薬剤耐性があり、治療法、使用薬剤の選択が勧告された。

コレラ大流行の疫学的分析(高井・熊沢)

届出患者数の週別・地域別資料とコレラ菌検査台帳からえられた結果から14,000名以上を数えた1978/1979のコレラの大流行の疫学的分析を行った。この大流行はNIAS島で1978年3月に発生した大流行で州内各所に波及したものと年々各地にEndemicに発生をみた流行とが重なったものである。

大流行の波及はNIASから北上してMedanに至り、再び引きかえして一方はNIASで再度流行し、他の一方はTapanuli Selatan, Labuhan Batuに至り、最近までその余波はつづいていた。

Medanでの大発生は上水道の汚染の可能性を考えさせる発病状態がみられた。Medanの大発生ではじめて稲葉型菌がみられ、その後の流行波及に小川型に混在して運搬されたことが推定された。NIASの2回目の大流行は稲葉型だけでおきていた。大流行を防ぐため、コレラFocusの看視、給水施設の設置、改善が勧告された。

アサハン県、衛生部、キサラン公立病院、プロジェクト地区内の3保健所の設備改善と技術指導ならびに従事者の日本での研修

上記諸機関施設にはすでに多数の機器の供与がなされて逐次改善が行なわれ、各専門家は関連部門に於ける技術指導を行っている。また今年度中に、日本での研修のため次の2名があてられている。

キサラン公立病院長 Dr. D. Harahap (Form 提出中)

アサハン県衛生部(結核) Dr. Sulaiman Lubis (研修終了、帰任)

メダン衛生試験所の設備改善資材供与ならびに専門家による機能の促進

前年度に引きつづき資材供与が行なわれた。熊沢専門家の在任中は腸管系病原性菌の分離同定、寄生虫の検査、培養の技術移転が行なわれ、その機能、精度の向上が著しいと

いわれている。

細菌科結核担当者 Mr. Komau (結研コースに枠外参加)

インドラブラ地域衛生検査所の建設

非常な紆余曲折を経てようやく近日着工の目途がたった。その大きな原因はインドネシアの国内法の改訂とその誤認である。

教育活動の促進

教育活動の促進のため多数の機器が供与された。また今後も予定されている。Perupuk, Gruntung では Malaria の専門家が中心となって映画会, 集会がもたれ, 数百名の参加がえられた。

合意による水供給施設の供与

プロジェクト地域内5ヶ所に深井戸/準深井戸が供与設置される。現在進行中。地域の選択はコレラ, 赤痢の疫学的見地, 州・県知事の政治配慮, 財政的必然性, インドブラ衛生試験所の建設の都合等によって決定された。入れによる業者指名等はスムーズに行なわれた。

その他

次の2件の学術集会をもった。いずれも盛会で技術移転, 相互理解上有用であった。

Scientific meeting on Gastro-Enteritis (29 October, 1980)

Reports on the Activities of Malaria Survey (8 January, 1981)

(2) 昭和56年度事業計画

1. 事業内容

伝染病対策

マラリア対策

結核対策

腸管系病原性細菌・寄生虫の疫学研究

衛生教育と学校保健

技術開発計画 (Asahan 地域地下水開発調査)

カウンターパート訓練計画

夫々の専門家が技術移転の形式で養成につとめるほか, 国内研修を次の分野で予定している。

1. Public Health Administration
2. Health Education
3. Hygiene and Sanitation

4. Health Statistics

ロ. 相手国との意見の相違点

マラリア対策に必要な Malaria Parasitologist, 腸管系寄生虫対策に必要な Parasitologist の専門家の派遣要請が「イ」側の予算上の都合で、文書発給がおくれています。合意がない場合でも派遣がなければ事業遂行上支障がおきます。御高配下さい。

上記伝染病対策の中の学校保健は具体案とはなっていますが、地域とのきづなという意味で実現させたいと思っており、結核登録患者中に教師が多いのでまた別の意味で強く感じるものがあります。

ハ. 本部との関係

① 機材購送・現地調達案

購送機材の指定銘柄が守られるよう御配慮ありたし。

(現地到着後あわないものが出ることがあるからです。)

現地調達の枠をなるべく大きくして頂きたい。

(将来、補給がきく parts が入手しやすい。通関等不要。)

