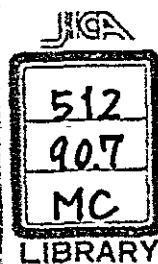


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ガーナ・ナイジェリア医療協力

巡回指導班報告書

昭和51年2月



国際協力事業団

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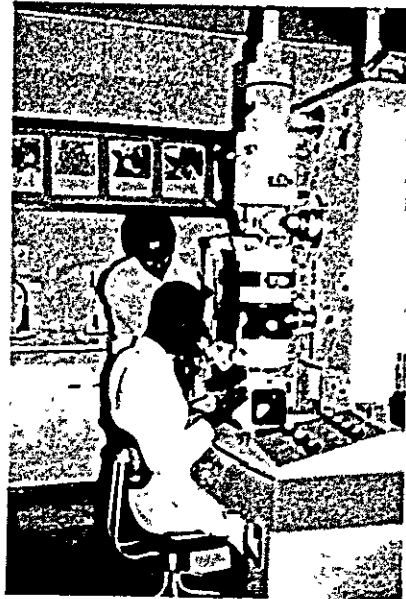
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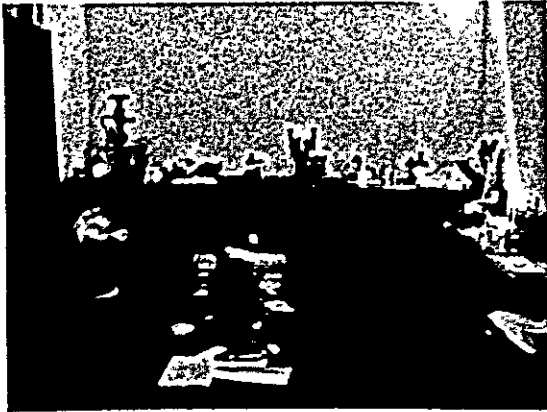
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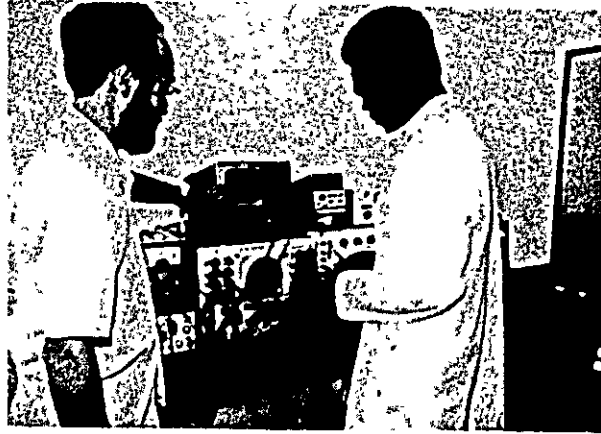
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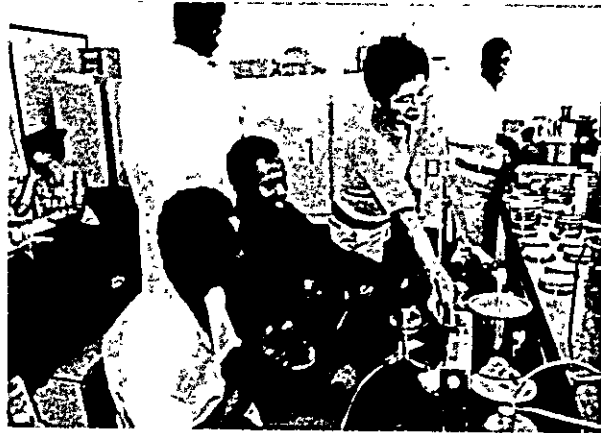
ガーナ大学にて



イフエ大学宮本専門家実験室



イフエ大学



イフエ大学



ナイジェリア大学

I はじめに

昭和 50 年 11 月 20 日より 12 月 12 日までの間、ガーナ国およびナイジェリア国における医療協力事業を巡回視察し、ガーナ大学、イフェ大学およびナイジェリア大学の各医学部を訪問する機会を得た。この間各大学側の責任者、関係教授等と懇談し、日本政府派遣の専門家の活動状況を直接視るとともに意見を聴取し、あわせて関係施設、機器を視察することができたので、その概要をまとめるとともに、この間の経験より得たわれわれの意見を要約して報告する。

II 巡回指導班の構成と日程概略

1. 班の構成

団長 東京大学教授 平山 宗宏 (東京大学医学部保健)
学科母子保健学教室)
団員 東北大学教授 鈴木 継美 東北大学医学部・公衆衛生学教室
団員 加野 時男 国際協力事業団・医療協力部医療第一課

2. 調査団行動日程

11月20日(木) 東京発11:00 JL443
ロンドン着17:10

11月21日(金) ロンドン発9:35 BE352
ローマでAZ836に乗換
ガーナ・(アクラ)着 21:15

11月22日(土) 昼、大使館鈴木書記官及び浦元氏と意見交換
午後、レゴン大学、テマ港見学

11月23日(日) 調査資料検討

11月24日(月) 午前10:30 日本大使館訪問、村上大使と会談
昼、ガーナ大学医学部長Prof.Dodu 宅にて昼食招待
午後、Dodu 医学部長によりプロジェクトの概要説明

11月25日(火) 午前、Chemical Pathology Dept. Dr.Swaniker と意見交換及
び同Dept・見学
午後12:00 派遣専門家との懇談会
(関本、古川、田沼、石山、斉藤)
午後4:00 Community HealthのProf. Ofosu - Amaah と
意見交換

- 11月26日(水) 午前, Microbiology Dept の Prof. Afoakwa と意見交換及び
同 Dept ・見学
昼, Dodu 医学部長主催昼食会
午後, レゴン大学訪問
夜, 村上大使主催晩餐会
- 11月27日(木) 午前, 眼科部門 Dr. Quarcoopome 及び小児科部門 Dr. Y.
Asirifi と意見交換
午後, 調査のまとめと検討
夜, 派遣専門家との懇談会
- 11月28日(金) 午前, ダンファプロジェクト見学
昼, 12:00 ~ 13:30 ガーナ側に対する調査結果の報告
ガーナ (アクラ) 発 19:45 GHI 560
ナイジェリア (ラゴス) 着 21:30
- 11月29日(土) 午前, 大使館にて日程等打合せ
午後 2 時ラゴス発, 車でイフエへ向う, 夜 9 時イフエ着
- 11月30日(日) 午後, Grillo 医学部長と会談
夜, 医学部長招待晩餐会
- 12月 1日(月) 午前, First National Workshop on Educational
Methodology for Medical Schools in Nigeria の開会式出
席
午後, イフエ市内見学
夜, Vice-Chancellor 招待のカクテルパーティ
- 12月 2日(火) 午前, イフエ大学医学部実験室, 構内各施設見学
昼, 派遣専門家との昼食会
夜, 派遣専門家との懇談会
- 12月 3日(水) 午前 9 時 ~ 午後 4 時イバダン大学医学部訪問
- 12月 4日(木) 午前 8:30 イフエ発, 車でラゴスへ向う。午後 3:00 ラゴス着
- 12月 5日(金) 午前 11 時ラゴス発 (ナイジェリア航空 124)

