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**PLAN FOR IMPLEMENTING
THE EPIDEMIOLOGICAL TRAINING
AND LABORATORY SUPPORT COMPONENTS
OF THE BIOMEDICAL RESEARCH PROJECT**

INDIA

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Plan for Implementing the Epidemiological
Training and Laboratory Support Components of the
Biomedical Research Project (386-0492)

Introduction. The Plan for Implementing the Epidemiological Training and Laboratory Support Components of the Biomedical Research Project (386-0492) was prepared at the request of the Health, Population, and Nutrition Office of USAID/Delhi and consists of five sections. The first section describes the background and rationale for the project. The second concludes that the activities, objectives, and outputs of the revised project mirror those proposed in the project paper prepared in 1985. Section three is a detailed description of the manner in which the activities financed under the revised project will be implemented. Sections four and five review issues related to project management and monitoring and evaluation. The remarks appearing in the final section USAID/Delhi are recommendations presented for review and action by USAID/Delhi.

I. Background and Rationale for the Biomedical Research Project.

The public and private health care system in India is primarily urban directed, clinic-based, and curative rather than preventive. Information on the major causes of mortality and morbidity among residents of the rural areas, especially infants and children under five years of age, is not systemically collected, analyzed, and used to define appropriate health policies and programs. The epidemiological services in India are primarily confined to investigating disease outbreaks. The data generated at the various levels of the health system are minimally used to understand the dynamics of disease incidence, prevalence, and transmission, or to set policies or define programs to address health problems.

Authorized at a level of \$13.1 million on June 25, 1985, the Biomedical Research Support Project (386-0492) was designed by USAID/Delhi to assist the Government of India (GOI) in creating a functioning national program of laboratory-based field epidemiology. Once established, this system would enable the GOI to gather and evaluate relevant information on the diseases affecting rural populations and to assess the relative efficacy of the interventions applied.

Five inter-related activities were to be financed under this project; all were proposed to enable the GOI to "estimate the burden of illness experienced in a community, identify environmental, behavioral, and occupational health hazards, and assess the relative impact and cost-effectiveness of different mixes of resources and services in improving the health status of

the population."¹

field epidemiology - to assist the GOI in developing a self-sustaining capability to train substantial numbers of field epidemiologists operating at Central, State, and District levels

laboratory support services - to support the field epidemiologists with rapid and accurate diagnostic capabilities at the Central, State, District and Primary Health Center levels

clinical epidemiology - to establish fully functioning clinical epidemiology cells in three Indian medical colleges

management information system for malaria - to demonstrate the application of computer technology for epidemiological surveillance and resource management in disease control

quality control of biologicals - to support the construction, equipping, and staffing of a new national quality control laboratory for biologicals, including vaccines, reagents, rapid diagnostic test kits, etc.

The Biomedical Research Project supports GOI initiatives designed to encourage decentralized health planning and to create a capability in field epidemiology within the existing health services. In 1979, for example, a National Workshop on Epidemiology at the National Institute of Communicable Diseases (NICD) recommended the establishment of a three-tiered epidemiological service (central-state-district) throughout the country as an integral part of the national health service. In addition, the workshop proposed the creation of (i) a State Epidemiological Unit, (ii) the post of State Epidemiologist, and (iii) regional, state, district, and primary health center laboratories. More recently (1982 and 1984), the GOI officially endorsed a policy expressing the need for a nationwide epidemiological service with complementary public health laboratory services at the state and district levels and, where required, at the primary health care level.

Since the project was authorized in 1985 there have been significant revisions and delays, although the objectives and rationale remain valid. At the request of the GOI, the Management Information System for Malaria was dropped. The Quality Control of Biologicals, a complex undertaking, was split off and developed as a separate project. Training in Clinical Epidemiology at Indian medical schools has essentially proceeded as planned. Currently, five medical colleges -- two more than

¹USAID/Delhi, Project Paper - India, Biomedical Research Project (386-0492), June 1985, 5. (Hereinafter cited as Project Paper - India.)

the projected number -- are participating in the project.

The last two elements of the project -- field epidemiology and laboratory support services -- have been implemented haltingly. While some notable progress has been achieved over the last five years, measured in terms of defining a basic epidemiological curriculum, attending courses in the United States, and upgrading laboratory equipment and procedures, implementation has been significantly delayed. Results to date are significantly less than anticipated in the original project paper.

Recent changes in personnel, especially the appointment of Dr. T. Verghese as Director of NICD, have generated renewed interest in implementing the field epidemiology and laboratory support components of the Biomedical Research Project. On June 1, 1990, as a result of the enthusiastic endorsement of Dr. Verghese and the effective support and cooperation of Mr. J. Vasudevan, Joint Secretary of the Ministry of Health and Family Welfare (MOHFW), the GOI endorsed the revised project and approved an investment in the Eighth Five-Year Plan of Rs. 93.071 million (US \$5.4 million)², of which USAID has been asked to provide approximately Rs. 45.712 million (US \$2.6 million).

II. Description of the Epidemiological Training and Laboratory Support Components: Objectives, Activities and Outputs.

Objectives. While considerable time has lapsed since the Biomedical Research Project was first designed and approved, the objectives of the epidemiological training and laboratory support components remain unchanged. As stated in the project paper, the objectives of the field epidemiology component are:

- to develop a self-sustaining capability at NICD to train substantial numbers of field epidemiologists, and
- to establish in at least one state a "pilot" field epidemiology service staffed with a complete complement of trained epidemiologists down to the district level.

The objectives of the laboratory support services component are:

- to develop at NICD a highly sophisticated laboratory [capable of] serving as the reference laboratory for the other public health laboratories throughout India, and providing applied research and special testing;
- to develop state laboratories [capable of providing] most of the diagnostic testing required, and

²Exchange rate of Rs. 17.3 to US \$1, June 1990.

- to establish district laboratories [capable of providing] basic laboratory support, such as water bacteriology.³

As stated in the Memorandum to the Expenditure Finance Committee of the GOI, submitted and approved in May 1990, the objectives of the field epidemiology component are:

- to establish in regional institutions a self-sustaining capability to train epidemiologists;
- to establish in the districts a self-reliant system capable of making decisions for health action and disease control;
- to establish two pilot demonstration states staffed with trained epidemiologists in the project districts, and
- to improve the present monitoring and surveillance system, starting from the periphery to the center [with] feedback.

The memorandum defines the objectives of the laboratory support component as follows:

- to [ensure that] public health laboratory services are [capable of] providing diagnostic and epidemiological support services;
- to establish laboratory services at the district level capable of supporting decisions for health action and disease control [that use] the medical college facility for referral and training purposes, and
- to demonstrate the impact of epidemiological and public health laboratory services in the states.⁴

While the role of NICD has shifted from being central in the original project description to being supportive of activities occurring at the state level in the current proposal, the objectives are identical. Indeed, the revised approach is better framed to achieve successfully the project objectives. It emphasizes the importance of conducting training in epidemiology and laboratory support at the state level and below, and offers the promise of rapidly staffing, state, district, and primary health centers with personnel trained in epidemiology. NICD plays a supportive role in the revised project; it is responsible

³Project Paper - India, 1-2.

⁴Government of India, Ministry of Health and Family Welfare (MOHFW), Memorandum to the Expenditure Finance Committee, May 1990, 6. (Hereinafter cited as Memorandum - GOI.)

for carrying out the initial training activities. After two years, when USAID/Delhi support terminates and project costs are financed by the GOI, the training focus shifts to the project states of Uttar Pradesh and Rajasthan with NICD providing assistance as required.

Activities. Although Uttar Pradesh and Rajasthan have been chosen to replace the states originally suggested in the project paper (Maharashtra and Karnataka), the activities currently proposed are largely identical with those originally suggested. Training was and remains the major activity proposed under both the field epidemiology and laboratory support components. In the area of field epidemiology the project paper proposes that:

- a long-term consultant in epidemiology be appointed to assist the Director of NICD to (i) develop a one-year curriculum to train service-oriented field epidemiologists, (ii) upgrade the capacity of NICD's Epidemiology Division to conduct long-term and short-term training courses, and (iii) assist the states, on request, in outreach investigations;
- Indian nationals from the states selected complete the long-term training curriculum (one-year) and be assigned to state epidemiological units, and
- selected Indian nationals (12) from NICD and the project states would attend the two-year Field Epidemiology Training Program at the Centers for Disease Control in Atlanta.

The project paper suggested that training and equipment were needed to upgrade the public health laboratory system. The activities as proposed are to:

- appoint a long-term laboratory consultant to work with NICD's Division of Microbiology to develop a long-term plan to upgrade and expand laboratory services down to the district level, and develop or select appropriate training courses;
- procure and install specific equipment and supplies needed to upgrade the laboratories at NICD as well as State and District laboratories selected through survey (as many as 16);
- select and train Indian nationals from the States and Districts in diagnostic laboratory procedures at NICD, and
- send selected individuals from NICD and State laboratories to the US for short-term training in US laboratories such as

CDC and NIH.⁵

As revised, the project acknowledges the contribution made by the two long-term expatriate consultants. These experts served in India from 1987 to early 1990 and were able to develop the outlines of a core curriculum in epidemiology and to specify laboratory requirements. In addition, the revised project emphasizes the importance of training, although the length of time and location of training have been altered. The current proposal calls for the:

- acquisition of higher level epidemiological skills by health officials and medical faculty through short-term training (6-8 weeks) in epidemiology, laboratory procedures, and health management at institutions like CDC;
- long-term epidemiological training (9 months) at NICD for district level health officers;
- short-term epidemiological training (6 weeks), initially at NICD and then in the states, for Primary Health Center Medical Officers;
- strengthening of NICD through the addition of qualified staff and the supply of upgraded equipment and reagents;
- short-term training (6 weeks) for District level laboratory personnel, and
- strengthening of District, State, and Medical College laboratories through the supply of upgraded equipment and reagents.⁶

Outputs. In the project paper the outputs for the field epidemiology component are specified as follows:

- the development of a critical mass of 132 well-trained epidemiologists capable of developing, understanding and using surveillance systems, outbreak control, program implementation, and decision-making, as well as teaching methods of epidemiology to all levels of the health system;
- the establishment of an effective, fully functioning Division of Epidemiology at NICD;
- the implementation of a "pilot" demonstration State with fully staffed and operating epidemiological services, and

⁵Project Paper - India, 16-21.

⁶GOI - Memorandum, 5.

- the conduct of field training in three states, including the pilot state, for an additional 40 field epidemiologists per year, with the potential of further expansion of the training activities to additional states.

The outputs for the laboratory support component are not quantitatively specified in the project paper.⁷

At completion of the revised project, specific equipment and supplies will be made available to laboratories at NICD, the State Health Institute, King George Medical College (Lucknow), and five district hospitals in Uttar Pradesh. In Rajasthan, the laboratories of five district hospitals, the State Epidemiology Laboratory, and the laboratories of the Departments of Microbiology and Social and Preventive Medicine at SMS Medical College (Jaipur) will be upgraded. However, persons trained in field epidemiology and laboratory support procedures are the principal outputs of the revised project, as follows:

- 8 senior professionals, e.g., Secretaries of Health and Family Welfare of U.P. and Rajasthan are exposed to the rationale, relevance, and impact of field epidemiology through visits to appropriate US institutions, e.g., CDC - Atlanta;
- 12 senior professionals, e.g., Professors of Social and Preventive Medicine at SMS Medical College and King George Medical College attend a brief course on field epidemiology training in the US and visit State Health Departments;
- 32 senior staff responsible for epidemiology training in India attend a brief course (3 weeks) in planning epidemiology teaching and visit State Health Departments in the US (3 weeks);
- 24 senior staff responsible for epidemiology training in India attend an 8-week course, similar to the International Track of CDC's EIS Course, in the US;
- 18 mid-level managers attend an 8-week health management course in the US;
- 42 laboratory instructors and technicians from NICD, the States of Uttar Pradesh and Rajasthan, and the medical colleges attend courses, approximately 16 weeks in duration, on laboratory techniques related to field epidemiology programs;
- 60 District Health Officers responsible for

⁷Project Paper - India, 18, 44, 49.

epidemiological surveillance attend 9-month field epidemiology training program at NICD;

- 600 Primary Health Center Medical Officers attend a 6-week epidemiology course, initially at NICD and later in the States of Uttar Pradesh and Rajasthan;

- 60 District Pathologists attend a 6-week laboratory training course at NICD, and

- 300 Laboratory Technicians from the States, Districts and Medical Colleges attend a 2-week laboratory technician training program at medical colleges in Uttar Pradesh and Rajasthan.⁸

III. Activities financed by USAID/Delhi under the Biomedical Research Project. USAID/Delhi expects to finance five principal activities under the Biomedical Research Project:

(1) the procurement in India of laboratory equipment and supplies;

(2) the procurement in the United States of laboratory equipment and supplies;

(3) training activities in field epidemiology and laboratory support techniques in India;

(4) training activities in field epidemiology and laboratory support techniques in the United States, and

(5) short-term US consultants who will be responsible for (i) assisting in the development of the epidemiology and laboratory support training curricula at NICD and the Medical Colleges, participating in the teaching of the training courses, and collaborating with Indian consultants in supporting the field activities of the trainees, and work as well to strengthen the staff of the Epidemiology and Microbiology Divisions of NICD in selected areas.