② 専門家派遣計画

1. Malariologist (長期)
2. Mosquito Ecologist (長期)
3. Bacteriologist (長期)
4. Parasitologist (")
5. Expert on Health education (短期)
6. TB. Bacteriologist (短期)
7. Specialist on hygiene and Sanitation (短期)

③ カウンターパート受入れ：次の分野を予定

1. Public Health Administration
2. Health Education
3. Hygiene and Sanitation
4. Health Statistic

④ 調査団派遣計画

各々の専門家の分野に応じた調査団の派遣を希望します。

(3) 昭和 55 年度実績に対する自己評価及び相手国関係者の評価ぶりについて

チーム発足以来年月が経っているのに尙相互間に摩さつがたえないのは遺憾なことである。

その最大の原因は恐らくは Chief Provincial Service が転出、転入の空白が大きかったこと、チーム発足当時の跛行がなお尾をひいているためと思う。また Counter budget が用意されているとはいえ、WHO のような経常費的な支出が JICA にはないため相方が無責任となる場合があるように思う。

専門家各位はまことに立派な業績を上げられた。各種の不自由、制度上または運営の手違いから生ずる不愉快をよく克服され、所期の、おおむね可とすべき業績を上げられたと感謝している。

短期専門家の一部や長期専門家でも相手国の Policy を無視しては仕事ができず、またその中にどつぶりつかれば進歩がない。時に緩に時に急にということになるのだろうが呼吸がなかなかむずかしい。

新規に着任した Dr. Djahar は 2 月から定期会合を申入れてきています。こちらからも申入れていたのが実現するわけで無視されるのに比べれば大変よいことで、いちいち相手方の評価をきいてはいませんが、こちらが怒ればむこうも気にしていることが分ります。

(4) 一般無償資金協力の件

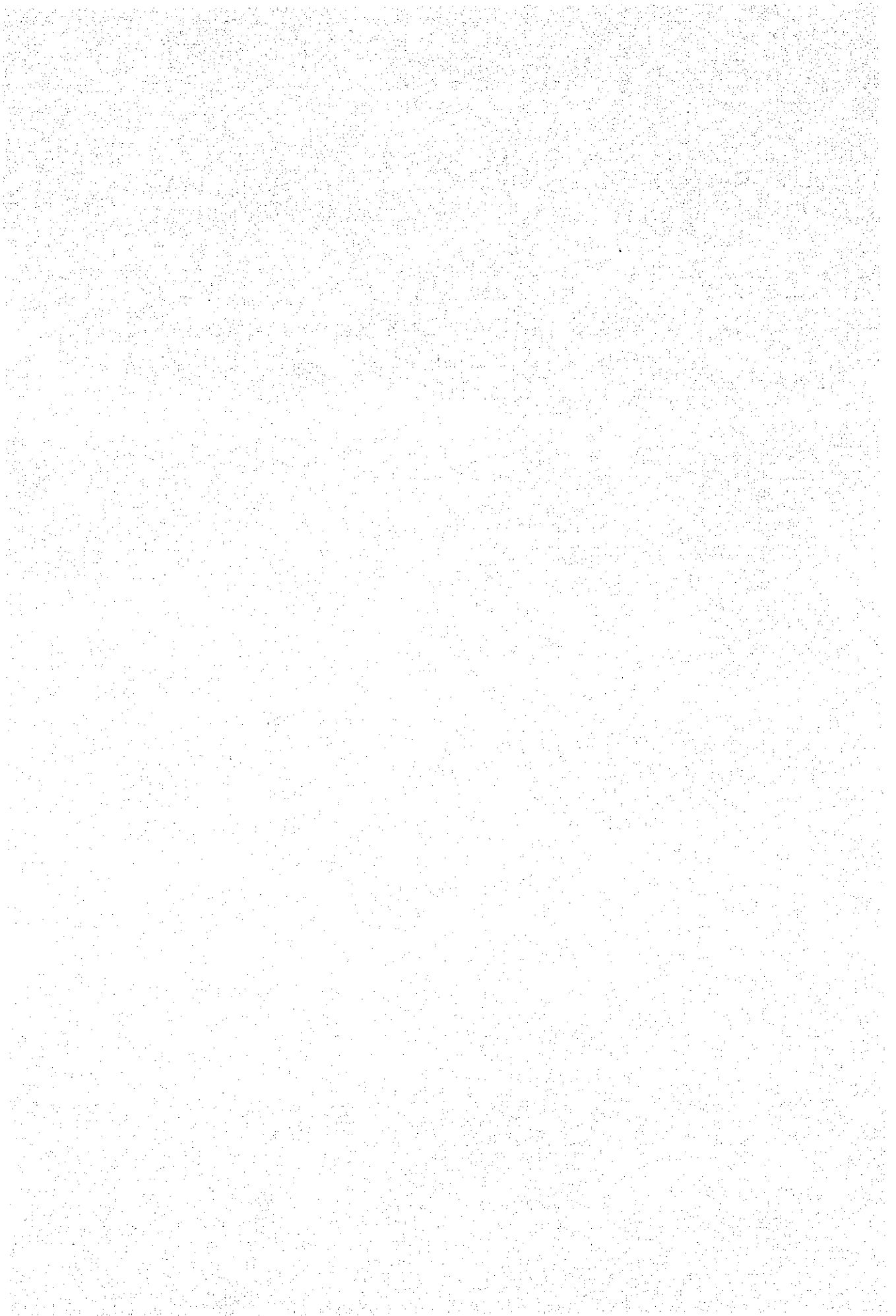
無償資金協力により水供給施設の大巾供与を実現させて頂き度い。開発調査では地下水だけではなく表流水、降雨による天水も考慮に入れ慎重にとりくんで頂き度い。併せて 16 本程度の試くつ深井戸の実現を希望します。コレラ対策のためです。建設の進んでいる Kota Baru の水をとっている Sipare-pare 川の上流にある Sipare-pare 村は JICA の指定 6ヶ村に入っていませんが、毎年多数のコレラ患者を出している Endemic 地域の一つであり、なにかの手違いで現地人住居者中にコレラが発生することは周囲の環境の改善、安全な水と食料の供給による他はないと思います。コレラの疫学で当方の主張したところは大巾にインドネシア側に受け入れられ、従来の治療から予防対策へ病人の検便から食料・水・健康保菌者の検査へと変化がみられています。州公共事業事務所責任者によれば、州の目下の計画は各県県庁所在地の給水計画で手一杯で地方の給水計画は全く考えていない、その余地がないということでした。