正午、エスグ着、予定より3時間遅延
 午後、石井専門家よりプロジェクトの現況説明
 12月6日(土) 午前、ナイジェリア大学医学部関係者と意見交換
 12月7日(日) 午前、ナイジェリア大学ススカキャンパス訪問
 午後、エスグ市内のMaternity Hospital 見学
 12月8日(月) 午前、医学部長 Ekpetchi に報告
 午後、エスグ～ラゴス(飛行機)
 12月9日(火) 午後、大使館への報告
 夜、松井大使招待晩餐会
 12月10日(水) ナイジェリア(ラゴス) 発9:30 LH 561 フランクフル
 ト経由(AF747)
 バリ着20:05
 12月11日(木) バリ発12:05 AF270
 12月12日(金) 東京着11:00

Ⅲ ガーナ・ナイジェリアにおける調査結果の総括的概要

1. 日本とガーナ・ナイジェリアとの医療協力の背景にある事情

われわれは政治的背景について論ずる立場にはないが、派遣専門家と先方の大学関係者とのレベルで感得される背景事情は以下のごとくである。

- (1) 野口英世博士の両国における研究の足跡は医学研究交流の歴史上大きく評価されている。
- (2) 西アフリカにおける両国の指導的立場をアジアにおける日本の立場になぞらえるとともに、建国の意気にもえる発展途上の若さが日本に対する好感をもたらしているようである。なお日本の海外技術協力が外交のみかえりを求めぬ、いわゆるヒモつきでない点も好感をもたれる大きな要素といえる。
- (3) 日本の専門家に対する期待は、ガーナにおいては研究技術に、ナイジェリアにおいては学生の基礎医学教育の実践におかれている。これはガーナでは医学教育の歴史があって教授陣の層が厚くなってきていること、ナイジェリアでは新設大学のため基礎医学教育のスタッフが不足していることによる。しかしナイジェリアにおいても今後スタッフになる若手の研究面での養成指導に期待が大きい。
- (4) 両国とも日本に対しては大型の新鋭医学研究用機器の供与を期待している。ナイジェリアでは国家自体の経済力があり、大学の建設にはほう大な費用をかけているのであるが、なお研究用機器に対する要望は大きい。これには供与されるものは何でもということ以上に、日本製の精密機器に対する要望があるようである。ただし供与機器については後述するとき問題点がたえず存在している。

2. 派遣専門家について

これまでの、および現在派遣中の専門家の実績と現地における評価は概して極めて良好である。一部に問題があるとすれば、一つは言葉の不自由による意志疎

通の悪さと習慣の差による行きちがいによるものであり、一つは研究に対する意識に関わるものであろう。しかしいずれにしても結局は現地側との人間関係がよく保たれれば氷解できることであり、専門家の人間性にもとづく部分が多いのは、日本国内におけると同様洋の東西を問わぬ問題である。要するに協力事業の成否の大きな部分は派遣専門家に人を得るか否かにかかっているとって過言ではない。この点ガーナ大学、イフェ大学における現状は十分満足されるものであり、ナイジェリア大学においては種々の事情から誤算が重なっていたが、関係者の努力により改善されつつある。

3. 供与機器について

- (1) 供与された機器の保管、利用状況については、ことに高価な精密機器については良好であった。ガーナ大学における電子顕微鏡、原子吸光器、アミノ酸自動分析機等はいずれも空調設備付の建物内で作動中であり、眼底カメラ等もクーラーと除湿器付の検査室に保管利用されていた。ナイジェリアにおいては大型機器は未供与（未到着）であったが顕微鏡等はよく利用されていた。またいずれにおいても盗難予防にはかなり注意を払っている。ただしナイジェリアでは現地大学内での機材の配分、配置について未解決の問題の残されているところがある。
- (2) 供与機器が故障したまま修理できずに放置されているケースは屢々みうけられた。これには顕微鏡のランプが切れてスペアがないために使えない、といった単純な例から、電氣的機器で故障個所が不明あるいは修理法が不明という例まで多数経験された。このためには、①故障しにくい機器をえらぶ。②スペア部品を十分につける。③英文の説明書、とくに配線図や仕様書をつけておく、などの配慮が必要である。現地では日本産の自動車には詳細な説明や故障の発見、修理法まで英文パンフレットがついているのに、なぜ医学機器にはついていないのか、という質問が多かった。また気候がちがい、電圧の異なる土地での使用に配慮のない品物もみうけられた。
- (3) 派遣専門家の個人的研究興味から選ばれた機器が、その専門家帰国後全く

使われずに放置されているという例が、少数ながらみうけられた。現地で真に役に立つという基準で機材をえらぶべきである。

- (4) 機器に附随して必要な消耗品（ガラス器具、試薬類）が現地ではきわめて入手し難い。十分量の消耗品を併せて供給する必要がある。
- (5) 決定された機器が現地に到着し入手できるのに余りにも時間がかゝりすぎている。これには日本からの送り出しにかなりの日時を要している上に、現地での引取りが予想外に手間どるためであり、とくにナイジェリアは港での荷上げ状況がこの上なく悪い。このため機器をえらんだ専門家が1年の任期を終えて帰国した後でも未だにその荷物が到着していないという事態もおこっている。

機器について何時でも誰でも利用できるものを選ぶ配慮も必要であろうが、老朽化による故障も考え、例えば航空貨物便のチャーターなどを積極的にとりあげるべきであろう

4. 研究テーマについて

ガーナ、ナイジェリアとも協力研究分野はあらかじめ申し合わされているが、その中で専門家が特にとりあげる個々の研究テーマについては、当然現地の国民の健康問題に直接役立つものがえらばれるべきであろう。この点、現在とりあげられている研究テーマはいずれも適切であるし、現地大学側もよく理解している。この問題は将来とも注意を払うべき、いわゆる研究のための研究が持ち込まれぬよう注意してゆきたい。

5. 専門家側からの要望事項

専門家の現地での活躍状況をみた場合、少なくとも物価のきわめて高い西アフリカにあっては、生活の経済的条件は決して十分ではない。ナイジェリアの両大学では住居を大学構内に確保してもらっているのだから、かろうじて生活できている状況である。電気器具まで日本から買って運ばねばならぬため準備も容易ではないのが実状である。今後待遇の改善が要望される。