Under the 8th Five-year Plan the GOI has authorized a budget of approximately Rs. 93 million, US \$5.4 million at exchange rates in effect in June 1990. (A Budget Breakdown by Line Item and Year of Expenditure can be found in Attachment 2.) USAID/Delhi has been asked and agreed to finance the five components mentioned above. The total estimated cost is Rs 52 million (US \$3.0 million). (See Attachment 3, Line Item Budget by Source of Funds.) However, since support from USAID/Delhi will only

⁸GOI - Memorandum, 9-12.

continue through March 31, 1992 (the PACD of the Biomedical Research Project), USAID/Delhi is unlikely to spend more than Rs 45.712 million (US \$2.6 million), the amount requested by the GOI. (See Attachment 4, Line Item Budget stipulating GOI Request of USAID/Delhi.)⁹

As noted in Attachment 4, USAID/Delhi expects to finance the five activities at the following levels:

<u>Activity</u>	<u>Rs (000s)</u> (Rs 17.3:1 US\$)	<u>US\$ (000s)</u>
Equipment/supplies procurement in India	9,406	544
Equipment/supplies procurement in the United States	9,684	560
Epid/lab training in India	4,040	291
Epid/lab training in US	13,002	751
US Consultants	8,580	496
<u>Total</u>	45,712	2.600 ¹⁰

1. **Equipment/Supplies Procurement in India.** It will be the responsibility of the GOI officials charged with procurement for the Biomedical Research Project, i.e., NICD, to order, receive, and install at the locations specified in the project description the equipment available domestically. (An Illustrative List of Equipment/Supplies to be Procured in India is presented in Attachment 5.) Procurement will follow standard GOI tender procedures. These USAID standard regulations on Local Cost Financing will be transmitted to the GOI. (A summary of the Guidelines for Procurement by Indian Government Entities under USAID Projects is included as Attachment 6.) Charges incurred by the GOI will be reimbursed by USAID/Delhi, as allowable under

⁹The budget for USAID/Delhi assistance (Rs 45,712,000, approximately US \$2,700,000) was proposed during a meeting of May 15, 1990, attended by representatives of the GOI and USAID/Delhi and recorded in the Minutes sent to USAID/Delhi on May 17, 1990. As noted in the Minutes, Rs 14,400,000 (approx. US \$833,000) for training in India and locally procured equipment will be reflected in the Eighth Five-Year Plan Budget. The remaining amount, Rs 31,266,000 (approx. US \$1,800,000) for US short-term consultants, training in the US, and the procurement of equipment/supplies in the US, will be extra-budgetary.

¹⁰The US\$ figure has been rounded.

USAID regulations. Charges for items to be procured in India will be satisfied by USAID/Delhi upon receipt of evidence that the item (i) procured is allowable under USAID regulations (ii) is as specified in the illustrative list of equipment/supplies to be procured (Attachment 5) or is a mutually agreed change, (iii) has been properly installed at the appropriate location, e.g., microbiology laboratory of the SMS Medical College, and (iv) is in good working condition.

USAID/Delhi will only reimburse expenditures on equipment procured pursuant to orders or contracts firmly placed or entered into before the Project Activity Completion Date (PACD), March 31, 1992.¹¹ In addition, USAID/Delhi will satisfy the charges associated with obtaining five-year service contracts with the Indian agents/representatives of the equipment/supplies procured. USAID/Delhi expects that local procurement will begin immediately after the transmittal of the Project Implementation Letter (PIL) to the GOI (July 1990) and will be completed by early 1991.

The GOI has suggested that a Procurement Committee, consisting of the Joint Secretary (MOHFW), the Director of NICD, other GOI officials as appropriate, and representatives from USAID/Delhi be formed to ensure that the items to be procured in India can be reimbursed by USAID/Delhi. The committee will meet to review the bids submitted; it will also make certain that all items are procurable under USAID regulations.

During the period of the project, the GOI will ensure that the participating institutions, who are recipients of the equipment, routinely (every six months) complete and submit to USAID/Delhi the form, entitled "Status Report of Commodities/Equipments Procured for Use under AID Projects" and included as Attachment 7, describing the condition and use of the equipment.

2. Equipment/supplies Procurement in the United States.

USAID/Delhi will instruct the GSA (General Services Administration) or another procurement agency in the United States to purchase and ship (C.I.F.) to India the equipment and supplies listed in Attachment 8, entitled "Illustrative List of Equipment/Supplies to be Procured in the United States." This list was developed by the long-term US consultant in laboratory service during his tenure in India and has been endorsed by the GOI. GSA or the procurement agent will purchase these or comparable items as allowable under USAID procurement regulations. Since the equipment lists have been reviewed and approved by the GOI, USAID/Delhi assumes that the items listed in

¹¹However, as per USAID regulations, requests for reimbursement will be accepted up to nine (9) months after the PACD.

Attachment 8 are acceptable to the designated institutions and laboratories, specifically:

Delhi, National Institute of Communicable Diseases
Microbiology Division
Epidemiology Division

Rajasthan, SMS Medical College - Microbiology Department
SMS Medical College - Social and Preventive
Medicine Department Laboratory
Epidemiological laboratory
5 District Health Hospitals (Tonk, Alwar, Jaipur,
Bhartpur, and Sikar)

Uttar Pradesh, King George Medical College, Microbiology
Laboratory
King George Medical College, Social and
Preventive Medicine Department Laboratory
State Health Institute Laboratory
5 District Health Hospitals (Lucknow, Rai
Barailley, Sitapur, Bulandshar, and Gaziabad)

Through its procurement agent, USAID/Delhi will ensure that the items are consigned to the GOI agency responsible for receiving the equipment, i.e., NICD. It will be the responsibility of the GOI to see that all regulations pertaining to the importation of the equipment and supplies, i.e., the "Not Manufactured in India" certificate, and the payment of local taxes and duties, e.g., import duty exemption certificates, etc., are satisfied.

Since the GOI has fixed a budget for installing and maintaining the equipment and supplies, it falls to the GOI to ensure that (i) all equipment is delivered to the designated and participating institutions, (ii) the equipment is installed and functioning properly, (iii) a local technician is trained in the maintenance and use of the equipment, and (iv) routine maintenance is conducted.¹² Finally, the GOI will see that the institutions receiving the equipment and supplies procured in the United States routinely, i.e., every six months, complete and submit the form entitled "Status Report of Commodities/Equipments Procured for Use under USAID Projects" (Attachment 7) required by USAID/Delhi.

The procurement agent for USAID/Delhi will exercise best efforts to consolidate and inspect all items in the United States before shipping them to India. The procurement agent will (i) notify USAID/Delhi when procurement and consolidation have taken place, (ii) report the time of the shipment's likely arrival in India,

¹²USAID/Delhi will satisfy the charges associated with obtaining five-year service contracts with the Indian agents/representatives of the equipment/supplies procured in the United States.

and (iii) forward the required shipping documents to USAID/Delhi for transmittal to the GOI authorities responsible for receipt, clearance, and delivery of the equipment and supplies to the participating institutions. Demurrages, if any, for delayed clearance will be to the account of the GOI.

Since laboratory support is a critical underpinning of field epidemiology, it is essential that equipment and supplies arrive quickly and operate effectively for an extended period of time. USAID/Delhi's procurement agent will, therefore, ensure that all appropriate installation and instruction manuals are dispatched along with the equipment and supplies. Furthermore, the procurement agent for USAID/Delhi will be instructed to ensure that US suppliers from whom equipment and supplies are procured have agents/representatives in India who are capable of installing and/or commissioning the equipment and of providing aftersales service. Charges for obtaining the services of these agents/representatives in the installation and maintenance of the equipment will be covered in the service contract financed by USAID/Delhi.

Equipment and supplies procurement in the United States will begin no later than October 1990, following the engagement of a procurement agent and a review of the equipment list by the long-term US laboratory consultant who developed the list in conjunction with GOI officials. Where necessary, the consultant's input will be sought to ensure that all items are as specified or, where USAID regulations prohibit purchase, that items with comparable specifications are purchased and shipped. This procurement activity is expected to take at least six months and possibly as long as 10 months (see Attachment 9, Equipment Procurement - Timeline).

3. Field Epidemiology/Laboratory Support Training in India. USAID/Delhi expects to support training in India during the first two years of the project, but not beyond March 31, 1992. As currently projected, USAID/Delhi expects to reimburse the GOI for domestic training for an amount of US \$291,000, equivalent to Rs. 5,040,000, as requested by GOI.

As proposed in the Memorandum to the Executive Finance Committee, the GOI expects to train 1020 Indian personnel in India over the five-year period of the project. (See Attachment 10, Training in India - Timeline.) The schedule of activities for the first two years of the project is as follows:

- 60 District Health Officers (15 per year) from two States (Uttar Pradesh and Rajasthan), responsible for epidemiological surveillance, will attend a nine-month program in field epidemiology training with courses at NICD and field activities in their districts. (See Attachment 11, Field Epidemiology Training/NICD - Proposed Curriculum.)

These trainees are expected to have a medical degree (MBBS) and experience in public health programming.

- 600 Primary Health Center Medical Officers (120 per year/30 per course) from the two States will attend a six-week course on descriptive and analytical epidemiology. The initial training will take place at NICD. In Project Year 3, training will take place in the States. (The curriculum remains to be developed.)

- 60 District Pathologists (15 per year) from the two States, responsible for directing the District Health Laboratories, will attend a six-week training course at NICD. (See Attachment 12, Laboratory Support to Field Epidemiology/NICD - Proposed Curriculum.) These trainees are expected to have MBBS degree and diplomas in pathology, microbiology, or biochemistry.

- 300 Primary Health Center Laboratory Technicians (60 per year/15 per course) will attend a two-week training at the State Medical Colleges in Jaipur and Lucknow. The curriculum will be developed by the SMS and King George Medical Colleges, be based on the curriculum designed by NICD, and take into account the unique requirements and objectives of the States.

USAID/Delhi has agreed to reimburse the GOI for expenses associated with conducting training courses during the first years of the project, but not beyond March 31, 1992. It is anticipated that USAID/Delhi will meet the expenses of approximately 300 trainees distributed as follows:

- 30 District health offices in nine-month field epidemiology training;
- 150 Primary health Center Medical Officers in six-week epidemiology training;
- 45 District Pathologists in six-week laboratory training, and
- 75 Primary Health Center Laboratory Technicians in two-week laboratory training.

USAID/Delhi will reimburse domestic training expenses in the amounts proposed in the Memorandum to the Executive Finance Committee and listed below:¹³

¹³GOI - Memorandum, 9-11.

<u>Course</u>	<u>Cost per trainee</u>
- nine-month field epidemiology training	Rs 30,000
- six-week epidemiology training	Rs 11,000
- six-week laboratory training	Rs 18,000
- two-week laboratory training	Rs 9,000

To receive reimbursement the GOI must present the USAID/Delhi Project Officer with documentation verifying that (i) the training took place as planned, (ii) appropriately qualified trainees attended (and acknowledged attendance at) the courses specified, and (iii) the projected expenses were incurred. USAID/Delhi will not be able to reimburse any expenses per course and per trainee beyond those noted above and agreed to, or that occur after March 31, 1992.

USAID/Delhi understands that the GOI will ensure that during and following the period of training, especially the nine-month training in field epidemiology, the trainees will remain at their place of posting without transfer for a significant period of time, e.g., 12 months following the completion the nine-month course. In addition, USAID/Delhi understands that during the nine-month posting in the field the GOI will distribute the responsibilities of each officer to allow each trainee in field epidemiology to apply the training received.

4. **Field Epidemiology/Laboratory Support Training in the United States.** USAID/Delhi will provide short-term training for Indian nationals in the United States. Training in Field Epidemiology, Health Management, and Laboratory Support to Epidemiological Surveillance will take place at US institutions. Attachment 13, Training in the United States - Timeline, is an illustrative schedule of the proposed courses, their suggested times, and the projected number of trainees per course for the period through March 31, 1992.

USAID/Delhi understands the GOI's desire to have trainees attend the courses proposed for the periods suggested. USAID/Delhi will make every effort to arrange for trainees to attend the courses noted at the suggested times. Most of the courses proposed are not standard and will have to specifically tailored to meet the objectives of the GOI. Therefore, the timing and duration of the short courses, as well as the suggested number of trainees presented in the schedule, are presented for illustrative purposes only. USAID/Delhi will try to accommodate the GOI to fullest extent possible. It is to be emphasized that USAID/Delhi cannot guarantee that courses will occur at the time or for the duration proposed, nor is USAID/Delhi able to confirm that CDC/Atlanta or other institutions will be able to accommodate the GOI, as requested. USAID/Delhi will attempt to secure CDC's participation in the program. However, since the CDC and the other institutions proposed to conduct the training

are autonomous and have their own schedules and program objectives, it may not be possible to schedule the courses at the times indicated or the duration suggested. If scheduling or other difficulties prevent CDC or other suggested institutions from participating, USAID/Delhi will make arrangements with qualified US institutions, e.g., Schools of Public Health, State Health Departments, etc., and will propose appropriate alternatives for the consideration of the GOI. It is to be understood that trainees will not receive diplomas, degrees, or accreditation beyond certification of attendance from US institutions in connection with these special courses.

Only those trainees meeting the qualifications indicated in the Memorandum to the Executive Finance Committee will be eligible to attend the proposed courses.