(5) 事業団本部に対する意見要望等

なし

15. REPORT OF THE FOURTH STEERING COMMITTEE
MEETING OF THE ASAHAN HEALTH PROJECT IN
NORTH SUMATERA

本議事録は、1981年6月27日にジャカルタにて開催された第4回ステアリング
・コミティー会議の議事録である。



I. INTRODUCTION

The fourth Steering Committee Meeting of the Asahan Health Improvement Project (OTA 43) as proposed during the Steering Committee meeting at Prapat, November 1980, was held on the 27th of June 1981 in Jakarta under the chairmanship of dr. Soebekti MPH , the Director General of Community Health.

The meeting was attended by representatives from Indonesian Side and Japanese Side (List of attendants : Annex 1).

In the meeting, the progress report of the project during FY 1980/1981 was presented and discussed. Besides those, the activities for plan formulation, programme formulation of the project and preparation of the following Steering Committee meeting was also discussed.

Some documents were submitted to the Steering Committee.

II. PROGRESS REPORT

Progress report of the project activities in FY 1980/1981 with additional information was submitted by the Project Manager (Chief of Provincial Health Services in North Sumatera) (Annex 2).

III. RESULTS OF THE DISCUSSIONS

1. Problems and Solutions :

1.1. Field laboratory in Indrapura :

1.1.1. Problems :

- a. The Indrapura Field Laboratory has been handed over to the Provincial Government of North Sumatera on April 24, 1981.

A plan of activities which incorporates the function of the laboratory in providing referral service for field activities and other units of Health Centers and quality control has been made. Financing of the activities is still unclear since there is no budget allocation in FY 1981/1982.

- b. For smooth operation of the laboratory it is proposed by the Directorate of Laboratory Services, Ministry of Health, that an employee of academic/university level of educational background should be assigned as full time staff to supervise the activities of the laboratory.

1.1.2. Solution and follow-up :

- a. Consultation with the Provincial Government of North Sumatera is necessary to find out the possibility of financing the activities of the Indrapura Laboratory in FY 1981/1982 and the future.
- b. If financial support for the Indrapura laboratory is to be requested from the Ministry of Health of Indonesia, the status and the activities of the laboratory should be related in one way or another to the activity of the Medan Health Laboratory. For this purpose regular report of the activities of the Indrapura Laboratory should be submitted to the Directorate General of Medical Care, Ministry of Health.