自動車は現地の生活での必需品であるのでその補給は研究用機器と同時に配慮する必要がある。

事業団の専門家に対する対応にはきわめて不満が多い。派遣決定後の応待や現地からの問い合わせに対する返信などに対する不満、現地大使館との連絡の不十分さなどわずかな好意と努力で解決できる部分も多いので、事務的に注意してほしい。なれぬ外地で不安と焦燥の感にかられやすい派遣専門家に対する配慮の問題である。

IV. ガーナ・ナイジェリアの各大学医学部における調査結果の資料 とまとめ

今回視察した両国の3つの大学医学部においては、関係者に個々に面接し、施設、機器を視察したほか、それぞれ学部長以下の関係者と会合をもって意見の交換と調査結果の報告を行ってきた。以下これらの資料と会議内容のうち主なものを掲載する。

1. ガーナ大学医学部

ガーナ大学医学部では日本との協力プロジェクトについて学内に広く知らせるための資料を配布していた。(資料1)

また、現在協力研究の主体である生化学・病理部門での研究進行状況についての資料があったので併せて示しておく(資料2, 資料3)

今回の調査に際し、最終日に行われた Dodu 学部長以下関係者との会合の議事要録は資料4のごとくである。この中に調査結果の要約が個条的にのべられている。(資料4)

資料1

UNIVERSITY OF GHANA MEDICAL SCHOOL

INFORMATION BULLETIN

GHANA/JAPAN MEDICAL RESEARCH COOPERATION

Background

An agreement for cooperation in Medical research between the Ghana Government and the Japanese Government was signed in 1969. Under the agreement the Japanese Government undertakes to:

- (a) despatch Japanese Medical experts and technicians to Ghana;
- (b) provide training and observation facilities in Japan for Ghanaian medical personnel;

- (c) supply medical equipment and materials to be delivered C.I.F. at any airport in Ghana.

and the Government of the Republic of Ghana undertakes to:

- (a) nominate
- (b) grant to the Japanese medical experts and technicians certain privileges in connection with accommodation, transportation, etc. (Details of these privileges are available.)

The designated authorities of the two Governments have the responsibility to promote the research cooperation programme. The Medical School operates the Ghana side of the agreement and the Fukushima Medical College, through the Japanese Overseas Technical Cooperation Agency (OTCA), executes the Japanese side.

Within the Medical School a Joint Research Coordinating Committee made up of the Dean and Vice-Dean, the Leader of the Japanese team and his deputy and the heads of the departments in which collaborative projects are being conducted, meets from time to time to review progress and to plan for the implementation of new projects.

This information paper is presented for two main reasons:

- (a) To acquaint Senior Members with work that has been done or is planned for the research cooperation programme.
- (b) To make Senior Members aware of the items of equipment that have been acquired under the agreement and which are therefore available to support research that they may wish to undertake themselves.

PROJECTS AND ACHIEVEMENTS

Recent reports submitted independently by the Senior Ghanaian counterparts are unanimous in the view that the Ghana/Japanese Medical Research Cooperation programme is worthwhile and should be sustained and encouraged to continue. The basis for this opinion is reflected in the fact that:

- (1) Items of equipment costing over ₵402,682.00 have so far been donated through OTCA to the Medical School. (The major items are listed in Appendix A.)
- (2) 3 Senior Members and 7 technicians and assistant technicians have visited Japan for varying periods, on observation and training assignments under the agreement.
- (3) 24 Japanese experts have taken part in the research projects.

I. VIROLOGY & ELECTRON-MICROSCOPY PROJECT (Department of Microbiology)

The achievements under this first project (1969-1973) may be summarised as follows:

1. Staff Training

Six training fellowships tenable in Japan were utilised in the fields of electron-microscopy (2), virology (1), animal house technology (1) ultra-microtome operation (1), electron-microscope maintenance (1). It is hoped that a scanning electron microscope would be donated during the current project year and a technician is being sent to Japan to study the techniques of scanning electron-microscopy and maintenance.

2. Research

(a) Sero-epidemiology of virus diseases and infections in Ghanaians:

This was undertaken as a basis for the formulation of vaccination policies by the Ministry of Health. A total of 21,083 sera from various parts of the country were collected for this investigation.

(b) Isolation and identification of viruses from Ghanaians:

The first of these isolations was carried out in the Danfa area between May, 1970 and April 1971. Of the 1,081 stool samples examined 253 (23.4%) were positive for enteroviruses. A Survey of enterovirus infections in infants and healthy children in Accra was also undertaken (S. Otatsume, P.A.K. Addy, C. Beckley and D.Q. Tagoe). Enterovirus infection rate of 41.67% was recorded among the infants while in the health children the infection rate was (24.69%).

(c) Research in Electron-Microscopy:

(i) Investigations using the electron-microscope were carried out on suspected cases of small pox, yellow fever, measles, adeno and polio viruses as well as Australia antigen and cholera vibrio. A total of 3,036 films of these organisms were prepared. (K. Minami and S. Yokota).

(ii) A study of the sickle cell erythrocyte membrane in relation to the transport of cations was undertaken using the electron-microscope (Kurantsin-Mills, Kudo, and Addae). Various workers from different institutions in the country were assisted by the staff in the E-M Unit on various research projects requiring the use of the electron-microscope:

(d) Leptospirosis:

A total of 99 sera of patients originally diagnosed as suffering from either infectious hepatitis or jaundice were examined by the microscopic leptospiral agglutination test (H. Kinebuchi and S.N. Afoakwa). Of this total 21 (21.2%) were positive for leptospira.

3. Equipment supplied. (See Appendix A)

4. Publications. (See Appendix B)

II. VIRAL AND OTHER PARASITIC DISEASES OF THE EYE, (Department of Surgery)

The ophthalmological programme commenced in May 1973.
Professor C.O. Quarcoopome and Professor K. Hosaka were joint leaders
for the project.

1. Staff Training

Two ophthalmic trained sisters were selected and attached to the laboratory and received training in the use and manipulation of the research equipment for a period of one year. They were then awarded a six-month fellowship in Japan where they underwent further training in ophthalmic research technology.

Professor C.O. Quarcoopome, head of the Unit of Ophthalmology spent three weeks in Japan on a study visit sponsored by the Japanese Government.

A training fellowship has been requested for a Ghanaian technician to be trained in Japan for the maintenance and repair of the research equipment.

2. Research

The techniques used for the research programme included, retinal fundus photography, fluorescein angiography, electro-retinography, impedance cyclography and ultra-sonography.