Course 1

Description. Orientation in Field Epidemiology Services - a one week introduction to the content and operation of a field epidemiological service.

Qualifications. State Ministers of Health for U.P and Rajasthan, Secretaries of Health of U.P and Rajasthan, Directors of Health Services of U.P. and Rajasthan, Director of National Institute of Health and Family Welfare, and Director of National Institute of Communicable Diseases, etc.

Number of Courses. Three

Trainees per Course. Three

Total Persons Attending. Nine

Suggested Duration. One week.

Suggested Location. CDC/Atlanta

Course 2

Description. Orientation to Field Epidemiology Services and appraisal of Field Epidemiological Training - a three week introduction to field epidemiology and exposure to the content and objectives of the training curriculum.

Qualifications. Chief Medical and Health Officers (CMHO) from the Districts, State Epidemiologists of U.P. and Rajasthan, Deputy Directors of Epidemiology and Microbiology of NICD and NIHFV, Professors of Social and Preventive Medicine of SMS and King George Medical College, etc.

Number of Courses. Three

Trainees per Course. Eight

Total Persons Attending. 24

Suggested Duration. Three weeks.

Suggested Location. CDC/Atlanta.

Course 3

Description. Participation in the E.I.S. Planning Course (or a

similar activity) and visits to Epidemiological Services at State Health Departments.

Qualifications. Faculty of NICD, SMS and King George Medical Colleges, State and District Medical Officers from U.P. and Rajasthan, State Epidemiologists of U.P. and Rajasthan, etc.

Number of Courses. Two

Trainees per Course. Ten

Total Persons Attending. 20

Suggested Duration. Six weeks.

Suggested Location. CDC/Atlanta, Emory University.

Course 4

Description. Participation in a Course similar to the International Track of the CDC's E.I.S. course with an opportunity to have contact with E.I.S. trainees.

Qualifications. Faculty of NICD, NIHF, SMS and King George Medical Colleges, State Epidemiologists of U.P. and Rajasthan, etc.

Number of Courses. Two

Trainees per Course. 20

Total Persons Attending. 40

Suggested Duration. Eight weeks.

Suggested Location. CDC/Atlanta, Emory University.

Course 5

Description. Health Management Course for Mid-level Managers of the Ministry of Health and Family Welfare.

Qualifications. District level Medical Officers of U.P. and Rajasthan, Faculty of NICD, SMS and King George Medical Colleges.

Number of Courses. Two

Trainees per course. Ten

Total Persons Attending. 20

Suggested Duration. Eight weeks.

Suggested Location. Management Sciences for Health, Schools of Public Health, e.g., U. of North Carolina, etc.

Course 6

Description. General Laboratory Training - routine tests supporting field epidemiological services.

Qualifications. District Pathologists and Microbiologists from each State and SMS and King George Medical Colleges.

Number of Courses. Two

Trainees per Course. 15

Total Persons Attending. 30

Suggested Duration. Twelve weeks.

Suggested Location. CDC/Atlanta, State Health Department Laboratories, Schools of Public Health Laboratories.

Course 7

Description. Laboratory Training in Areas of Special Need to the GOI, e.g., AIDS, ARI, Hepatitis, Diarrheal Diseases, Chlamydial Infections, molecular biology, etc.

Qualifications. Faculty of Microbiology of NICD, SMS and King George Medical Colleges, Epidemiological Laboratory (Jaipur), State Health Institute Laboratory (Lucknow).

Number of Courses. Two - Three¹⁴

Trainees per Course. 15

Total Persons Attending. 30

Suggested Duration. Twelve weeks.

Suggested Location. CDC/Atlanta, State Health Department Laboratories.

As described above, before the PACD of the Biomedical Research Project approximately 173 persons will have attended orientation and training courses in the United States. It is noted that there is some overlap in qualifications for the different courses and it is likely, therefore, that fewer persons than the total noted will be trained.

It is the responsibility of the GOI to (i) ensure that only qualified professionals are proposed for training, (ii) provide USAID/Delhi with curricula vitae and current job descriptions of the proposed trainees at least two months prior to the start of any training program, and (iii) satisfy all GOI requirements related to travel abroad for training, i.e., approval for international travel and training from the Department of Economic Affairs (DEA) of the GOI. In addition, the GOI will ensure that all trainees proposed for courses 3 through 7 above will remain at their place of posting without transfer during and for a significant period of time following the training, and that duties will be arranged to enable each trainee -- especially those exposed to field epidemiology training and laboratory support -- to give primary attention to establishing and operating a surveillance system (for at least one disease) within his/her district and to conduct the tests related to supporting a field epidemiological service.

To facilitate the execution of the US-based training USAID/Delhi will obtain the services of a U.S. contractor who will be reimbursed for arranging the required training courses, as well as organizing the international and in-country travel (India to

¹⁴As noted in Attachment 13, Training in the United States - Schedule of Activities, three short courses have suggested. The first would take place from September to November 1990 and have 6 trainees. Two subsequent courses, each containing 12 trainees, would place in the Spring and Summer of 1991.

US and within US), accommodations, per diems, etc. for the trainees from India.

5. U.S. Consultants. USAID/Delhi has been asked by the GOI to make available consultants from the United States to (i) provide technical assistance in revising and focusing the proposed training curricula in field epidemiology and laboratory support, (ii) participate in the training courses to be conducted at NICD, SMS and King George Medical Colleges, and (iii) assist the teaching faculty and Indian consultants in monitoring the trainees working at State, District, and Primary Health Center levels. U.S. consultants have also been asked to provide assistance to the faculty and staff of NICD in the areas of biostatistics and epidemiological forecasting, in applying EpiInfo, and in establishing laboratory facilities and instructing staff (NICD and Medical Colleges) and trainees in the conduct of tests and the proper use of the equipment to be procured and installed.

It is anticipated that 21 person months of U.S. consulting services, arranged in three-month periods, will be needed in field epidemiology, and that approximately 15 person months of U.S. consultanting services, also arranged in three-month blocks of time, will be needed in laboratory support activities. Attachment 14, U.S. Consultants - Schedule of Activities, presents an illustrative schedule of the consulting skills required along with the approximate dates when each is needed. As indicated, most consulting time will be required when the field epidemiology training and laboratory support courses are being prepared and presented.

The teaching, monitoring, and special skills required have been proposed by the faculty of NICD and reflect their needs for assistance in executing the proposed curricula. It is understood that scopes of work for individual consultants may be revised by the GOI and USAID/Delhi, e.g., NICD staff, during the course of the project. Indeed, it would be unusual if the scopes of work did not change over time to reflect the needs of the project. However, USAID/Delhi expects that U.S. consultants will be primarily employed in carrying out the activities defined and approved by the Joint Secretary (MOHFW) and the Director of NICD namely, defining the curricula in field epidemiology and laboratory support, and teaching and monitoring the work of the trainees at NICD, the States, Districts, and Primary Health Centers.

USAID/Delhi will authorize a U.S. contractor to identify and field appropriately qualified professionals in a timely manner. The contractor will be responsible for canvassing a wide-range of US institutions, e.g., CDC/Atlanta, Schools of Public Health, State and City Departments of Health, etc., and securing professionals experienced in carrying out the activities noted

above and familiar with India. On submission of the credentials of consultants qualified to carry out the proposed scopes of work, the GOI will be responsible for expeditiously forwarding the approvals and the clearances required to allow U.S. consultants to collaborate with GOI personnel and to travel to and within the States of Uttar Pradesh and Rajasthan to work with faculty, Indian consultants, and project trainees.

V. Project Management. USAID/Delhi. The Health, Population and Nutrition Office (HPN) of USAID/Delhi will be responsible for ensuring that U.S. commitments under the project are met. To obtain the goods and services requested by GOI under the Field Epidemiology Training and Laboratory Support components of the Biomedical Research Project USAID/Delhi will execute contracts with two U.S. firms. One contract will be to procure and dispatch to India the equipment/supplies listed in Attachment 8, Illustrative List of Equipment/Supplies to be Procured in the United States, or comparable items. A second contractor will be identified and engaged to (i) secure the services of short-term consultants, (ii) arrange the short courses described in Section III.3, and (iii) facilitate accommodations for the GOI trainees visiting the United States.

USAID/Delhi, through its Regional Contracts Office, proposes to contract with two 8(a) firms. These firms have proven expertise in procurement, experience in identifying and fielding consultants, and arranging short courses and accommodating foreign nationals attending such courses. USAID/Delhi plans to complete the contracting process by August 31, 1990, allowing contractors to begin work on or about September 1, 1990. USAID/Delhi is aware that less than two years remain before the project PACD, and is eager to move rapidly to implement the activities. Securing the participation of 8(a) firms will ensure that the requested goods and services are made available in the least amount of time.

USAID/Delhi expects to pay a fee for obtaining procurement services from an 8(a) firm. In addition, USAID/Delhi will compensate a second contractor, also an 8(a) firm, for staff salaries, direct expenses (e.g., consultant services, training courses, trainee accommodations, per diem, etc.), and audited overhead charges associated with identifying and supporting U.S. consultants in India and accommodating Indian nationals at training courses in the United States. The expenses related to obtaining these services are outside the budget included in the Eighth Five-year Plan and do not require the approval of the GOI.

GOI. Ms. J. Vasudevan, Joint Secretary of the Ministry of Health and Family Welfare (MOHFW) is the "Designated Representative" of the GOI for the Biomedical Research Project. Official reports, approvals, notices, invoices, etc. will come from the Office of the Joint Secretary. However, it is expected

that day-to-day management of the project by the GOI will be the responsibility of Dr. T. Verghese, Director of NICD. Dr. Verghese will coordinate the training and GOI equipment/supplies procurement activities and assist the Joint Secretary in scheduling and implementing the activities called for under the project at State, District, and Primary Health Center levels.

VI. Project Monitoring, Reporting, and Evaluation. To monitor and assess the status of activities financed under the Biomedical Research Project USAID/Delhi expects to receive and review three sets of reports.

Project Monitoring and Reporting. Equipment/Supplies. As noted in Section III.1, the GOI will prepare and submit bi-annual reports describing the condition and use of equipment procured in India and the United States. (See Attachment 7, Status Report of Commodities/Equipments Procured for Use under USAID Projects.)

Training in India. USAID/Delhi requests that GOI personnel attending training courses in India send brief reports, reviewed and cleared by the GOI, that describe how the training received in field epidemiology and laboratory support will be applied in the field. Since some of the trainees working at the periphery of the health system, i.e., Primary Health Center level, may not have proficiency in English, these brief reports may be in Hindi as well as English. USAID/Delhi will discuss the purpose, content, and length of these reports with GOI personnel responsible for managing the project, and will obtain GOI approval to have trainees complete and submit these reports.

Training in the United States. GOI personnel attending course 3-7, described in Section III.3 above, are to submit a brief report describing how the training received in the U.S. will be applied in the Indian context. These reports should define the steps that will be taken (i) to improve the teaching of field epidemiology and laboratory support services or (ii) to implement an epidemiological surveillance system at State, District and Primary Health Care levels in India. USAID/Delhi will discuss the purpose, content, and length of these reports with GOI personnel responsible for managing the project, and will obtain GOI approval to have trainees complete and submit these reports.

Project Evaluation. As proposed in the Memorandum to the Executive Finance Committee, the Director General of Health Services will be responsible for conducting periodic evaluations of the Field Epidemiology and Laboratory Support components of the Biomedical Research Project. Since these reports will be made available to USAID/Delhi for review and comment, and since USAID/Delhi's support will conclude on March 31, 1992 -- three years before the GOI PACD for the project (June 30, 1995), a separate USAID-financed evaluation does not seem warranted.

Final Remarks. A thorough review and comparison of the objectives and activities of the original Project Paper, prepared by USAID/Delhi, and the Revised Project, submitted by the GOI, prompts several observations that should be reviewed by USAID/Delhi.

First, the activities proposed in the Revised Project are substantially similar to those described in the original Project Paper, dated June 25, 1985. Consequently, USAID/Delhi should not have to prepare a Project Paper Amendment before executing the components described in the Revised Project.

Second, the level of total financial commitment requested by the GOI from USAID/Delhi for the implementation of the Revised Project (\$2.6 million) is considerably reduced from the amount estimated in the Project Paper (approx. \$9.3 million in grant funds). However, the reduced amount is earmarked to finance the same line items stipulated in the original Project Paper, i.e., training, equipment procurement, and consultant services. In addition, the budget is expected to be spent over 21 months, suggesting an average monthly average expenditure of US \$124,000. This amount is only slightly higher than the average monthly expenditure (approximately US \$110,000) estimated to occur over the 84 months of the original project. This comparison suggests that both the original and revised projects have been budgeted appropriately and at similar levels.

Finally, it is always difficult to gauge the extent to which proposed activities and outputs are realistic and can be achieved. It is apparent from the extensive documentation on the project that USAID/Delhi and GOI staff have made every effort to design implementation plans that are feasible. If the timelines can be met, there is every expectation that the project will meet its objectives.

List of ContactsUSAID/Delhi.

Mr. Robert Bakley, Director, USAID/Delhi
 Mr. John Dumm, Director, Health, Population and Nutrition
 Office (HPN)
 Dr. John Farrar - HPN, Project Manager - Biomedical Research
 Project
 Dr. James R. Kirkland, Deputy Director, HPN

Ministry of Health and Family Welfare (MOHFW) - Delhi.