Meanwhile the assistance from the Medan Health Laboratory and the Provincial Health Services is required to run the laboratory in the remaining months of FY 1981/1982.

- c. Possibilities to recruit and assign an academic background full-time supervisor will be scrutinized further by the Provincial Health Services and the Directorate of Laboratory Services.

1.2. Deep wells.

1.2.1. Problems :

- a. In four villages where deep wells were constructed and donated to the Provincial Government of North Sumatera on the April 24, 1981, water output was smaller than expected (in average approximately 10%). The reason was because the locations of construction were different/changed from proposed locations in the survey due to land liberation problems.
- b. Two of the six villages, namely Prupuk and Guntung which were already surveyed were not provided with deep wells due to limited availability of fund and now the community demands the same facilities.

However in the village of Guntung there is an old deep well constructed before the second world war and is still producing considerable amount of water, but it needs construction of reservoir and pipeline system.

- c. Mechanism for maintenance and the role of the local Government and community is still unclear.

1.2.2. Solution and follow-up :

- a. Several technical alternatives will be considered to increase the water outcome such as :
 - installation of mechanical pump.
 - installation of electric pump.

But it is realized that there will be problems of maintenance.

To study this matter, it is desirable to dispatch some experts and to involve the Directorate of Hygiene and Sanitation.

- b. Construction of deep wells in the remaining two villages will be considered in future cooperation projects.
- c. For smooth operation and maintenance of deep wells, the Project Manager will take actions to ensure the role of the local Governments in the regency and Kecamatan levels. It should be emphasized that health education activities should be conducted more intensively.
- d. The Directorate of Hygiene and Sanitation is requested to develop a plan for effective utilization of the old water resource in Desa Guntung.
- e. The Directorate General of C.D.C. should connect various activities with water and latrine programmes in this area.

1.3. Health Education.

1.3.1. Problems :

Although Health Education activities had been carried out since the beginning of the project, it is felt that support for specific programmes such as malaria, Tuberculosis, etc. is not yet adequate.

1.3.2. Solution :

Health Education activities and budget for the project area should be formulized more clearly and specifically for the coming years.

1.4. Others.

1.4.1. Request of Bupati Simalungun cannot be tackled by the project. It should be handled by the Provincial Planning Board of North Sumatera.

1.4.2. Cooperation with medical school :

The Director General of Community Health will send a letter to

Provincial Health Office and the Dean of Medical School in Medan in order to propose a program for the utilization of Indrapura laboratory facilities by the Medical Faculty and students.

1.4.3. Fellows that have been trained in Japan and return back to the job position should be assessed/evaluated, especially their performance and the suitability of the training to the need.

1.4.4. Management of the Project :

Regular communication between the Project and the technical components (Directorate) at the central level is advised, but copies of the letters should be sent to the Directorate General of Community Health. In order to improve information system recording and reporting should be promoted. For this purpose all the health centre in the project area will use the new integrated health centre recording and reporting system.

2. Development of Future Program/Plan

It is agreed that comprehensive programs/plans for the future in the project area is strongly needed.

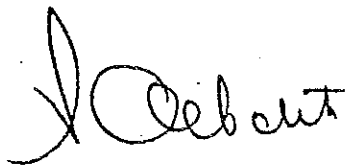
These programs/plans should consist of :


- Short term for the remaining period until March 1983, including development of systematic utilization of various facilities (laboratory, SSB radio-telephone, etc.).
- Long term comprehensive programs which should be developed within the framework of Village Community Health Development ("PKMD" in Indonesian term) as the operational form of Primary Health Care in Indonesia.
- Formulation of annual plan for FY 1982/1983.

For those purposes the Provincial Health Services will invite representatives from technical components at central level and from Secretariat Cabinet to have a meeting in North Sumatera in September 1981.

The results of the meeting will be used as input for annual project proposal for FY 1982/1983 (DUP in Indonesian term) and as input for the coming Fifth Steering Committee Meeting which will be held on mid January 1982 in North Sumatera.

Signed at Jakarta, June 27, 1981.




✓ Dr. SOEBEKTI MPH 

Director General of
Community Health,
Ministry of Health, Rep. of Indonesia.



Dr. RYOJI TAKAI

 Leader of Japanese Expert Team.