The following subjects were studied:

- (i) Viral Diseases of the External Eye
- (ii) Onchocerciasis
- (iii) Sickle Cell Disease
- (iv) Impedance Cyclography of Ciliary muscle
- (v) Retinal and Macular Degenerations
- (vi) Electro-retinography in the Ghanaian
- (vii) Hypertension in the Negro

3. Equipment supplied. (See Appendix A)

4. Publications. (See Appendix B)

III. 2ND PHASE OF PROJECT II (Department of Chemical Pathology)

Three areas of research have been suggested for this phase:

- (a) quantitative determination of metals in various tissues, serum and urine in relation to drinking water and food substances;

- (b) balance studies of salts in relation to the nutrition of children in health and disease,
- and, (c) anaemia (sickle cell anaemia, anaemia in pregnancy and in the new born) in relation to nutrition.

The programme will be based in the Department of Chemical Pathology with participation from other relevant departments.

1. Staff Training

A Senior technologist and a principal research assistant have been selected and are due to leave for training in Japan.

2. Research

Negotiations are still continuing on the details of the research programme. The leader of the Japanese team and 3 other Japanese research workers are expected in Accra in the next month or two.

In the meantime base line studies on plasma lead have been completed and work continues on calcium, magnesium and amino acid levels in normal sera.

The items of equipment that have been received in support of this project are listed in Appendix A.

PROBLEMS AND DIFFICULTIES

Coordinating research interests into a joint effort is not always easy even among members of the same institution. The present arrangement for cooperative research between the Medical School and the Fukushima Medical College has its own special problems and difficulties but fortunately these are mainly administrative in nature and have not significantly hampered the research programme. These problems continue to receive the attention of the Dean and the Joint Research Coordinating Committee.

On the side of positive gain it is reassuring to read the statements from the reports of the Ghanaian counterparts. Some of these statements may be reproduced:

"No doubt the virology and the electron-microscope Sections are one of the well equipped laboratories one can find in Tropical Africa. This is a significant achievement; or, of the ophthalmology project - "A research laboratory has been set up where before there was none. The equipment donated by the Japanese Government could not have been purchased by the Medical School at the present time; and, of the current project - 'There is no doubt that we are benefiting by way of equipment which would otherwise not be accessible to us. It is important however to stress the necessity to ensuring an adequate supply of spares and chemicals to enable the various projects to go ahead "

Senior Members are welcome to visit the appropriate departments and to discuss with the Heads what support might be given in their own fields of interest with the equipment that is available. They may also send in comments on any matter they wish to have discussed by the Joint Research Coordinating Committee, to the Secretary to the Committee.

ISSUED FROM THE OFFICE OF THE DEAN

- MARCH, 1975

A P P E N D I X 'A'

EQUIPMENT DONATED UNDER GHANA/JAPAN
MEDICAL RESEARCH COOPERATION AGREEMENT

Only items costing over \$100.00 have been included in the lists. A considerable consignment of consumable and smaller items received since 1970 have not been included in

I. VIROLOGY - ELECTRON-MICROSCOPE

	\$
1. Revco ultra low temp cabinet	4,424.83
2. Refrigerated high speed centrifuge with 3 rotors and accessories - 4 cases: 3 sets and 37 pieces	5,479.34
3. Incubators, microscopes, autoclaves, centrifuges, glassware, etc.	15,781.16
4. Electron microscope complete with accessories, ultramicrotome, freezers, fridges, incubators, glassware, etc	71,202.00
5. Spectrophotometer, refrigerators and transformers	3,300.00
6. Hitachi preparative ultra-centrifuge with 4 rotors, density gradient device and other accessories	14,911.00
7. Refrigerators, airconditioners, incubators, etc.	15,156.02
8. Swinging type rotor for ultra-centrifuge, film hangers, etc.	2,653.00
9. Ultra low temperature cabinet, transformers, etc.	4,424.83
10. Cool-lines, incubators, animal cages, microscope recopy, etc.	19,273.00
11. Step-down transformer cool-line 3 sets	2,082.00
12. Low-temperature water bath 1 set	778.00
13. Handy aspirator 2 sets	284.00
14. Auto-still (Yamato) with transformer 1 set	309.00
15. X-ray film developing bath 1 set	156.00
16. Electronic calculator 'Canon' 2 sets	506.00
17. Electric incubator (Yamato) 2 sets	556.00
18. Bansted type distilling apparatus 1 set	167.00
19. Cartridge water deionizer with parts 1 set	146.00
20. Nitron liquid vacuum container 4 sets	1,668.00

21.	Rabbit cage	10 sets	260.00
22.	Portable Animal House		30,034.85
23.	Steel book case double door	2 sets	122.00
24.	Filing cabinet steel 4 drawers	8 2 sets	144.00
25.	Chairs (Okamura)	20 sets	259.00
26.	Binocular stereoscopic microscope (Nikon)	1 set	278.00
27.	Cannon microscope photography apparatus	1 unit	278.00
28.	Electronic copy	1 unit	1,169.00
29.	Agar electrophoresis apparatus	1 unit	764.00
30.	Sterilizing box with lid (steel)	40 pieces	311.00
31.	Drying tray stainless steel	20 pieces	150.00
32.	Mouse cage	100 sets	500.00
33.	Marmot cage	10 sets	102.00
34.	Step-down transformer	8 pieces	1,800.00
35.	Ice-cream stocker (Hitachi)	2 sets	1,112.00
36.	Electric humidifier (Hitachi)	3 sets	543.00
37.	Electric vacuum cleaner (Hitachi)	2 sets	134.00
38.	Electric air cleaner (Hitachi)	3 sets	417.00
39.	Gear head with motor	1 set	115.83
40.	Freeze-drying apparatus	1 unit	3,350.00
41.	Ultraviolet lamps	24 pieces	173.00
42.	Cable & transistor	1 set	4,734.20
43.	Ultra-low temperature cabinet	2 sets	4,033.17
44.	Toyota Land Rover	1	2,916.67
45.	Toyota Station Wagon	1	2,258.24
	Total	\$ 219,206.14

II. VIRAL AND OTHER PARASITIC DISEASES OF THE EYE

1	Nikon Retinapan wide Angle Fundus Camera with Nikon F camera and Polaroid Camera	12,000.00
1	Olympus GRC - 11 - C Fundus camera	7,000.00
1	Kowa RC-2 Portable Fundus Camera	2,500.00
1	Nikon Zoom Photo Slit Lamp Microscope with side scope and applanation tonometer	6,000.00
1	Kowa Portable Slit Lamp Microscope	1,500.00
1	Echogram for ophthalmology with Asahi Pentax and Polaroid Camera	15,000.00
1	Impedance Cyclogram (Toa Dempa)	5,000.00
1	Topcon Ophthalmometer	1,800.00
1	TOC Goldmann - type Perimeter (MT-40A)	8,000.00
1	ERG - scope, Handaya, with Polaroid Camera	5,000.00
1	Medical Nikkor with Nikon F Camera	1,500.00
2	Neitz Direct Ophthalmoscope	400.00
1	Streak Retinoscope	150.00
5	Aspherical Lenses	300.00
1	Indirect Ophthalmoscope	200.00