Mr. J. Vasudevan, Joint Secretary

State of Rajasthan - Jaipur.

Mr. Arun Kumar, State Secretary of Health and Family Welfare
 Dr. M. M. Gogna, Additional Director, MOHFW, Director of
 Rural Health
 Dr. P. R. Jain, Deputy Director, MOHFW
 Dr. P. C. Dhindoria, Epidemiology Cell

SMS Medical College - Jaipur.

Professor H. N. Mangal, Head, Department of Microbiology
 Professor Kaleema Saxena, Department of Microbiology
 Dr. Vandna Sen, Associate Professor, Department of
 Preventive and Social Medicine
 Dr. Suresh Maheshwari, Associate Professor, Department of
 Community Medicine

National Institute of Communicable Diseases (NICD) - Delhi.

Dr. T. Verghese, Director
 Dr. K. K. Datta, Deputy Director and Chief, Epidemiology
 Dr. R. S. Sharma, Assistant Director, Epidemiology
 Dr. (Mrs.) Uma Chawla, Assistant Director, Epidemiology
 Dr. (Mrs.) Shibani Bandyopadhyay, Assistant Director,
 Epidemiology
 Dr. Sudarshari Kumari, Deputy Director and Head,
 Microbiology
 Dr. Shashi Khare, Assistant Director, Microbiology
 Dr. R. L. Ichpiyani, Assistant Director, Microbiology
 Dr. Arvind Rai, Deputy Assistant Director, Microbiology

Biomedical Research Project (32a-0492)
Epidemiological Training and Laboratory Support
Line Item Budget by Year of Expenditure

Budget (Rs 000s)
Memorandum to EFC (May 1990)

	1991	1992	1993	1994	1995	total
Training - India						
Field Epidemiology	450.00	450.00	450.00	450.00	450.00	2,250.00
PHC-Med. Off	1,320.00	1,320.00	1,320.00	1,320.00	1,320.00	6,600.00
Lab train-NICD	270.00	270.00	270.00	270.00	270.00	1,350.00
Lab tech train	480.00	480.00	480.00	480.00	480.00	2,400.00
Subtotal:	2,520.00	2,520.00	2,520.00	2,520.00	2,520.00	12,600.00
Training - US						
EPI Serv.	680.00					680.00
EPI training	1,230.00					1,230.00
EIS plan	950.00	950.00	950.00	950.00		3,800.00
CCD In-HI	1,080.00	1,080.00	1,080.00			3,240.00
Micro Mgmt	590.00	590.00	590.00	590.00		2,360.00
Lab training (Int)	1,734.00	1,734.00	1,734.00			5,202.00
Lab training (Int)	1,105.00	1,105.00	1,105.00	1,105.00	1,105.00	5,225.00
Subtotal:	7,390.00	5,474.00	5,474.00	2,650.00	1,105.00	22,093.00
Consulting						
Indian Nat Inst-NICD	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	9,000.00
short term-US	357.00	1,420.00	1,420.00	1,420.00	1,420.00	6,600.00
short term-India		540.00	540.00	540.00	540.00	2,160.00
Subtotal:	2,157.00	3,760.00	3,760.00	3,760.00	3,760.00	17,237.00
Strengthening NICD						
	1,094.00	1,225.00	1,372.00	1,577.00	1,721.00	7,999.00
Procurement						
US	9,654.00					9,654.00
India	9,400.00	1,510.75	1,510.75	1,510.75	1,510.75	15,452.25
Subtotal:	19,054.00	1,510.75	1,510.75	1,510.75	1,510.75	25,106.25
Evaluation						
		360.00	360.00	360.00	410.00	1,550.00
Equipment Maint.						
	724.00	724.00	724.00	724.00	724.00	3,620.00
Contingency						
	1,000.00	1,000.00	1,000.00	1,100.00	1,100.00	5,100.00
Grand Total:	30,975.00	16,609.75	16,750.75	14,097.75	12,896.75	91,370.00

ATTACHMENT 3

Biomedical Research Project (384-0492)
 Epidemiological Training and Laboratory Support
 Line Item Budget by Source of Funds

Budget (Rs 000s)

Memorandum to EFC (May 1990)

Budget Item	Total Estimated Cost	USAID	GOI
Training	34,695.00		
US-based		22,095.00	
India-based		5,040.00	7,793.00
Consultancy	17,229.00		
US consultants		6,069.00	
India consultants			11,160.00
Equipment	25,165.00		
Int'l		9,684.00	
Domestic		9,406.00	6,075.00
Strengthening NICE	6,949.00		6,949.00
Monitor/Evaluator	1,550.00		1,550.00
Equipment Maintenance	3,620.00		3,620.00
Contingency	5,130.00		5,130.00
Total:	94,538.00	52,294.00	42,277.00

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Budget-Biomedical Research Project
 Expenses before/after 31 March 1992
 Line Item Budget stipulating GOI request of USAID Delhi

Item	Total Est. Cost	Requested by GOI by 31-III-92
Training in US	22,095.00	13,002.00
Training in India	12,600.00	5,040.00
US Consultants	6,045.00	6,580.00
Indian Consultants	11,160.00	
Equipment	25,165.00	
US procured		9,654.00
India procured		9,450.00
Strengthen NIGI	6,945.00	
Evaluation	1,550.00	
Equip. maintenance	3,620.00	
Contingenc.	5,130.00	
Total	94,335.00	45,712.00

Best Available Document

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA

S.No.	Item	Quantity Required	Approximate Unit Price (in Rs.)	Total Price (in Rs.)
1.	NATIONAL INSTITUTE OF COMMUNICABLE DISEASES, NEW DELHI			
	A. EPIDEMIOLOGY DIVISION			
1	Computers	5	100,000	500,000
2	Printers	5	16000	80,000
3	Plotters	2	15,000	30,000
4	Photocopier	1	90,000	90,000
5	Start-up supplies			100,000
	SUBTOTAL A			800,000
	B. LABORATORY DIVISIONS			
1	Laminar flow hood (4 ft. platf.)	5	45,000	225,000
2	Refrigerators	3	6,000	18,000
3	BOD Incubators	2	30000	60,000
4	pH meters (digital readout)	4	4,500	18,000
5	Analytical balances	4	10000	40,000
6	Autoclaves	2	15,000	30,000
7	Computers	3	100000	300,000
8	Printers	3	16,000	48,000
9	Start-up supplies (reagents/glassware/manuals)			300,000
	SUBTOTAL B			1,039,000
	TOTAL A+B			1,839,000
	CONTINGENCY (10%)			183,900
	TOTAL-1			2,022,900

ATTACHMENT 5EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIALIST OF EQUIPMENT - RAJASTHAN

S.No.	Item	Quantity Required	Approximate Unit Price (in Rs.)	Total Price (in Rs.)
1. SMS MEDICAL COLLEGE				
A. MICROBIOLOGY DEPARTMENT				
1	Refrigerators	3	6,000	18,000
2	Laminar flow hoods	2	9,000	18,000
3	Heat blocks	1	600	600
4	Water distiller	1	6,000	6,000
5	Air conditioner (1.5 tons)	2	40,000	80,000
6	Vacuum Pump	1	30,000	30,000
7	Microcomputer (386)	1	100,000	100,000
8	Printer	1	16,000	16,000
9	Photocopier	1	90,000	90,000
10	BOD Incubator (YORCO) YSI 440 12cu.ft	2	18,000	36,000
11	Autoclave 22" x 30" (YORCO) YSI 402 550 mm x 750 mm (vertical)	1	50,000	50,000
SUBTOTAL A				444,600
::				
B. SOCIAL & PREVENTIVE MEDICINE LABORATORY				
1	Microcomputer (386)	1	100,000	100,000
2	Printer	1	16,000	16,000
3	Photocopier	1	90,000	90,000
4	Overhead Projector	1	4,000	4,000
SUBTOTAL B				210,000
TOTAL A+B				654,600
CONTINGENCY (10%)				65,460
TOTAL-1				720,060

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA

2. EPIDEMIOLOGICAL LABORATORY

1	Refrigerators	2	6,000	12,000
2	Laminar flow hoods	2	9,000	18,000
3	Heat blocks	3	600	1,800
4	Water distiller	2	6,000	12,000
5	Vacuum Pumps	2	30,000	60,000
6	Microcentrifuge	1	5,000	5,000
7	Water baths	3	10,000	30,000
8	General purpose incubator	4	12,000	48,000
9	Shaker	2	5,000	10,000
10	Hot air oven	4	18,000	72,000
11	Air conditioner (1.5 tons)	1	40,000	40,000
12	Microcomputer (386)	1	100,000	100,000
13	Printer	1	16,000	16,000
14	Photocopier	1	90,000	90,000
15	Semi-automatic analyzer	1	100,000	100,000
16	Autoclave 22" x 30" (YORCO) YSI 402 (vertical)	1	18,000	18,000
17	BOD Incubator w/provision for CO2 (YORCO) YSI 402 (450 mm x 600 mm)	1	50,000	50,000
				682,800
				68,280
				751,080

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA3. DISTRICT HEALTH HOSPITAL LABORATORIES (5)

1	Refrigerator	2	6,000	12,000
2	Laminar flow hoods	2	9000	18,000
3	Heat block	1	600	600
4	Water distiller	1	6,000	6,000
5	Air conditioner (1.5 tons)	1	40,000	40,000
6	Microcomputer (386)	1	100,000	100,000
7	Printer	1	16,000	16,000
8	Photocopier	1	90,000	90,000
9	BOD Incubator (YORCO) YSI 440/12cu.ft.	2	18,000	36,000
10	Vacuum pump	1	30,000	30,000
11	Autoclave 22" x 30" (YORCO) (YSI 402)	1	50000	50,000
12	550 mm x 750 mm (vertical)			

				SUBTOTAL
				348,600
				CONTINGENCY (10%)
				34,860

				TOTAL (1 DISTRICT)
				383,460
				TOTAL-3 (5 DISTRICTS)
				1,917,300

				GRAND TOTAL FOR RAJASTHAN (1-3)
				3,388,440

ATTACHMENT 5

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA

LIST OF EQUIPMENT - UTTAR PRADESH

S.No.	Item	Quantity Required	Approximate Unit Price (in Rs.)	Total Price (in Rs.)
1. KING GEORGE MEDICAL COLLEGE, LUCKNOW				
A. MICROBIOLOGY LABORATORY				
1	Refrigerators	2	6,000	12,000
2	Laminar flow hoods	2	9,000	18,000
3	Heat blocks	1	600	600
4	Water distiller	1	6,000	6,000
5	Air conditioner (1.5 tons)	1	40,000	40,000
6	Vacuum Pump	1	30,000	30,000
7	Microcomputer (386)	1	100,000	100,000
8	Printer	1	16,000	16,000
9	Photocopier	1	90,000	90,000
10	BOD Incubator (YORCO) YSI 440 12cu.ft	2	18,000	36,000
11	Autoclave 22" x 30" (YORCO, YSI 402 550 mm x 750 mm (vertical)	1	50,000	50,000
SUBTOTAL A				398,600
E. SOCIAL & PREVENTIVE MEDICINE LABORATORY				
1	Microcomputer (386)	1	100,000	100,000
2	Printer	1	16,000	16,000
3	Photocopier	1	90,000	90,000
4	Overhead Projector	1	4,000	4,000
SUBTOTAL E				210,000
TOTAL A+E				608,600
CONTINGENCY (10%)				60,860
TOTAL-1				669,460

ATTACHMENT 5

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA

2. STATE HEALTH INSTITUTE LABORATORY

1	Refrigerators	2	6,000	12,000
2	Laminar flow hoods	2	9,000	18,000
3	Heat blocks	3	600	1,800
4	Water distiller	2	6,000	12,000
5	Vacuum Pumps	2	30,000	60,000
6	Microcentrifuge	1	5,000	5,000
7	Water baths	3	10,000	30,000
8	General purpose incubator	4	12,000	48,000
9	Shaker	2	5,000	10,000
10	Hot air oven	4	18,000	72,000
11	Air conditioner (1.5 tons)	1	40,000	40,000
12	Microcomputer (386)	2	100,000	200,000
13	Printer	2	16,000	32,000
14	Photocopier	1	90,000	90,000
15	Semi-automatic analyzer	1	100,000	100,000
16	Autoclave 22" x 30" (YORCO) YSI 402 550 mm x 750 mm	1	50,000	50,000
17	BOD Incubator w/provision for CO2 (YORCO) YSI 402 (450 mm x 600 mm)	1	18,000	18,000
				798,800
				79,880
				878,680

EQUIPMENT/SUPPLIES PROCURED TO BE PROCURED IN INDIA

3 DISTRICT HEALTH HOSPITAL LABORATORIES (5)

1	Refrigerator	1	6,000	6,000
2	Heat block	1	600	600
3	Water distiller	1	6,000	6,000
4	Vacuum pump	1	30,000	30,000
5	Water bath	1	10,000	10,000
6	General purpose incubator	1	12,000	12,000
7	Shaker	1	5,000	5,000
8	Hot air oven	1	18,000	18,000
9	Flame photometer	1	10,000	10,000
10	Calorimeter:	1	20,000	20,000
11	Semi-automatic analyzer	1	100,000	100,000
12	Autoclave	1	15,000	15,000
13	Microcomputer (386)	1	100,000	100,000
14	Printer	1	16,000	16,000
15	Photocopier	1	90,000	90,000
16	BOD Incubator (YORCO) YSI 402 450 mm x 600 mm	1	18,000	18,000
SUBTOTAL				456,600
CONTINGENCY (10%)				45,660
TOTAL (1 DISTRICT)				502,260
TOTAL-3 (5 DISTRICTS)				2,511,300
GRAND TOTAL FOR UTTAR PRADESH (1-3)				4,059,440

**GUIDELINES FOR PROCUREMENT
BY INDIAN GOVERNMENT ENTITIES
UNDER USAID PROJECTS**

There are separate rules and procedures for

- Procurements under which sources outside India are considered, HOST COUNTRY CONTRACTING, and
- Procurements under which only sources in India are considered, and the supplier is paid in Indian Rupees - this mode is called LOCAL COST FINANCING.