LIST OF ATTENDANCE OF THE FOURTH STEERING COMMITTEE MEETING
ON THE ASAHAN HEALTH PROJECT (OTA 43)

JUNE, 27, 1981

1. Dr. Soebekti MPH, Director General of Community Health, MOH, Jakarta.
2. Dr. Helmi Djafar DTPH, Project Manager, Asahan Health Project, North Sumatra, Medan.
3. Dr. Santoso Karo-Karo MPH, Chief of Program and Plan Formulation Division, Directorate General of Community Health, MOH, Jakarta.
4. Drs. Abd. Moeloek Djalil, Chief of Foreign Affairs Division, MOH, Jakarta.
5. Dra. Koenaniah Wiramihardja MPH, Directorate of Health Education, MOH, Jakarta.
6. Dra. Setyaningsih, Directorate of Laboratory Services, MOH, Jakarta.
7. Dr. R. Tampubolon MPH, Deputy Manager, Asahan Health Project, North Sumatra, Medan.
8. Prijono Ashari, Chief of Sub-Division of Program Formulation, Directorate General of Community Health, MOH, Jakarta.
9. Romli, Staf of Program and Plan Formulation Division, Directorate General of CDC, MOH, Jakarta.
10. Dailami Luthfi B.Sc, Directorate of Hygiene and Sanitation, MOH, Jakarta.
11. Dr. Ryoji TAKAI, Leader, JICA Expert Team, Medan.
12. H. HASHIURA, JICA Coordinator, Medan.
13. K. TESHIMA, Embassy of Japan, Jakarta.
14. Ken INOMATA, JICA Representative to Indonesia, Jakarta.
15. Ir. Ace Yati H, Directorate of Hygiene and Sanitation, MOH, Jakarta.

PROGRESS REPORT
F Y 1980/1981

INTRODUCTION.

The activities of the Asahan Health Improvement Project in FY 1980/1981 was a continuation of the activities in the preceding years, with some additional activities which were considered necessary for further strengthening of the existing health service.

GOAL.

The goal of project in FY 1980 was to improve health conditions in the 3 Kecamatan in Asahan area with various objectives according to each program.

STRATEGY.

Improvement of the health conditions will be accomplished through various channels, i.e. through manpower development, facilities development and through system development. Manpower development is achieved through improvement of knowledge and skill of the staff members by either training in Japan, training in the office by the experts or practical training in field.

Facilities development is achieved through provision of needed equipment and materials by financial assistance either from Regency Health Services, Provincial Health Services, Ministry of Health of Indonesia or by JICA'S assistance.

System development is achieved by improvement of any aspects in the health service delivery programs.

CONCEPTUAL FRAMEWORK.

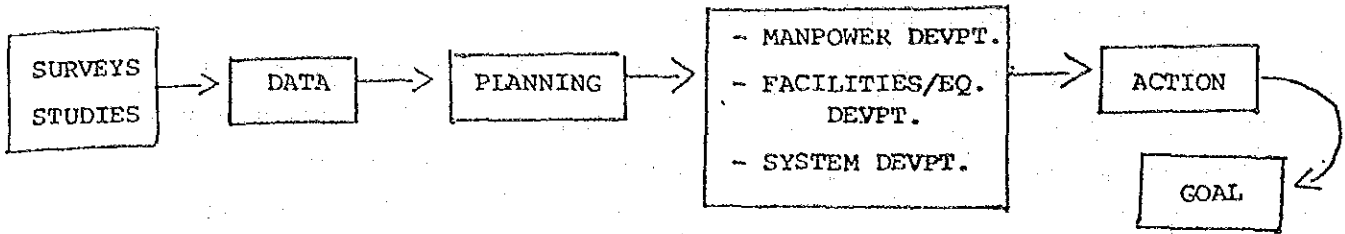
The project conducted various kinds of surveys or studies which were considered necessary to find some more reliable data.

These data were used as basis for planning of manpower development, facilities and equipment and system development.

In accordance with the plan which was developed, various actions were taken to reach the goal.

The conceptual

The conceptual framework can be described schematically as follows.



ACTIVITIES.