1	Honda Portable Generator	500.00
1	Autoabin 35 mm. Projector	200.00
3	Gemmy Pocket Ophthalmoscopes	200.00
1	Nikon Super 8 Zoom Cinecamera with close-up lens, microscope adapter and slide copying adapter.	5,646.00
Total		<u>\$ 72,896.00</u>

III. 2ND PHASE - PROJECT TWO (Chemical Pathology & Nutrition)

The equipment is still being assembled. The following items have been received:

1.	General equipment and supplies for Biochemistry Laboratory 130 types (284 items)	64,573.03
2.	Equipment for Atomic Absorption Spectrophotometer 7 types (21 items)	11,814.83
3.	Equipment for Amino-acid Analyzer 49 types (86 items)	23,808.52
4.	Chemicals for Biochemistry Laboratory 101 types (115 items)	10,381.01
Total		<u>\$ 110,580.39</u>

A P P E N D I X 'B'

PUBLICATIONS

I. VIROLOGY & ELECTRON MICROSCOPIC PROJECT

1. Enteroviruses in infants in Accra: A preliminary report. S. Otatsume and P.A.K. Addy. Ghana Med. J., Vol.12, pp.282-286.
2. Enterovirus spectrum of healthy, non-diarrhoeal children (0-15 years) in the Greater Accra Region between August 1971 and July 1972... P.A.K. Addy, C. Beckley, D.Q. Tagoe and S. Otatsume. Ghana Med. J., Vol.12, pp.295-301.
3. Leptospirosis in Ghana: H. Kinebuchi and S.N. Afoakwa, Ghana Med. J., Vol.12, pp.190-193 (1973).
4. The sickle cell erythrocyte membrane and the transport of cations. J. Int. Res. Comm. Systems, Vol.1, p.27. (1973).

In addition 14 other papers are being prepared for publication . They cover the following areas:-

- (a) Sero-epidemiology of Yellow Fever in Ghana
- (b) Yellow fever epidemic in Ghana
- (c) Small pox
- (d) Enteroviruses in healthy Ghanaians
- (e) Sero-epidemiology of polio, measles and adenovirus infections in Ghana
- (f) Sero-epidemiology of Cholera in Ghana
- (g) Australia antigen
- (h) Measles surveillance in Ghana

Ghanaian Senior Staff are included in 8 of these 14 papers .

II. VIRAL AND OTHER PARASITIC DISEASES OF THE EYE

1. Onchocerciasis: A study of the Posterior Lesions by means of Fluorescein Angiography, by Quarcoopome, C.O. Hosaka, A. , and Yamada, H. (in preparation).
2. Sudden Loss of Vision after Caesarean Section: A Syndrome of Acute Ophthalmic Artery Occlusion by Quarcoopome, C.O. (Ghana Med. J. , 13, 105-117) .
3. Clinical Electroretinography in Ghana, by Yamada, H. , Quarcoopome, C.O. , and Hosaka, A. (Accepted for publication in March, 1975 in Ghana Medical Journal).
4. Fluorescein Angiography in Sickle Cell Disease, by Hosaka, A. , Yamada, H. , and Quarcoopome, C.O. (in preparation).
5. Impedance Cyclography of Ciliary Muscle Activity in Ghanaians, by Hosaka, A. (in preparation).
6. Maculopathies in the Ghanaian, by Yamada, H. (For presentation as Thesis for Doctorate in Medicine).
7. Acute Ophthalmic Artery Occlusion in a Male, by Quarcoopome, C.O. (Accepted for publication in Ghana Medical Journal)
8. Albums of ERG in various diseases .
9. Album of Impedance Cyclographs in normal and abnormal conditions of accommodation .

資料 2

GHANA/JAPAN RESEARCH PROJECTS IN CHEMICAL PATHOLOGY

1. Quantitative determination of metals, e.g. K, Ca, Cu, Mg, Ni, Fe, Co, in various body tissues, serum and urine in relation to drinking water and food substances.

Principal Investigator: Professor S. Sokimoto (Japanese Scientist)

Co-Principal Investigators:

Professor W.N. Laing	{ Dept. of Pathology
Dr. G.R.E. Swaniker	{ " " Chemical Path
Dr. T.D. Osafo	{ " " " "
Dr. S. fosu-Amaah	{ " " Comm. Health
Dr. Tanuma	{ Japanese Scientist
Dr. Ishyama	{ " " }
Mr. Y. Saito	{ " " }

2. (a) Protein and amino acid patterns in normal and malnourished children in Ghana.
(b) Investigation of Inborn Errors of Amino Acid metabolism in Ghanaian children.

Principal Investigator: Dr. G.R.E. Swaniker

Co-Principal Investigators:

Professor Y. Asirifi (Dept. of Paediatrics)
Dr. S. Ofosu-Amaah
Dr. T.D. safo
Dr. Tanuma
Dr. Ishyama
Mr. S. Saito

3. Balance studies in metabolic bone disease.
 - (a) Baseline studies, e.g. Ca, Mg, and P, in healthy subjects at different ages under standardised conditions.
 - (b) Comparative studies in sicklers and allied haemoglobinopathic states.
 - (c) Comparative studies in patients with chronic renal failure.
 - (d) Comparative studies in patients with osteoporosis and osteomalacia.
 - (e) Balance studies of Mg, in sickle cell anemia and observation in serum, urine, CSF and Tissues of several diseases in children and the newborn.

Principal Investigator: Dr. T.D. Osafo

Co-Principal Investigators:

Dr. F.I.D. Konotey-Ahulu (Dept. of Medicine)

Dr. G.R.E. Swaniker

Professor Y. Asirifi (Dept. of Child Health)

Dr. Tanuma

Dr. Ishyama

Collaborating Staff:

Mr. D.A. Donkor	-	Principal Research Asst. (Dept. of Chemical Path.)	
Mr. D. Amemavor	-	Senior Technologist	(-do-)
Mr. R.K.A. Sackey	-	Assistant Technician	(-do-)
Mr. K.S. Ahelegbe	-	Assistant Technician	(-do-)
Mr. T.K. Johnson	-	Laboratory Asst. Grade I	(-do-)

Work on the research programmes has already started.

A substantial part of the programme is expected to be completed within two years.

Research Plan:

Aims:

The programme is aimed at providing baseline biochemical data which is at present lacking. It would also provide various biochemical and nutritional data essential in the management and treatment of patients.