These two systems are discussed in the following pages.

LOCAL COST FINANCING

GENERAL: Whenever an Indian institution solicits bids, offers, or proposals from within India only, this mode of contracting is applicable. The requirements for local cost financing are much simpler than for Host Country Contracting as set forth below.

ADVERTISING: No required advertising.

COMPETITION: The requirement is that the buyer shall pay no more than the lowest available price, including transportation. The term "reasonable price" set forth in the bilateral agreement means the price which satisfied this test. The requirements that the buyer pay no more than the lowest available price will be satisfied if the buyer has followed sound procurement practice and accepts the most advantageous offer, price and other pertinent factors considered such as quality of the goods and services, delivery time, transportation costs, payment terms, availability of spare parts, installation and repair services. For procurement through formal competitive bidding, the lowest responsive and responsible bid normally will be accepted as meaning the lowest available price.

USAID APPROVALS: Same as for Host Country Contracting.

USAID REQUIRED CONTRACT CLAUSES: Same as for Host Country Contracting.

SOURCE/ORIGIN/NATIONALITY: Unless a waiver is approved by USAID the source (the location of the goods when purchased) and the nationality of the supplier of the goods must be India.

The origin (place where goods were manufactured) rules are as follows:

- US, India or developing free world countries (USAID Code 94):
 - no restrictions.
- developed free world countries (USAID Code 93): - eligible if the cost of the transaction, excluding the cost of transportation is less than \$5,000. exceed 50% of the lowest price which the supplier makes the commodity available for export sale.
- non-free world countries - ineligible.

If the goods contain imported components, and Indian processing did not produce a commercially recognizable product substantially different in basic characteristics or in purpose or utility from its components, the goods are considered to be of foreign origin.

RESTRICTED AND PROHIBITED COMMODITIES: Same as Host Country Contracting.

HOST COUNTRY CONTRACTING

GENERAL: Whenever an Indian institution solicits bids, offers, or proposals from outside of India, this mode of contracting is applicable. Guidance for Host Country Contracting is contained in Chapter 3 of AID Handbook 11, attached hereto. That Handbook sets forth all USAID requirements and also contains suggested formats and clauses which have been utilized successfully in many countries. The following paragraphs offer a brief outline of the mandatory requirements of Host Country Contracting.

ADVERTISING: All commodity procurements over \$25,000 must be publicized in the United States. To accomplish this, the Indian institution should forward a description of the item(s) to be procured to the USAID Project Officer at least 120 days prior to the release of the solicitation document. (The requirements are described in detail in Section 2.3 of the Handbook.)

COMPETITION: All procurements are subject to the rules for competition contained in Section 2.2 of the Handbook. The requirements, are as follows:

Small Value Procurement: For procurements under \$100,000 the only requirement is that a reasonable number of potential suppliers be contacted.

Formal Competitive Bidding: Procurements exceeding \$100,000 must be through formal competitive bidding unless USAID specifically approves another mode. Formal Competitive Bidding requires the following:

- Publicizing availability of bids (see above)
- Issuance of a formal IFB document to all suppliers requesting it.
- Public opening of sealed bids
- Evaluation of bids, and
- Award of contract to lowest, responsive and responsible bidder.

Under specified circumstances USAID may authorize any of the following alternate procedures as discussed in Section 2.2.

- Two stage bidding (See Section 3.7)
- Informal Competitive Procedures
- Proprietary Procurement, and
- Negotiation with a Single Source.

USAID APPROVALS: Solicitation documents and contract documents must be approved in writing by USAID for all procurements exceeding \$100,000 (See Section 2.0).

USAID REQUIRED CONTRACT CLAUSES: All Host Country Contracts must include the USAID clauses specified in Section 2.13.

SOURCE/ORIGIN/NATIONALITY: Unless a waiver is approved by USAID the source (the location of the goods when purchased) and origin (place where goods were manufactured) of all goods purchased must be the US or India and the nationality of the supplier of the goods must also be U.S. or India. (See section 2.6)

If any components of the goods are from non-free world countries the goods are ineligible for financing.

Components from developed free world countries, which were purchased by the supplier of the goods in the form in which they were imported, may not exceed 50% of the lowest price which the supplier makes the commodity available for export sale.

RESTRICTED AND PROHIBITED COMMODITIES: As set forth in the basic Project Implementation Letter there are certain categories of goods which are ineligible for USAID financing and others which can only be financed under certain circumstances.

STATUS REPORT OF COMMODITIES/EQUIPMENTS PROCURED FOR USE UNDER AID PROJECTS

ATTACHMENT 7

Project No : _____

Date of Proc: _____

PACD: _____

Project Title: _____

Status as of : _____

Sl. No.	Description of Commodity/Equipment	Origin	Date of Purchase	Value		Location (site where in use)	Remarks, if not in use	Remedial action proposed to place the same in use
				Dollars	Rupees			

FDPS/PRO: 0871C: 12/22/89

ep

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATES

NATIONAL INSTITUTE OF COMMUNICABLE DISEASES, DELHI

MICROBIOLOGY DEPARTMENT

<u>S.No.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (US\$)</u>	<u>Reference - Catalog #</u>	<u>Total Price</u>
1	Invertascope Axiomat 405 (Carl Zeiss)	1	\$20,000.00	Carl Zeiss	\$20,000.00
2	UV transilluminator (long wave length)	2	\$500.00	Fisher Scientific, USA - 05-719-505	\$1,000.00
3	Polaroid photographic equipment	1	\$2,000.00	Fisher Scientific, USA - 04-441-172	\$2,000.00
4	Stereoscopic microscope with camera	1	\$2,000.00	IKB Instruments Inc., USA	\$2,000.00
5	Thermocycler Perkin-Elmer Cetus, Inc.	1	\$5,000.00	Perkin-Elmer, Inc. USA	\$5,000.00
6	Compound Microscope	2	\$1,000.00	Carl Zeiss, West Germany	\$2,000.00
7	Slide making facility	1	\$5,000.00		\$5,000.00
8	Milli-Q water system	3	\$2,000.00	Millipore, USA - ZFMQ	\$6,000.00
9	Vacuum Pump (post/neg)	2	\$2,000.00	Millipore, USA - 77-477	\$4,000.00
10	Microtiter plate shaker	6	\$150.00	Flow Lab, U.K.	\$900.00
11	Elisa Reader	1	\$5,000.00	Dynatech, USA - 011-970 C	\$5,000.00
12	Titertach autodrop & spares	2	\$3,750.00	Flow Lab - 78-510	\$7,500.00
13	Micro drop dispenser spare heads	6	\$41.67	Flow Lab - 77-251	\$250.00
14	Spectrophotometer UV Double beam with accessories	1	\$9,500.00	Beckman, USA - 00-64	\$9,500.00
15	Ultrasonicator with complete accessories	1	\$5,000.00	B. Braun Melsungen AG, West Germany - 85392	\$5,000.00
16	Versipipette 10 ul with ejector 200 ul, 1000 ul, and 2000 ul	5 each	\$20.00	Plasfozad	\$100.00

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESNATIONAL INSTITUTE OF COMMUNICABLE DISEASES, DELHIMICROBIOLOGY DEPARTMENT

<u>S.No.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (US\$)</u>	<u>Reference - Catalog #</u>	<u>Total Price</u>
17	Mini Cold Lab (LKB/Pharmacia)	1	\$10,000.00	LKB/Pharmacia	\$10,000.00
18	Pharmacia Electrophoresis System with all accessories	1	\$20,000.00	LKB/Pharmacia	\$20,000.00
19	HPLC System	1	\$32,000.00	Pharmacia Fine Chemicals	\$32,000.00
	i) Gradient Programmer G.F. 250			- 19 6601.01	
	ii) High Pressure Pump P-500			- 19 4000.01	
	iii) Valve V-7			- 19 7500.01	
	iv) Prepack Columns			- 17 0514.01	
	v) UV Monitor			- 19 2100.01	
	vi) Recorder (2 channel)			- 19 .10	
	vii) Fraction Collector and accessories			- 19 .01	
20	Lyophilizer	1	\$5,000.00	Fisher Scientific, USA - 10-269-3	\$5,000.00
21	ELISA Plates unnumbered	500	\$1.00	Dynatech	\$500.00
22	Auto-sampling turntable multicassette laboratory Osmometer for 30 ul sample 220 V, 50 Hz shipped completely assembled and ready to use.	1	\$3,200.00	Precision Systems, USA	\$3,200.00
	Sample tubes, 1000 pk	4	\$24.00	Precision Systems, USA	\$96.00
	30 ul Pipet	4	\$24.38	Precision Systems, USA	\$97.50
	Roll printer paper 4/pk	4	\$3.13	Precision Systems, USA	\$12.50
	Printer pens, 4/pk	4	\$3.75	Precision Systems, USA	\$15.00
	2 amp fuse, 4/pk	4	\$2.56	Precision Systems, USA	\$10.25
23	Automatic High Sensitivity Micro Osmotic, Laboratory Model Osmometer for 50 ul samples, fully automatic operation complete with accessories and instruction manual 220 V, 50/60 HZ. shipped completely assembled and ready to use.	1	\$4,150.00	Precision Systems, USA	\$4,150.00

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EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESNATIONAL INSTITUTE OF COMMUNICABLE DISEASES, DELHIMICROBIOLOGY DEPARTMENT

<u>S.No.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (US\$)</u>	<u>Reference - Catalog #</u>	<u>Total Price</u>
	Stirring Wires 4/PK	3 pk	\$60.00	Precision Systems, USA	\$180.00
	Standard Solution 100 nose 125 ml.	4 bots	\$27.50	Precision Systems, USA	\$110.00
24	Hemox-Analyzer, Model B 220V, 50/60 HZ.	1	\$18,200.00	TCS Medical Products, USA	\$18,200.00
25	Circulating Bath, 220V 50 HZ.	2	\$1,002.50	TCS Medical Products, USA	\$2,005.00
	X-Y Recorder, Flat Bed Type	1	\$2,665.00	TCS Medical Products, USA	\$2,665.00
	Printer Option 30	1	\$1,285.00	TCS Medical Products, USA	\$1,285.00
	Set of spare parts and consumable	1set	\$950.00	TCS Medical Products, USA	\$950.00
26	AZ 600 Cryotome Microtome Gryostat complete with wide range of start-up accessories 220V 50/60 HZ. operating service manual complete unit.	1	\$7,000.00	Any make	\$7,000.00
	MICROBIOLOGY SUB TOTAL				\$183,376.25
	CONTINGENCY 25%				\$45,844.06
	MICROBIOLOGY TOTAL				\$229,220.31

SP

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESNATIONAL INSTITUTE OF COMMUNICABLE DISEASES, DELHIEPIDEMIOLOGY DEPARTMENT

<u>S.No.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (US\$)</u>	<u>Reference - Catalog #</u>	<u>Total Price</u>
1	Slide Projectors	2	\$450.00		\$900.00
2	Overhead Projectors	2	\$300.00		\$600.00
3	Screens	2	\$100.00		\$200.00
4	Light Pointer	6	\$16.67		\$100.00
5	Color Television	2	\$1,000.00		\$2,000.00
6	Video Cassette Recorder	2	\$1,000.00		\$2,000.00
7	SLR Camera	1	\$600.00		\$600.00
8	VCR Video Camera	1	\$1,200.00		\$1,200.00
9	Battery operated public address system	1	\$500.00		\$500.00
10	Video Cassettes	200	\$5.00		\$1,000.00
11	Cassette tape recorder/player	1	\$200.00		\$200.00
	EPIDEMIOLOGY SUB-TOTAL				\$9,300.00
	CONTINGENCY 25%				\$2,325.00
	EPIDEMIOLOGY TOTAL				\$11,625.00
				<u>MICROBIOLOGY TOTAL</u>	<u>\$229,220.91</u>
				<u>EPIDEMIOLOGY TOTAL</u>	<u>\$11,625.00</u>
				<u>GRAND TOTAL</u>	<u>\$240,845.91</u>

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ORDERING DETAILS OF EQUIPMENTS NEEDED FOR
PCR TECHNIQUE

Item	Specifications	Approx. cost	Number Needed
1. Thermal Cycler	Programmable temperature Cycler 25 C-100 C, Temp accuracy of +/- 1 degree; printer interface (std parallel interface; sample capacity of 19 (1.5 ml) microfuge tubes; 220v, 50 HZ, 8-9amps Suggested Source: ERICOMP 10055 Barnes Canyon Rd, Suite G San Diego, California 92121 USA	US \$3600	1
2. UV transilluminator	Short-wave, in metal box long-wave, in metal box	\$500 \$500	1 1
3. Polaroid MP-4 multipurpose land camera (from VWR catalog):			
	i) Fixed column, standard, height 46 in. with camera body and carriage assembly (PO4401; \$1195.00)		
	ii) Baseboard, standard (18X23 in.), fitted for light assembly and column (PO44-11; \$110.00)		
	iii) Light assembly, including 150 watt reflector flood lamps (220v); attaches to baseboard PO44-11; (PO44-21; \$379.00)		
	iv) Camera head, sliding head (PO44-41; \$380.00)		
	v) Film holders, models 405 (PO479; \$107.70) and 545 (PO545; \$ 224.60)		
	vi) Reflex viewer and hood for on-column use (PO4 -55; \$180.00)		
	vii) Shutter, self-cocking; E-setting 1 sec to 1/125 sec (PO44-64; \$250.00)		
	viii) Lens 50 mm (f/4.5 to f/32) (PO44-68; \$289.00)		
	ix) Accessories:		
	a) Universal camera mount (PO44-85; \$120.00)		
	b) Filter kit (PO44-88; \$79.00)		
	c) Film, type 667, coaterless (PO6677; \$15.10/2pk).		