- Various surveys and studies were conducted and several data were collected according to the needs in each program.
At the end of the fiscal year 1980/1981 a household survey was conducted by the project to find recent data about health condition in the project area. The result of the data was still under processing.
- Manpower development was carried out according to the needs and to the resources availability.
Two Indonesian staff members had been trained in Japan.
The experts had taken part in training programs for staff members in the provincials level and the regency level.
The Health Centre staff members including those who work in the Health Centre auxiliaries had been trained for Tuberculosis and other programs. The objective of the training was to improve the knowledge and skill of the health personel to do their own job.
- Facilities and equipment development has been done in accordance with resources availability.
Field laboratory was constructed in Indrapura, by supply from JICA.
Five deep wells were constructed in Sei Buah Keras, Kampung Medang, Limau Sundai, Tanjung Muda and Indrapura.
A set of SSB radiotelephone system had been established in Medan and Indrapura.
The deep wells and the SSB units were donated by JICA.

Some other

Some other equipment and materials supplied by JICA had arrived through Indonesian parts.

- System development had been carried out through several channels. Improvement of health services delivery methods had endeavoured by the aid of JICA experts. Recording and reporting systems in various programs had been improved under consultation with the experts. Project management mechanism had been improved by giving more role and responsibilities to the regency health service and health centers.

Cooperation with the medical School University of North Sumatra had been started.

ACHIEVEMENT.

The details of the achievement of the project can be seen in the reports of the sections.

CONSTRAINTS.

Administrative procedures in cooperation between two governments seemed to be time consuming.

Fellowship processing and equipment/materials provision took very much time, but expert dispatch seemed to be faster.

These factors made accurate planning for activities of the project in one fiscal year rather difficult.

ANALYSIS.

- Reports from Malaria Control Section indicated that Malaria Parasite Rate in project area varied from 0 - 5,75 %.

Exeptional case was in the village Kuala Sipare Kecamatan Medang Deras where the P.R. was 11,8%. To prevent increase of the of the P.R., local spraying was conducted in three surrounding villages in Medang Deras and in one village in Air Putih.

Reports ...

- Reports from Tuberculosis control section indicated that target achievement according to national program was quite satisfactory. However since the local prevalence was higher than national figure target achievement should be increased.

For that purpose the section planned to involve every auxilliary unit in the project area to take part in case finding and case holding.

- Reports from Immunization section indicated that target achievement of the health centres in the project area clearly increased compared with in the former year.
- Reports from Worm control section indicated that the activities in the project area had decreased worm prevalence rate to some extent. However in order to eradicate worm infections in the area further mass treatment need to be done.
- Reports from Hygiene and Sanitation indicated that the flow of water from the deep wells seemed to decrease a little bit in dry season. To be able to make accurate evaluation whether the wells can supply water in expected quantity and quality it needs some time for follow up.
- Reports from Health Education activities indicated that various educational activities had been done according to budget availability.

Generally speaking the activities in the project area had been carried out with some success even though the targets couldn't be achieved 100%. Technical know how of the staff members need to be improved. Equipment and materials need to be provided adequately.

People ignorance were still significant. Counter budget for project implementation need to be increased.

CONCLUSION

CONCLUSION.

The activities of the project in fiscal year 1980/1981 had been carried out in line with conceptual framework of the project with some success.

Some constraints were pointed out as follows :

- inadequate skill of staff members
- lack of equipment and materials
- lack of people awareness.
- insufficient counter budget
- slow processing of fellowships and equipment/material supply.

SUGGESTION.

- Cooperation between the two governments need to be increased to run the project more smoothly.

- Counter budget need to be provided sufficiently for smooth operation.

- Administrative procedures should be taken care of more rapidly.

M e d a n J u n e 1 9 8 1 .

ADDITIONAL INFORMATION

- For fiscal year 1981/1982 the Governor of North Sumatera allocated a budget of Rp. 15.000.000,- for electric installation of Indrapura laboratory.
- Budget for Operation of the laboratory was not yet allocated because of shortage of fund in governor's office.

Budget proposal for total activities of the Provincial Health Service of North Sumatera including operation of the Indrapura laboratory was more than 2 million rupiah.

Due to shortage of provincial income, the governor's office only allocated approximately six hundred million rupiah for total health service, not including routine budget, so operational budget proposal for Indrapura laboratory couldn't be approved.

The Bupati of Simalungun expressed that the people who live in Kecamatan Bandar Tinggi Simalungun Regency in the vicinity of Asahan Project area complained that they got problems in their community because the Asahan Project transported earth ^{from} their village to project site in large amount for construction purposes. For that reason the Bupati requested JICA to assist the local people in Kecamatan Bandar [^] _{Tinggi} in one way or another to alleviate their sorrows.

PLAN FOR

UTILIZATION OF INDRAPURA LABORATORY

The Indrapura laboratory will be used as an intermediate laboratory which will function to support health service deliveries.