Methods of Procedure:

It is proposed to collect samples from normal school children and from patients in the Paediatric Department of the Korle Bu Teaching Hospital and the Princess Marie Louis Hospital. Food and blood samples would also be collected from volunteers in the Danfa area for analysis. Autopsy material would be provided by the Department of Pathology.

An automated amino acid analyzer, atomic absorption spectrophotometer, will be used in the various analyses.

Significance of Research:

The work envisaged would, it is hoped, provide data on the nutritional status of children in the Accra area and in Ghana in general. It will also provide data essential in the management and treatment of patients.

Facilities:

Four rooms are at present available in the Rd Building for the research programme.

The available equipment include:

Provided by the
Government of Japan

- (1) Automated Amino Acid Analyzer with Integrator (Room 40)
- (2) Atomic Absorption Spectrophotometer (Room 33)
- (3) Double Beam Spectrophotometer with Recorder (Room 40)
- (4) Flame Photometer and Gas Analyzer, Chloride Meter, Osmometer. (Room 21)
- (5) Equipment already available in the Department of Chemical Pathology.

Transportation:

It is hoped to utilise existing transport facilities to travel to and from Danfa.

Transport would however be required for the collection of samples from the Princess Marie Hospital about twice a week.

Expected expenditure per year:

(1). Chemicals and sundry local purchase including transportation.	} £1,000.00
(2). Stationery 	200.00
	<hr/>
	£1,200.00
	<hr/>

26th June, 1975.

資料 3

Department of Chemical Pathology

1st October 1975

REPORT ON CHEMICAL PATHOLOGY PROJECT

1. Work is already in progress in collaboration with the Department of Paediatrics on the protocol submitted at the last meeting on behalf of the research team by Professor Sekimoto.

Since the repair of the amino acid analyzer in July by Mr. Saito from Jeol, Japan, work has begun again on Item 2 of the protocol. Amino acid concentrations in normal and malnourished children and sicklers are being estimated and up to date 57 specimens have been processed. In addition, the following parameters are also being determined - Plasma Protein Electrophoresis (57), Electrolytes (90), Calcium (50), Magnesium (90), Osmolality pH, PCO₂, PO₂, base excess and bicarbonate (45). Magnesium levels in the CSF of children suffering from various types of meningitis are also being determined. It is hoped to correlate these with the plasma levels.

In all 30 CSF specimens have so far been processed. Urine samples will be processed when urine bags are available for the regular collection of samples from children.

Arrangements have been made with the Department of Community Health for the collection of water, food substances and urine from the Danfa area.

Work on the trace metals in tissues has not yet started as we are still awaiting the arrival of plastic knives for cutting the tissues.

As suggested at the last meeting, I had a meeting with Professor Sekimoto on the first Chemical Pathology project and we decided that it should continue and be integrated with the other Chemical Pathology projects.

2. Studies on the Sick Cell Erythrocyte

Work on Item 7 of the protocol could be undertaken together with the other Chemical Pathology projects as more staff becomes available.

3. Ghanaian contribution to the Third Project

(i) Staff

Dr. G.R.E. Swaniker	- Senior Lecturer
Dr. T.D. Osafo	- Senior Lecturer
Mr. D. Amonvor	- Senior Technologist
Mr. D.A. Donkor	- Principal Research Assistant
Mr. R.K.A. Sackey	- Assistant Technician (on course)

Mr. K.S. Ahelegbe - Assistant Technician
Mr. T.K. Johnson - Laboratory Assistant Grade I.

It is hoped that one Technologist and one Laboratory Assistant will join the team soon.

In addition to the above the employment of a Research Assistant and a Storekeeper would greatly facilitate our work. The Storekeeper is required to keep our evergrowing stock of chemicals and research equipment.

All the secretarial work connected with the project is carried out by the departmental secretary.

資料 4

MINUTES OF THE EMERGENCY MEETING OF THE CO-ORDINATING COMMITTEE
GHANA GOVERNMENT/JAPANESE GOVERNMENT - HELD ON 28TH NOVEMBER
1975

Present

Prof. S.R.A. Dodu - Dean - Chairman
Prof. H.H. Phillips
Prof. Hirayama
Prof. T. Suzuki
Mr. T. Kano
Prof. S.K. Addae
Prof. S.N. Afoakwa
Prof. S. Sekimoto
Dr. C.A. Klufio
Dr. Bruce-Tagoe
Dr. S. Ofoosu-Amah,
Dr. T.D. Osafo
Mr. B.P.Y. Klutse - Secretary

Absent

Prof. Y. Asirifi - with apology

The Chairman informed the Committee that the meeting was a special one with a single purpose: To welcome and to introduce formally members of the Evaluation Team who had arrived the previous Friday.

Replying, Prof. H. Hirayama, leader of the Evaluation Team expressed their deep appreciation of the hospitality accorded them. He then made the following comments and observations:

1. The reasons for which Ghana Medical School (G.M.S.) chose the research project as a collaborative project with Japan are historical and technical: Historical because of the part Dr. Noguchi played in the Medical History of Ghana and technical because of the excellent research techniques and equipment developed by Japan.
2. The main themes of Ghana/Japan Medical Research Cooperation projects are not only acquisition of high level research techniques, per se, but also techniques which will be directly useful for the health needs of Ghanaians.
3. In the Department of Chemical Pathology, Atomic Absorption Spectrophotometer, Amino-acid Analyzer, and other equipment are already working with the assistance of Japanese specialists and trained Ghanaian technicians. At present, they are establishing the diagnostic standard or mean values of clinically healthy Ghanaians, and additionally, the clinical standards on anaemic in pregnant women, the relationship between malnutrition and infection, and electrolyte measurements on infectious diseases etc. have been carried out. Amino acid patterns had been tested on 45 samples and electrolytes in body fluid had been measured on 95 samples. These researches are cooperation studies with clinical and other basic science departments, so Dr. Swaniker of the Department of Chemical Pathology is making efforts to arrange the studies and to establish the standards in Ghana with admirable singleness of purpose.

4. Electron microscope and scanning electron microscope are functioning with the assistance of Japanese specialists and trained Ghana technicians. Samples have been sent from many other departments, and collaboration studies are going on. Morphological studies on sickle cells are one of the important subjects.

5. Virological studies such as cell cultures, virus isolations, serological tests have been carried out well by Ghanaian junior scientists and technicians, and all equipment sent from Japan are working effectively. In the Department of Microbiology, administration of research has been well organised and controlled very successfully by Prof. Afoakwa.

6. Among the equipment which had been donated to the Eye Department, fundus cameras and perimeter are working effectively in routine clinical activities. Prof. Quarcopone published an excellent colour atlas of eye diseases in Africa recently.

7. The maintenance and custody of the equipment are on the whole quite good. They have been kept in rooms with air-conditioners. They have been installed in a few departments, but utilized by many departments. The cooperative studies in G.M.S. are going on successfully.