LIST OF EQUIPMENT - RAJASTHAN

S.No.	Item	Quantity Required	Approximate Unit Price (in Rs.)	Name of Firm & Country of Origin	Total Price (in Rs.)
1. SMS MEDICAL COLLEGE - RAJASTHAN					
A. Microbiology Department:					
1	Deep freezer	1	75,000	Forma Scientific, USA	75,000
2	Capnic Incubator	1	50,000	Heracens, W. Germany	50,000
3	Lyophilizer	1	85,000	Fischer Scientific, USA	85,000
4	pH meter	2	14,000	Fischer Scientific, USA	28,000
5	Spectrophotometer	1	100,000	Beckman, USA	100,000
6	Inverted microscope	1	70,000	Zeiss, W. Germany	70,000
7	ELISA reader	1	100,000	Dynatech, USA	100,000
8	Water deionizer	1	8,000	Corning, USA	8,000
9	Power Supply	1	34,000	Reinin, USA	34,000
10	Analytical balances	2	17,000	Sartorius, W. Germany	34,000
11	Slide projector	1	10,000		10,000
12	Overhead projector	1	4,000		4,000
13	Start-up supplies/reagents/glassware				100,000
SUBTOTAL A					698,000
B. Social & Preventive Medicine Department:					
1	Slide projector	1	10,000		10,000
2	Teaching Video/Slides	1	5,000		5,000
3	Start-up supplies				50,000
SUBTOTAL B					65,000
SUBTOTAL A+B					763,000
CONTINGENCY (25%)					190,750
TOTAL-1					953,750

2/2

LIST OF EQUIPMENT - RAJASTHAN

S.No.	Item	Quantity Required	Approximate Unit Price (in Rs.)	Name of Firm & Country of Origin	Total Price (in Rs.)	Reference/ Catalogue No.
3. DISTRICT HEALTH HOSPITAL LABORATORIES - RAJASTHAN						
1	pH meter	1	14,000	Fischer Scientific, USA	14,000	13-636-030
2	Bright field microscope	1	20,000	Bausch & Lomb, USA	20,000	BRT/NTH
3	Analytical balances	1	17,000	Sartorius, W. Germany	17,000	A-200
4	Start-up supplies/reagents/glassware				100,000	
	SUBTOTAL (1 DISTRICT)				151,000	
	CONTINGENCY (25%)				108,750	
	(5 DISTRICTS)				943,750	
	GRAND TOTAL (1-3)				3,391,250	

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EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESUTTAR PRADESH1. KING GEORGE MEDICAL COLLEGE
(A) MICROBIOLOGY LABORATORY

<u>S.NO.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (Rs.)</u>	<u>Reference - Catalog #</u>	<u>Total Price(Rs.)</u>
1	Deep Freezer	1	75,000	Forma Scientific, USA - 8338	75,000
2	Vacuum Ovens	1	17,000	Fisher Scientific, USA - 13-261-50/S1	17,000
3	Lyophilizer	1	85,000	Fisher Scientific, USA - 10-269-3	85,000
4	pH meter	1	14,000	Fisher Scientific, USA - 13-636-830	14,000
5	Spectrophotometer	1	100,000	Beckman, USA - 011-970-00	100,000
6	ELISA Reader	1	100,000	Dynatech, USA - 011-970-00	100,000
7	Water Deionizer with power supply	1	8,000	Corning, USA - 09-035-92	8,000
8	Start-up supplies/reagents/glassware	1	100,000		100,000
	KGMC, MICROBIOLOGY SUB TOTAL				499,000
	CONTINGENCY 25%				124,750
	KGMC, MICROBIOLOGY TOTAL				623,750

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESUTTAR PRADESH1. KING GEORGE MEDICAL COLLEGE
(B) SOCIAL & PREVENTIVE MEDICINE DEPARTMENT

<u>S.NO.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (Rs.)</u>	<u>Reference - Catalog #</u>	<u>Total Price(Rs.)</u>
1	Slide Projector	1	10,000		10,000
2	Teaching Videos/Slides	1	5,000		5,000
3	Start-up supplies	1	50,000		50,000
	KGMC, SPM DEPARTMENT SUB TOTAL				65,000
	CONTINGENCY 25%				16,250
	KGMC, SPM DEPARTMENT TOTAL				81,250

ATTACHMENT 8

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATESUTTAR PRADESH2. HEALTH INSTITUTE LABORATORY

<u>S.NO.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (Rs.)</u>	<u>Reference - Catalog #</u>	<u>Total Price(Rs.)</u>
1	Deep Freezer	2	75,000	Forma Scientific, USA - 8338	150,000
2	Vacuum ovens	1	17,000	Fisher Scientific, USA - 13-261-50/51	17,000
3	Lyophilizer	1	85,000	Fisher Scientific, USA - 10-269-3	85,000
4	pH meter	3	14,000	Fisher Scientific, USA - 13-636-830	14,000
5	Spectrophotometer	1	100,000	Beckman, USA - DU-64	100,000
6	ELISA Reader	1	100,000	Dynatech, USA - 011-970-00	100,000
7	Fluorescent microscope	1	340,000	Olympus, Japan - IMT-2-FL	340,000
8	Water Deionizer	1	8,000	Corning, USA - 09-035-92	8,000
9	Analytical balances	2	17,000	Sartorius, W.Germany - A-200	34,000
10	Power Supply	1	34,000	Rainin Instruments, USA - 6100-080	34,000
11	Slide making facility	1	85,000		85,000
12	Start-up reagents/supplies/glassware	1	200,000		200,000
	HEALTH INSTITUTE LABORATORY SUB TOTAL				1,167,000
	CONTINGENCY 25%				291,750
	HEALTH INSTITUTE LABORATORY TOTAL				1,458,750

ATTACHMENT 8

EQUIPMENT/SUPPLIES PROCURED IN UNITED STATES

UTTAR PRADESH

3. DISTRICT HEALTH HOSPITAL LABORATORIES (5)

<u>S.NO.</u>	<u>Item Description</u>	<u>Quantity Required</u>	<u>Approximate Unit Price (Rs.)</u>	<u>Reference - Catalog #</u>	<u>Total Price(Rs.)</u>
1	pHmeter	1	14,000	Fisher Scientific, USA - 13-636-830	14,000
2	Bright field microscope	1	20,000	Dausch & Lomb, USA - BRT 7N1H	20,000
3	Analytical balances	1	17,000	Sartorius, W.Germany - A-200	17,000
4	Start-up supplies/reagents/glassware	1	100,000		100,000
	SUB TOTAL FOR ONE DISTRICT HEALTH HOSPITAL				151,000
	SUB TOTAL FOR FIVE DISTRICT HOSPITALS				755,000
	CONTINGENCY 25%				188,750
	TOTAL FOR FIVE DISTRICT HEALTH HOSPITALS				943,750
				<u>1(A). KGMC, MICROBIOLOGY TOTAL</u>	<u>623,750</u>
				<u>1(B). KGMC, SPM DEPARTMENT TOTAL</u>	<u>81,250</u>
				<u>2. HEALTH INSTITUTE LABORATORY TOTAL</u>	<u>1,458,750</u>
				<u>3. DISTRICT HEALTH HOSPITALS TOTAL</u>	<u>943,750</u>
				<u>GRAND TOTAL (1A+1B+2+3)</u>	<u>2,167,930</u>

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PHALC) Multi (Equipment Procurement)

Procurement in India

1. Review and Finalize Equipment List (NICD, States, Medical Colleges)

2. Procurement by IAI

3. Delivery/Installation at NICD, States and Districts

Procurement in United States

1. Finalize Equipment List in India

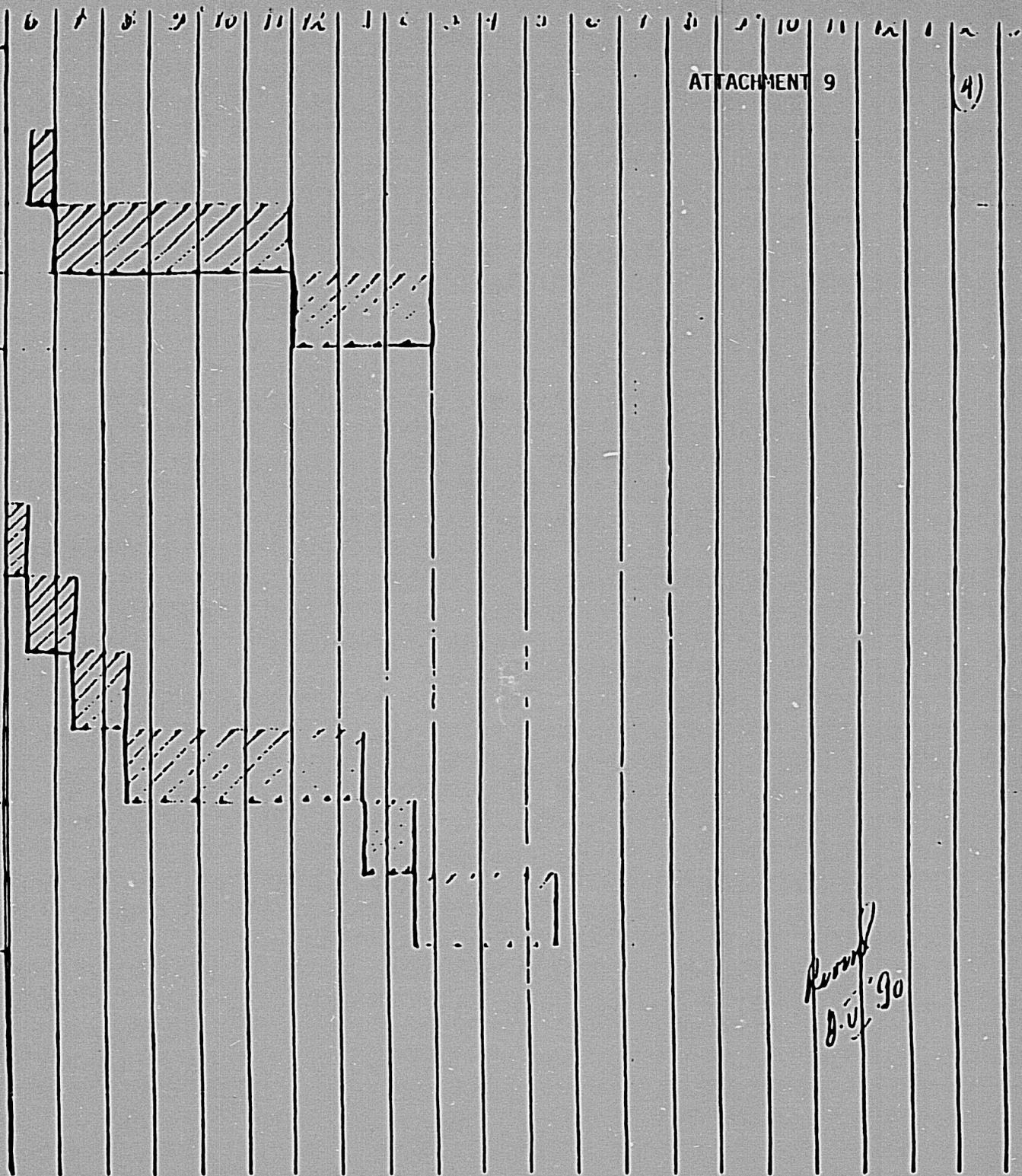
2. Review of List by US Lab. Consultant (compliance with USAID regulations)

3. Identify US procurement agent

4. Procurement in the US

5. Shipment/delivery in India

6. Delivery/Installation to NICD, States and Districts



ATTACHMENT 9

(A)