The activities in the Indrapura laboratory will be classified as follows.

- Microbiology
 - Bacteriology examination
 - Parasitology examination
- Serology / Immunology
- Clinical Pathology
 - for inpatient examination
 - for out patient examination
- Training place.
 - for laboratory technicians from hospitals and health centres
 - for medical students
 - for scientific studies by medical school.

Target of laboratory activities in FY 1981/1982

- 2.000 specimens of Bacteriology
- 1.500 specimens of Parasitology
- 200 specimens of Water Bacteriology
- Clinical pathology examinations will be conducted to support health centres and hospitals in the surrounding areas.

Personnels

Personnel.

Six laboratory technicians who will be employed in Indrapura are having pre service training in Medan Health Laboratory for a couple of months.

Once a week two senior laboratory technicians in from Medan Health Laboratory will supervise the activities of the laboratory technicians in Indrapura.

Utilization of rooms.

The rooms in the Indrapura laboratory will be utilized as follows :

- two for JICA experts
- one for supporting services
- one for Clinical pathology
- two rooms are reserved for activities of Medical school.

No.	N a m e	Field of Assignment	Term of Assignment
1.	Dr. Norichika KUMAZAWA	Bacteriology	November 17, 1978
			November 16, 1980
2.	Dr. Kazuo TANAKA	Entomology	January 18, 1979
			January 17, 1981
3.	Mr. Hiroshi HASHIURA	Coordinator	May, 23, 1979
			May 23, 1981
4.	Dr. Tsuguo JANAGIHASHI	Team Leader	July 11, 1979
			July 10, 1980
5.	Mr. Takaya IKEMOTO	Ecology	January 31, 1980
			January 30, 1981
6.	Dr. Hiroji KAMBARA	Malariology	January 31, 1980
			March 25, 1981
7.	Dr. Ryoji TAKAI	Team Leader & TB Control	June 1, 1980
			March 31, 1983
8.	Mr. Hideki YAMAZAKI	Water Supply Facilities Construction	September 1, 1980
			November 30, 1980
9.	Mr. Tetsufumi TSUJIMOTO	Water Supply Facilities Construction	September 1, 1980
			May 15, 1981.
10.	Mr. Hideki YAMAZAKI	Water Supply Facilities Construction	March 1, 1981) Dispatched March 31, 1981) twice.
11.	Dr. Yoshiaki KAROJI	Ecology	January 15, 1981
			January 14, 1982
12.	Dr. Hiroyuki AMANO	Malariology	March 15, 1981.
			September 14, 1981.
13.	Dr. Junichi IMAT	Parasitology	March 15, 1981
			March 14, 1982
14.	Mr. Keichiro JYO	Bacteriology	March 15, 1981
			September 14, 1981.

BUDGET ALLOCATION F.Y. 1980/1981

I. DIP Pusat / APBN (Central Government).

1. P.3.M. (CDC)	Rp.	21.054.000,-
2. Puskesmas	Rp.	23.320.000,-
3. Penyediaan Air Bersih	Rp.	5.596.000,-

II. DIP Daerah / APBD. SU. (Governor) Rp. 36.110.000,-

TOTAL Rp. 86.080.000,-

BUDGET ALLOCATION F.Y. 1981/1982.

I. DIP Pusat / APBN (Central Government).

1. P.3.M. (CDC) all	Rp.	22.849.000,-
- Counterpart field trip : malariology, Ecology, TBC. ParuParu, Cacing & Parasit Perut 4 x Rp. 1.440.000,- = Rp. 5.760.000,-		
2. Pengembangan Puskesmas	Rp.	23.532.000,-
3. Penyediaan Air Bersih survey + Pembangunan 15 buah sumur semi Arthesis + 5 unit instalasi Pengolahan Mn, Fe	Rp.	20.092.000,-

II. DIP Daerah / APBD . SU . (Gubernur)

- Rutine Rp. 600.000,-

TOTAL Rp. 67.073.000,-

LIST of FELLOWSHIPS
Realised in FY. 1980/1981

1. Dr. Sulaiman Lubis
Chief of CDC Section
Regency Health Service of Asahan.

Training in Tuberculosis Control for 4 months.

2. Dr. Santoso Karo Karo MPH
Chief of Program Formulation and Reporting,
Directorate General of Community Health, Jakarta.

Training in Management and Administration of
Health Delivery Services for 3 weeks.