8. Some delicate equipment are out of order because of shortage of spare parts. For the purpose of repairing equipment, it is recommended that a sufficient quantity of spare parts should be supplied for each equipment. The equipment donated for a project of a purely personal interest to one specialist might be useless after he had gone. Because of this, the selection of equipment for donation should be carefully done;

9. Human relations between Ghanaian and Japanese specialists are at a very high level at present. There has been no report of any misunderstanding.

10. A request made by Japanese specialists is the simplification of application methods for materials such as reagents. This is because, according to present arrangement, when the counterpart in G.M.S. is absent the process of making request may not work at all.

11. The ambassador of Japan highly estimates the Ghana/Japan Medical Research Cooperation Project from the diplomatic point of view and had expected the successful execution of the projects.

Prof. Suzuki, a member of the Evaluation Team congratulated the various research teams on their achievements. He pointed out that since they were sent to evaluate research work that had so far been carried out jointly by Ghanaian and Japanese Medical Scientists, it was obvious that each research adventure had a goal.

After a long discussion, the committee agreed that so far the researchers have been working with the objectives and aims of each research endeavour in mind. The Chairman therefore stressed that the Evaluation Team had the task of recommending, if on the basis of their findings, they would recommend that Project III should be initiated. He emphasized that the Ghanaian side was ready and was hopeful that our association with Japan in the field of medical research would help strengthen the existing cordial relations between the two countries.

The committee also discussed the transplantability and general level of performance of Japanese equipment donated in connection with the research projects. The aim of the discussion was to find out the adaptability of these equipment to the new environment. After some discussion it was observed that it would require organised experiment to find the answer to the problem. A member wanted to know what criterion was used in the selection and dispatch of equipment to Ghana and whether design and purpose were taken into account when sending equipment for the projects. A member of the Evaluation Team in reply to the question said no criterion was used by JICA in the choice of equipment sent and that this was normally at the discretion of each office.

The committee agreed with the Evaluation Team that the problem of machine maintenance was common to medical schools all over the world but noted that the "Epidemiological study of man-machine systems" as was being proposed by the Evaluation Team did not form part of the present projects. Prof. Quarcoopona stressed the need to send some spare parts with all equipment sent in connection with the projects. He made a special appeal to the Evaluation Team that a priority attention be given to the problem of spare parts.

In-Service Training for Japanese Technicians in Ghana

The question of Japanese junior scientists and technicians sent in connection with the projects receiving in-service training was also discussed. The Chairman assured the Evaluation Team that it would be possible to draw up programmes tailored to the needs of some of the Japanese junior scientists and technicians provided they made known their field of interest.

The final agreeable idea was to advise JICA that in future, equipment should not be brought without our (Japanese and Ghanaian scientists) being made aware of the range from which we could make a choice.

In conclusion, the Dean thanked the Evaluation Team for their candour. He emphasized that as scientists they have to keep on trying. He pointed out again that the training of the Japanese scientists in the techniques of combating tropical disease was possible and said such a training programme could be cooperated into the Noguchi's Memorial Institute.

In reply to the Chairman's closing remarks, Prof. Suzuki said they had completed the work for which their government sent them; To evaluate the work of the scientists working on the Research Project and to do some consultation.

He said they were very impressed with the efforts of the medical scientists to improve the health of the population.

2. イフエ大学医学部

イフエ大学医学部においても Grillo 学部長との会合，派遣専門家との意見交換を通じて得られた調査内容の要約を作製し，これら関係者全員の了承を得た。内容は以下のとおりである。（資料5）

資 料 5

REPORT OF EVALUATION TEAM NIGERIA/JAPAN MEDICAL CO-OPERATIONS

Background:

Nigeria has been watching, with keen interest, the development of Health Sciences and Medical Education in recent years.

Association of Japan with Nigeria even in the field of Medical practice has been long. The contribution of Dr. Noguchi in the medical history of Nigeria is still fresh in the memory.

Nigeria has a lot in common with Japan - particularly in the field of human nature and culture. She is also undergoing, like Japan, rapid modernization. Her place in Africa is quite similar to the place of Japan in Asia.

The University of Ife has more directly been carrying out a cooperation project with Japan.

Information obtained from the discussion with the Dean - Professor Grillo:

1. Forty-one Pre-medical students whom Japanese Professors have been teaching for the past three years, will graduate in January 1976. They will be awarded the B.Sc. (Health Sciences) degree.
2. The Masters (M.Sc. and M.Phil.) programmes in Health Sciences have just started and Japanese Professors will be involved in teaching courses to the students. Thus this cooperation has culminated in the education not only counterparts but also potential counterparts.

3. Apart from teaching, Japanese Professors have contributed effectively to research in this University. For the next project - in addition to the pre-clinical areas which the present cooperation covers, the Dean would like to extend the cooperation to include - hospital care (medical care) and community care (community health). The University of Ife has embarked on a new approach to community health in which she is giving the lead in the country.
4. There have been a few problems - particularly relating to the reception of Japanese experts. These problems concern housing, water and electricity supply etc. as well as the delayed arrival of equipment from Japan. The problem of housing has been solved for the time being. Those of water and electricity supply emanating from the rapid growth of Ife and other surrounding towns such as Osogbo and Ede, is gradually being solved.
5. Degree programmes in Dental Surgery, Nursing, Medical Rehabilitation, Health Education and Dietetics (Nutrition) have either been instituted and are running or are in the final stages of planning. The Dean would like collaboration with the Government of Japan in these fields as well.

The University of Ife which is now a Federal University had some difficult times in the past, nevertheless, it is developing steadily and hopefully.

Problems encountered by Japanese Professors during their visits

1. One major point about which Japanese Professors have been unhappy is the long delay in the arrival of equipment. In some cases equipment requested by some Professors have failed to arrive even after they have completed their assignment

and returned. The cause which made this long delay is partly due to the port congestion at Lagos, and partly due to the beaurocratic tediousness for providing equipment in Japan.

2. The maintenance of equipment have been generally satisfactory as far as the repairing has been possible.

Shortage of spare parts to machine should be avoided as this may lead to the dysfunction of the whole instrument.

As equipment which belong to limited interests may become useless, the selection of equipment for donation should be carefully done.

3. A request is being made by Japanese Professors for laboratory assistants - to assist not only in daily research but also in preparing for student practicals. There was a complaint that Professors have often had to wash glasswares for experiments which have been carried out not only by themselves but also students.
4. The intermittent shortages of water supply and the unstable electricity supply have sometimes disturbed the work in the laboratory.