Review 8.4.90

5

1. Presentation of Project to Officials
of State, District and PIC levels

2. First Field Epidemiology Training-NICD
(15 per/session) - 8 weeks

3. Field Training at Posts-States/District
(15 persons) - 28 weeks

4. Final Training at NICD
(15 persons) - 3 weeks

5. Review of Epidemiology Training
2 weeks

6. Second Field Epidemiology Train - NICD
(15 persons) - 8 weeks

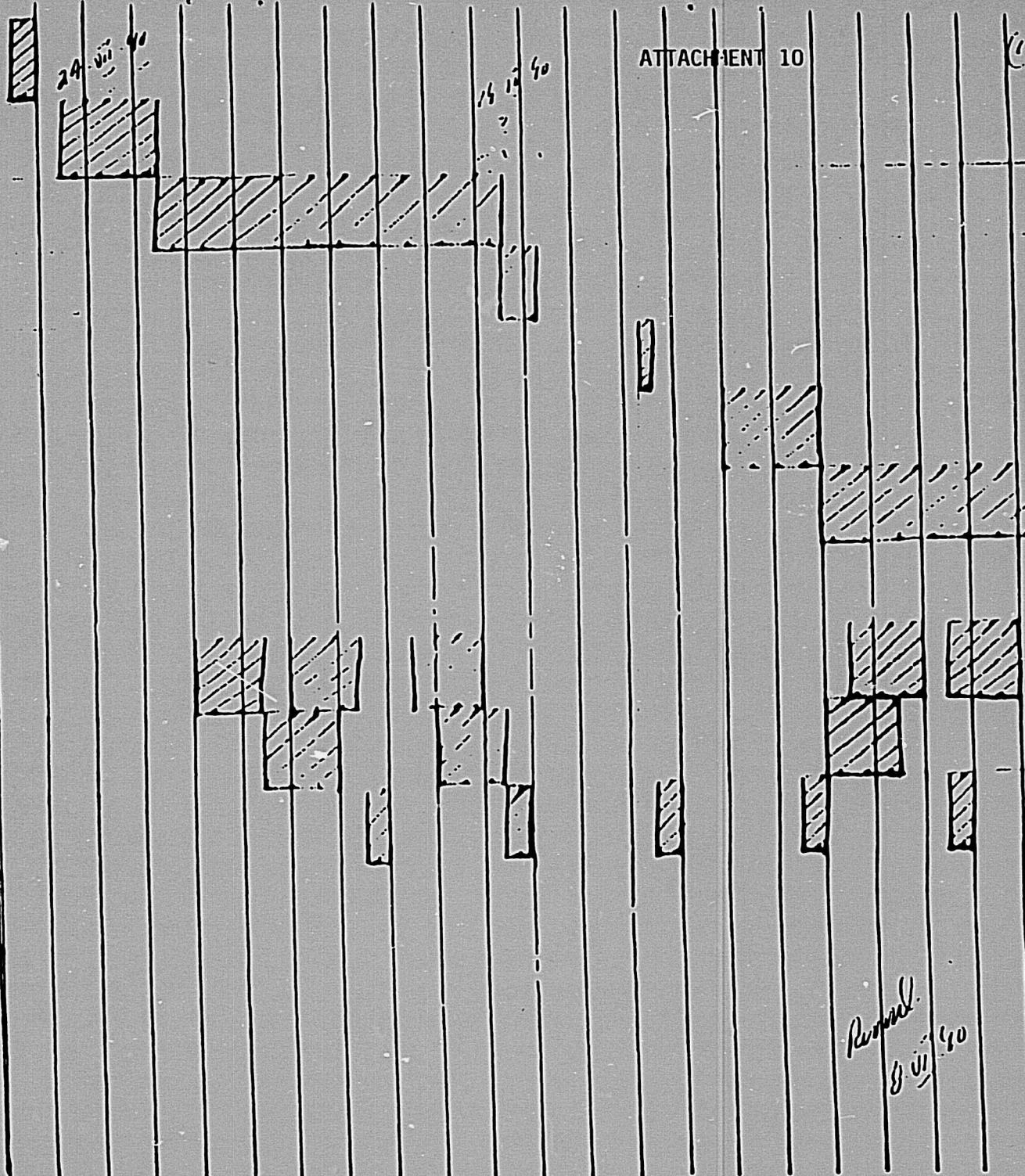
7. Field Training at Posts-States/District
(15 persons) 28 weeks

8. Final Training at NICD
(15 persons) - 3 weeks

B. 1. Epi. Training for PIC Medical Officers
(30 per/session) - 6 weeks & five courses

C. 1. Lab Training at NICD - Div. Path/Micro.
(15 per/course) - 6 weeks & 3 courses

D. 1. Lab Training at State Med. Colleges
(15 lab tech/course) - 2 weeks & 3 courses



FIELD EPIDEMIOLOGY TRAINING PROGRAMME
9 MONTHS COURSE AT NATIONAL INSTITUTE OF COMMUNICABLE DISEASES

Duration: 9 Calendar months

Day	Date	Time	Topic
---	----	----	----
1		8.00-10.00	Registration.
1		10.00-12.00	Informal discussions with participants and faculty members Pre - course Assessment.
1		12.00-01.00	Inauguration: Vote Of Thanks
1		01.00-02.00	Lunch
1		02.00-03.00	Introduction to Epidemiology: Definitions, Application, Methods including historical aspects
1		03.00-05.00	Introduction to Epidemiological Measures of Disease: Frequency, Ratios, Rates, Proportions, Application and Exercises, Measures of central tendency
1		05.00-06.00	LITERARY
1		10.00-11.00	Descriptive Epidemiology: Formulation of Hypotheses.
1		11.00-12.00	Graphs, Tables and Charts: and Data presentation.
1		12.00-13.00	Proofs of causation.
1		13.00-14.00	Lunch
1		14.00-15.00	Dynamics of Disease Transmission.
1			Principles of Communicable Diseases: Control Methods and Application.
1		15.30-17.00	Standardisation of rates: Exercise
1		17.00-18.00	LITERARY
1		18.00-19.00	Analytical Epidemiology
1		19.30-20.00	Analytical Epidemiology: Module
1	20.00-21.00	20.00-21.00	LUNCH

3	14.02-15.02 15.02-16.02	Module continued Important Vectors and element of transmission.
3	29-11-89 16.02-17.02	Experimental Epidemiology
4	10.02-13.02	Steps in the investigation of an outbreak, introduction of the outbreak investigation module.
4	13.02-14.02	LUNCH
4	14.02-15.02	Outbreak Investigation Module 'Contd.'
4	15.02-16.02	Vector ecology and Principles of Integrated Vector Control.
4	16.02-17.02	Presentation by participants
4	17.02-18.02	LUNCH
5	10.02-11.02	Sampling methods- Exercises
5	12.02-13.02	Basic elements of Malaria Transmission including indicators
5	29-11-89 21.02-22.02	LUNCH
5	24.02-25.02	Laboratory based epidemiology, surveillance
5	25.02-26.02	Present Strategies for the Control of Malaria in India
5	26.02-27.02	Presentation by participants
5	17.02-28.02	LUNCH
6	10.02-11.02	Tests of significance 6
6	11.02-12.02	Epidemiological Surveillance: A Tool for Assessment of Malaria and its Control
6	12.02-13.02	Health Economics
6	13.02-14.02	LUNCH
6	01.02-03.02	Epidemiology of Malaria in an urban area - A case study.

- 6 15.00-16.00 Use of Serology in Epidemiology
- 6 16.00-17.00 Presentation by participants
- 6 17.00-18.00 LIBRARY
- 7 18.00-19.00 Poliomyelitis: Epidemiology, laboratory diagnosis and control. Modular exercise and discussion.

Lunch

- 7 19.00-20.00 Epidemiology of Malaria in a rural District: A case study
- 8 20.00-21.00 Chemotherapy of Malaria and Current drug policy and parasite resistance including clinical manifestations of cerebral malaria
- 8 21.00-22.00 LIBRARY
- 8 22.00-23.00 Comparative epidemiology of the different causes of viral hepatitis

Investigation of a hepatitis outbreak: A case study
 Laboratory diagnosis of viral hepatitis
 Methods of hepatitis control

- 8 23.00-24.00 Lunch
- 8 24.00-25.00 Malaria Vector Resistance and Parasite Resistance
- 8 25.00-26.00 Epidemiological surveillance in a District
- 8 26.00-27.00 Presentation by participants
- 8 27.00-28.00 Library
- 8 28.00-29.00 Dengue: Epidemiology

Best Available Document

immunology, diagnosis
and control: modular
exercises and discussion.

9	13.00-14.00	Lunch	
	14.00-15.00	Sensitivity and specificity as an epidemiological tool	
9	15.00-17.00	Typhoid: Epidemiology and Diagnosis and Control	
9	17.00-18.00	Library	
10	18.00-19.00	Measles: Epidemiology measuring vaccine efficacy Modular exercise and discussion	Dr. A.
10	19.00-20.00	Lunch	
10	20.00-21.00	Preliminary discussion on field exercises & Preparation of protocol	
10	21.00-22.00	Presentation of participants	
10	22.00-23.00	Introduction to computers	
10	23.00-24.00	Library	
10	24.00-25.00	Library	
11	25.00-26.00	Meningitis: Epidemiology diagnosis and control Module Exercise and Discu- sion	Dr. Dr. Dr. Dr. Dr.
11	26.00-27.00	LUNCH	
11	27.00-28.00	Discussion on protocols on field exercises	
11	28.00-29.00	Diabetes: Epidemiology and Control	
11	29.00-30.00	Presentation by participants	
11	30.00-31.00	Paraphernal diseases Panel Discussion and Module	Dr. Dr. Dr. Dr. Dr.
11	31.00-32.00	Lunch	
11	32.00-33.00	Leprosy: Epidemiology, Lab diagnosis	Dr.

12	15.00-17.00	Goitre: Epidemiology, Prevention & Control	Dr.
12	17.00-18.00	Library	
13	10.00-13.00	Presentation & finalisation of protocols	
13	13.00-14.00	Lunch	
13	14.00-15.30	Epidemiology and control of occupational epidemiology	Dr.
13	15.30-17.00	Hospital infection module	
13	17.00-18.00	Library	
14	10.00-13.00	Evaluation of a Community Project (EPI Module)	Dr.
14	13.00-14.00	Lunch	
14	14.00-15.00	Blindness Epidemiology and prevention	Dr.
14	15.00-16.00	Epidemiology and control of cardiovascular diseases	Dr. Mrs.
14	16.00-17.00	Briefing for field visits	
14	17.00-18.00	Library	
15	10.00-13.00	Risk approach module (MCH)	
15	13.00-14.00	Lunch	
15	14.00-15.30	Cancer Epidemiology and prevention with special reference to oral and cervical cancer	Dr. A.
15	15.30-17.00	Briefing for the field visits	
15	17.00-18.00	Library	
16 to 2 nd		Field exercises	
25	10.00-11.00	Presentation by participants	
25	11.00-13.00	EPI Target diseases: Epidemiology, diagnosis and control	Dr. S. L. Dr. Dr. Dr.
25	13.00-14.00	Lunch	
26	14.00-17.00	Health Management in a District	Dr. S. S.
	17.00-18.00	Library	

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- 37 10.02-12.02 Presentation of field exercises
- 38 12.02-13.02 Bhopal Accident Epidemiology Dr. K.
Disaster Management and
Planning
- 39 13.02-14.02 Lunch
- 39 14.02-16.02 Discussion on protocols on
second field exercises
- 39 16.02-17.02 Presentation by participants
- 39 17.02-18.02 Library
- 39 18.02-19.02 Tuberculosis: Epidemio- Dr. Uk
logy, Laboratory diag-
nosis and Control
(Module exercise and
discussion)
- 39 19.02-20.02 Epidemiology and control Dr. Br
of Perinatal infection
(Rubella, Toxoplasma, Herpes,
Cytomegalo-viruses)
- 39 20.02-21.02 Lunch
- 39 21.02-22.02 Acute Respiratory infec- Dr. S
tion: Epidemiology,
Laboratory Diagnosis and
Control

Modular Exercise and Dis-
cussion
- 39 22.02-23.02 Library
- 39 23.02-24.02 Presentation of protocols for
second field exercises
- 39 24.02-25.02 Lunch
- 39 25.02-26.02 Rabies Epidemiology and control
- 39 26.02-28.02 Presentation by Participants
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- 39 16.02-17.02 Briefing for the field exercises
- 39 17.02-18.02 Library
- 39 or 40 Second Field exercises
- 40 18.02-19.02 Presentation by Participants
- 40 19.02-20.02 Presentation of protocols for
exercises during the first
month at the place of posting
- 40 20.02-21.02 Lunch
- 40 21.02-22.02 Examination & course evaluation

- 42 10.02-12.02 Presentation of data of second field exercises
- 43 12.02-13.02 Briefing for field placement
- 43 13.02-14.02 Lunch
- 43 14.02-15.02 Briefing for field placement session
- 43 16.02-17.02 Departure

C. SIX WEEKS LABORATORY TRAINING COURSE FOR DISTRICT PATHOLOGISTS /
MICROBIOLOGISTS AT N.I.C.D., DELHI UNDER USAID PROGRAMME

WORKING DAYS = 30

WORKING HOURS = 210

DAY - 1

Lecture Demonstration	Safety precautions in the Laboratory	2 hrs.
Lecture Demonstration	Disinfection, Washing and Sterilization -	5 hrs.

DAY - 2

Practical	Staining Techniques	- 7 hrs.
	Gram's staining	
	Albel's staining	
	Z-N staining	

DAY-3

Practical	Preparation of Bacteriological Media	7 hrs.
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DAY-4

Practical:	Culture procedures	- 7 hrs
	Preparation of slides from solid and Liquid media	
	Staining	

DAY-5

	Identification of common Bacteria	
Practical	Identification of	- 7 hrs.
	Staph. aureus	
	Strep. haemolyticus	
	Pneumococcus	
	Meningococcus	

DAY-6

Practical	Identification of:	- 7 hrs.
	Shigella	
	Salmonella	
	Esch. coli.	
	Klebsiella etc.	

DAY-7

Practical	Identification of	- 7 hrs.
	Vibrio cholerae	
	Biochemical tests	
	Serological confirmation	

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DAY-8

Practical Antibiotic sensitivity Testing - 7 hrs.
Disc diffusion method
Stoke's method

DAY-9

Pract. Demonstration Rapid Diagnostic Tests - 7 hrs.
Latex agglutination
Fluorescent Microscopy
ELISA
CIEP

DAY-10

Practical Laboratory Diagnosis of important - 7 hrs.
Intestinal Parasitic infections
Amoebiasis *are*
Giardia
Hook worm
Thread worm
Round worm

DAY-11

A. Laboratory Diagnosis of Tuberculosis - 3 1/2 hrs.
Sputum examination - Z.N. staining
Concentration smear - Petroff's method

B. Lab. Diagnosis of Leprosy
Preparation of smear
Z.N. Staining 5-10

DAY-12

A. Urine Examination 5-10 AM
Routine
Microscopic

B. Culture sensitivity — 3 1/2 hrs
Lab Diagnosis of Malaria
Thick smear, Preparation of J815
Thin smear

DAY-13

Practical A. Bacteriological Examination of water. 5-10 AM
B. Role of Microbiology in Food Borne Diseases 2 hrs.
C. Food Adulteration - Practical aspects 1 1/2 hrs.

DAY-14

A. Lab. Diagnosis of Diphtheria - 3 hrs.
Smear
Culture
Biomedical Biochemical tests
Staining

Pract.-Demon. E. Lab. Diagnosis of Pertussis - 2 hrs.
C. Lab. Diagnosis of Tetanus - 2 hrs.

DAY-15

Practical: Lab. Diagnosis of Diarrhoea 7 hrs.
 Shigella Culture
 Salmonella Smear examination
 Esch. coli Study of all other characters
 Vibrio cholerae

DAY-16

Practical Lab. Diagnosis of Diarrhoea (Contd.) 7 hrs.
 Study of plates
 Biochemical characters
 Serological confirmation
 Antibiotic sensitivity testing

DAY-17

Practical Laboratory Diagnosis of Meningococcal 7 hrs.
 Meningitis (Pyogenic meningitis)
 Smear
 Culture & sensitivity
 Biochemical testing
 Immunological testing

DAY-18

Pract.-Demon. Lab. Diagnosis of Syphilis & Gonorrhoea 3½ hrs
 A. Smear
 Culture
 Immunological (VDRL)
 B. Lab. Diagnosis of ARI infection 3½ hrs.
 Collection and transportation
 Culture
 Sensitivity

DAY-19

Lect.-Demon. A. Lab. Diagnosis of AIDS 2½ hrs.
 ELISA
 Western Blot
 How and where to send samples ?
Lect.-Demon. E. Lab. Diagnosis of Hepatitis 2½ hrs.
 HBsAg detection
 Interpretation and requirement of various
 tests
 How and where to send samples. ?
Lect.-Demon. C. Lab. Diagnosis of Filariasis 2 hrs.

<u>DAY-20</u> Lect.-Demon.	A. Lab. diagnosis of rabies	2 hrs.
	B. Lab. diagnosis of Kala-azar	2 hrs.
	C. Collection & Transportation of samples for the following diseases: JE Dengue Measles Poliomyelitis Brucellosis	3 hrs.
<u>DAY-21</u> Pract.-Demon.	Widal Test Widal Test Pregnancy test of H.S.D	2 1/2 hrs 3 1/2 hrs 1 1/2 hrs.
<u>DAY-22</u> Pract.	A. Basic techniques in Medical Mycology	4 hrs.
	B. Revision of Microbiology	3 hrs.
<u>DAY 23-26</u>	<u>BIOCHEMISTRY</u>	
<u>DAY-23</u> Pract.-Demon.	Determination of blood and CSF sugar	3 1/2 hrs.
	Determination of serum and CSF proteins	3 1/2 hrs.
<u>DAY-24</u> Pract.-Demon.	na Determination of serum Cholesterol	3 1/2 hrs.
	Determination of serum acid phosphatase	3 1/2 hrs.
<u>DAY-25</u>	Determination of serum Electrolytes	3 1/2 hrs.
	Determination of LFT	3 1/2 hrs.
<u>DAY-26</u>	Kidney function Tests	3 1/2 hrs.
	Biochemical Clinical analysis of water	3 1/2 hrs.
<u>DAY-27-30</u>	<u>HAEMATOLOGY</u>	
<u>DAY-27</u>	Formed Elements of blood Estimation of Hb, PCV, MCV, MCH, MCHC Estimation of ESF	7 hrs

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DAY-28

Total RBC count	7 hrs.
Total WBC count	
Total platelet count	
Reticulocyte count	

DAY-29

<u>Clotting time</u>	7 hrs.
Bleeding time	
Clot retraction time	
Prothrombin time	
Absolute Eosinophil count	

DAY-30

Use of autoanalyser and Practical Demonstration	7 hrs
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Epidemiology

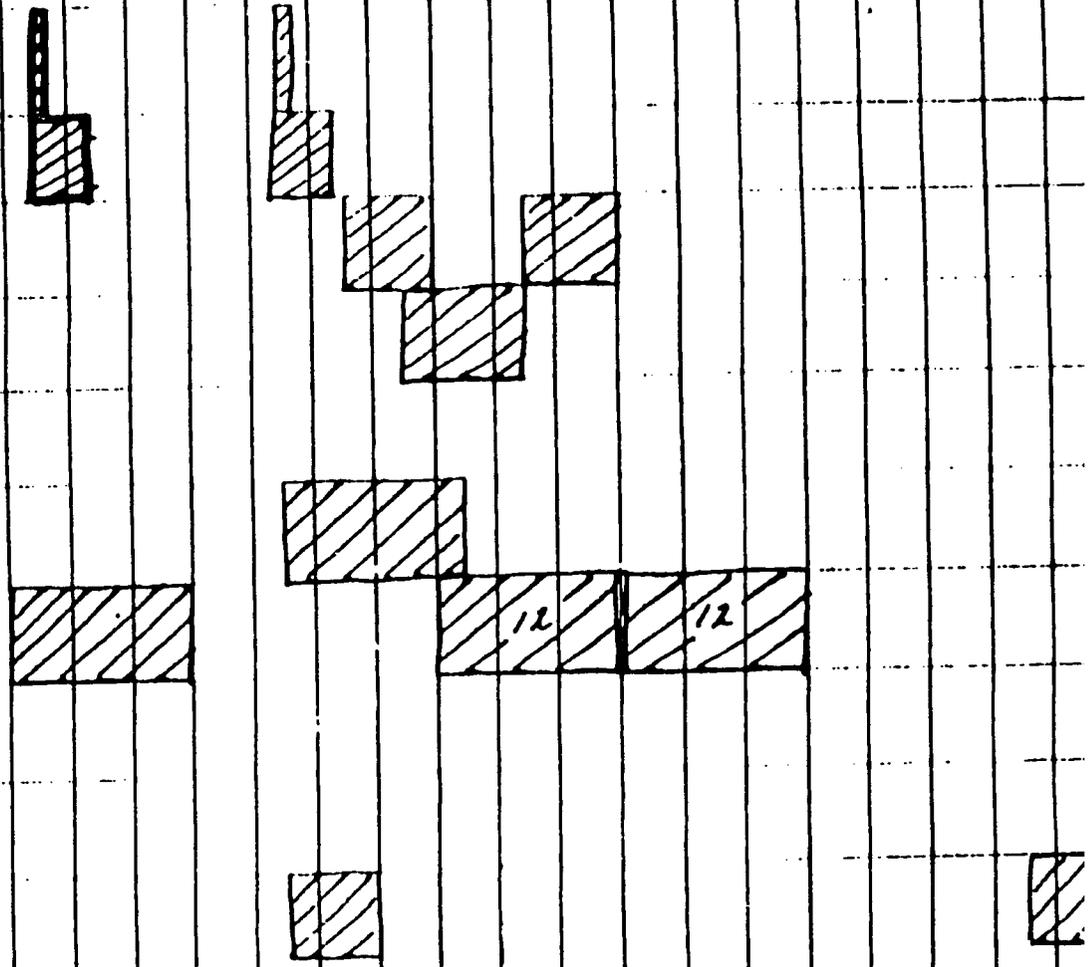
- 1. Appraisal of P.E.T.P.
(4 persons x 1 week x 2)
- 2. Orientation to Epi Trng Program
(6 persons x 3 weeks x 2)
- 3. Planning EIS Course/Visits to State Hlth Dept
(10 persons x 6 weeks x 2)
- 4. Int'l track of EIS (Emory)
(20 persons x 8 weeks x 2)

Laboratory Training

- 1. Lab trng for Epid Support/Diag. Path/Micro.
(15 persons x 12 weeks x 2)
- 2. Special Training, AIDS, ARI, etc.
(6 persons x 12 weeks x 1)
(12 persons x 12 weeks x 2)

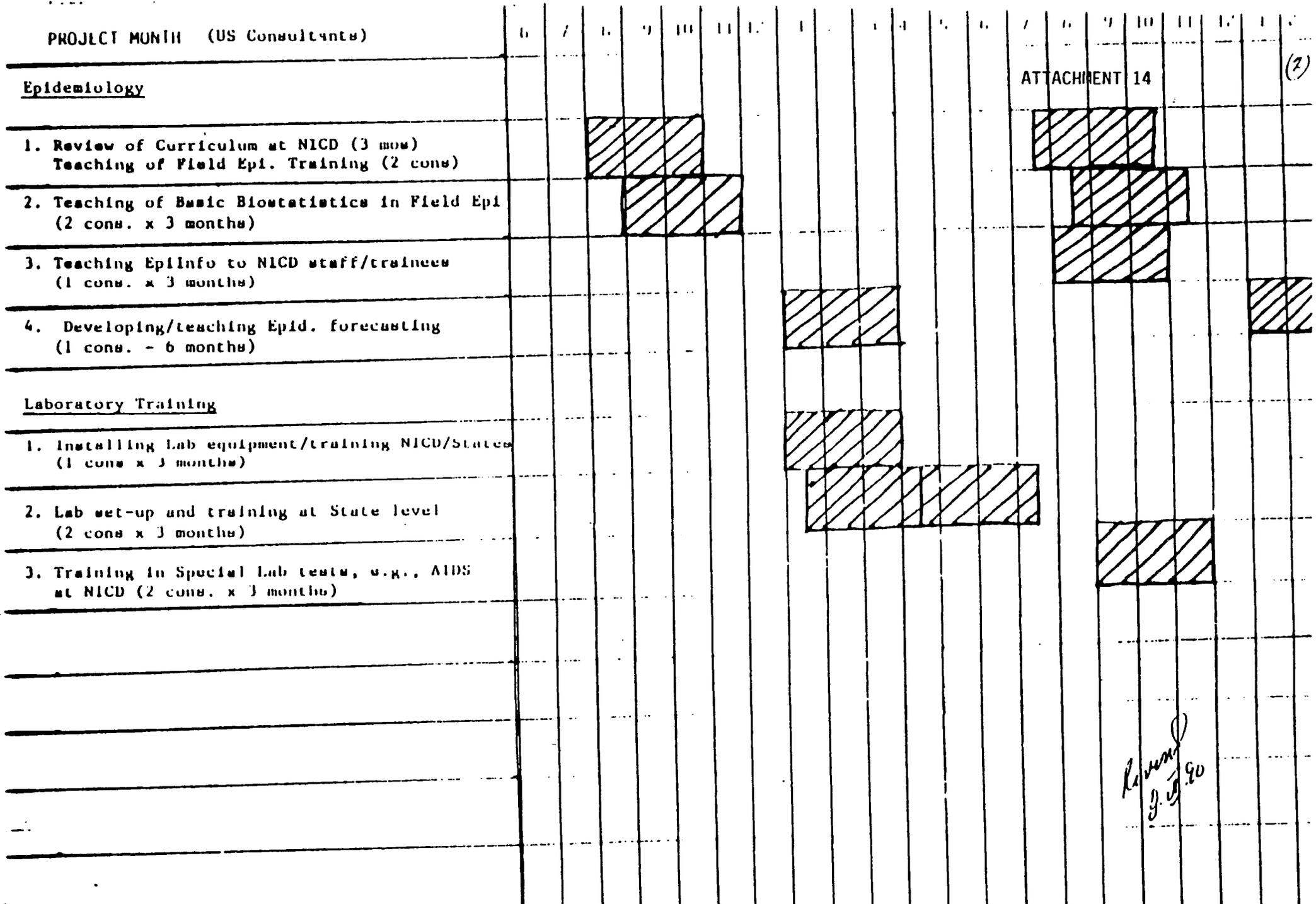
Health Management

- 1. Health Management Course
(10 persons x 6 weeks x 2)



*Revised
2/5/90*

PROJECT MONTH (US Consultants)



ATTACHMENT 14

(2)

*Review
3.5.90*

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