3. ナイジェリア大学医学部

ナイジェリア大学医学部でも学部長以下主要関係者十数名との会合をもち、意見の交換を行なうとともに、視察を行なった。しかし当大学では学部長が交替して日が浅く、日本からの専門家派遣も初年度2名が滞在した後1年間派遣のない空白期間があり、ごく最近第3年度分として短期滞在の2専門家が着任したばかりであったので、とくに調査内容の要約を作製して記録に残すことは行わなかった。

当大学においては、派遣専門家は初年度に病理学教室の開設に協力して功績があったが、2年度の空白期間中に同教室にはインドより常任教授が着任していた。今回着任した専門家は短期滞在の予定でもあり、また、たまたま剖検の少ない時期であることもあって、教育、研究両面とも十分な協力の実施し難い状況であった。また機材も今回供与分は到着したばかりで開梱されておらず、その利用も今後の問題であった。

従ってここでは、専門家の派遣は計画的に継続的に行なうのが、協力の実をあげる上で望ましいこと、専門家の滞在は今後は少なくとも1年が望ましく、また病理に限らず基礎医学分野で協力しやすい部門についても考慮すべきこと、ナイジェリア大学側の指導体制が早く確立し、専門家の受入れになれることを期待するにとどめたい。

V. 医療協力上の一般的問題点

最後にガーナ、ナイジェリアの事例を参考にした上で、医療協力上の問題点を一般論としてとりあげ論じてみたい。

1. 日本からの専門家派遣について

- (1) 派遣期間：一年間は短かいとの指摘が、受け入れ側および日本からの専門家自身によってもなされている。一般に欧米各国からの専門家はより長期間滞在している。その中で日本の専門家のみが短期で交替をくり返すことになる。派遣期間を長くすることにより、事前の研修（たとえばヨーロッパにおいて熱帯医学の研修を）、および途中での休暇が可能となり、派遣される専門家にとって協力に参加することによって自己を開発するという意味で利点が大きくなる。

3カ月あるいは6カ月という短期派遣は、長期に滞在する専門家が現地において受け入れる場合のみ有効であろう。

- (2) チームとしての派遣：言葉の不自由な日本からの専門家が一人で派遣されることは好ましくない。ある種の隔離状況が作られ、不必要な誤解と摩擦の原因となりかねない。

異文化との接触の経験があり、言葉の出来るシニアのスタッフの下でチームが作られることは多くの場合有効な方策であろう。

- (3) 給与などの処遇：現行の給与は専門家の士気を支えるのに十分とはいえない。現地側の受け入れ体制が不十分な場合も考慮すると、その際の生活上のハンディキャップをつぐなえるだけの給与が支給される必要がある。
- (4) 専門家の募集、派遣の仕組み：現在の仕組みは、各個の大学単位にProjectの世話がなされ、その中で専門家の募集、決定がなされている。この仕組みには、人材の動員が日常的な知りあいの中らなされることによって、それなりの利点を持っている。他面では義理と人情による人事管理の色彩

が生じそのための欠点も生れてくる。

Project を主として担当する大学を中心として、公開的に人材の募集、選抜がなされるような仕組みを作ることが、とりあえずこれらの欠点をおぎない、人材を得るのに有効な方法であろう。

2. 日本からの機材供与について

機材供与における問題は、機械を人間－機械系として考えるべきであることを示唆している。そうでないと、供与された機械は受け入れ国で有効に働かず、単にショーケースに納められたにすぎない結果となる。

機材供与についての問題は、現地のスタッフの教育、訓練および日本よりの派遣専門家の活動と密接に関連している。

- (1) 供与機材の選択：誰が、どのようにして機材を決めるのかが、必ずしも明瞭ではない（受け入れ側の組織構成員にとっても、また日本側派遣専門家にとっても）。選択にあたって、現地での機械の運用、管理、維持に関する能力が考慮されない場合がある。この問題を解決するためには、現地スタッフの事前の訓練、機械の維持のための定期点検制度、およびスベア部品の供給などが必要となる。さらに現地での水、電気などのサプライが保障されるといった基本的条件が問題となる場合がある。こういった諸点を考慮した上で機材が選択されることによって、その後の運用が円滑となるだろう。
- (2) 供与機材の購入：購入すべき機材が選択された後で、現実の購入をどのようにすべきかが問題となる。現行のように、日本で国際協力事業団が購入する仕組みの場合には、実際に機械についての知識のない人々が購入事務を進めるため、やゝもすると品質は2次的なものとなり、安価なものが購入される可能性がある。製造元、販売元は国際協力事業団に納入するとそれで終わり、事後のサービスがなくてもよいことになる。熱帯の諸国に物品を納めて、アフターケアを行えるだけの企業能力を持たない製造元の場合、売ってしまえばそれでよしということになる。

機械の仕様書，使用説明書，故障の修理方法など，微に入り細にわたって現地の言葉（少くとも英語などの国際語で）で書かれたものが必要であるが，その点はまったく不十分なことが多い。

- (3) 供与機材の運用，維持：現行の選択，購入の仕組の下では，現地側はあてがわれたものを使うだけで，一旦こわれればそのままになる危険が大きい。スペア・パーツの供給，日本からの修理班の派遣は完全を期しがたいことは明らかで，現地側の運用，維持の能力を向上させる必要がある。現地で実際に使用する人が，現地の販売元を通して購入できる可能性のある場合には，それを利用し，それによって修理を円滑にさせる方策も工夫されてしかるべきであろう。
- (4) 携行機材について：派遣専門家の携行機材は，専門家により個別に必要となるものだけに，派遣専門家が帰った後は使えなくなることが多いのはある面ではやむをえないが，それにしても個人的興味によって機材をえらぶことのないよう配慮する必要がある。携行機材についても日本での調達为原则となっているが，これに要する費用と送料とを考えると，時には現地到着時期を考慮した上で，他の国での製品を購入しうる余地を残してもよいと考えられる。

3. 現地スタッフの日本における教育，訓練について

本主題については十分な議論を行いうるだけの情報を持っていない。少くともガーナ・ナイジェリアに関する限りでは来日したスタッフは親日的となり，その後の日本人専門家との交流も円滑となっている。この面での協力は可能なかぎり拡張すべきものと考えられるが，それに伴い生ずる困難もまた大きくなることが予想される。今後この面での経験者の意見を集め，将来像を検討すべきである。

Ⅵ お わ り に

以上、今回ガーナおよびナイジェリアを訪問し、3大学医学部を巡回視察して得た調査結果の概要を報告した。またあわせて事業団の実施している医療協力事業のあり方についても、今回の調査結果をふまえた上で附言した。

両国における医療協力事業は所期の目的を達しつつ、かつ日本と両国関係者との相互理解の実をあげながら、おおむね順調に進行していると考えられる。個々の点では改善の余地は多いがこれらを実行しつつ、今後この協力事業が一層の成果を上げ、日本と両国との親善に役立つことを期待したい。

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