WATER AND SANITATION FOR HEALTH PROJECT

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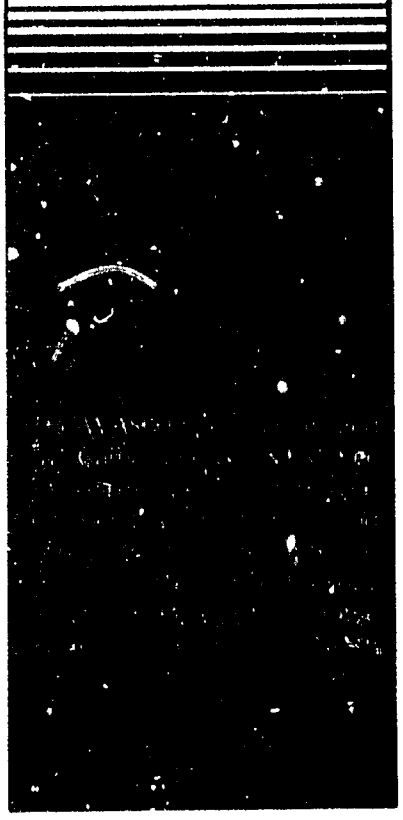

RURAL SANITATION AND MANPOWER DEVELOPMENT PROJECT IN INDONESIA: APPROPRIATE TECHNOLOGY AND INFORMATION DISSEMINATION

WASH FIELD REPORT NO. 28

NOVEMBER 1981

Prepared For:
USAID Mission to the Republic of Indonesia
Order of Technical Direction No. 44

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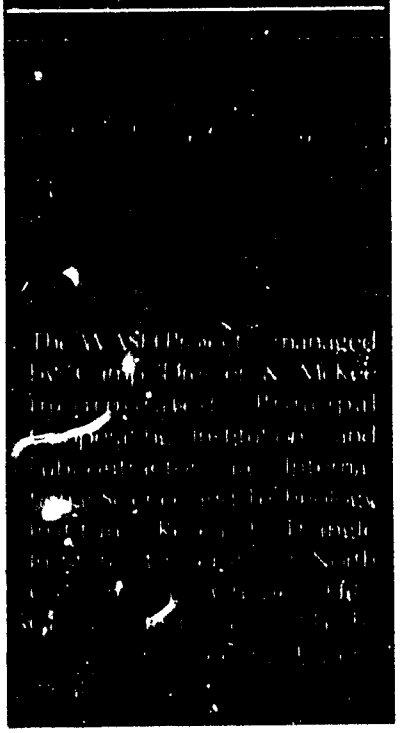

November 10, 1981

Robert Simpson
Acting Mission Director
USAID
Jakarta, Indonesia

Attention: Mr. Nick Studzinski

Dear Mr. Simpson:

On behalf of the WASH Project I am pleased to provide you with fifteen (15) copies of a report on the Rural Sanitation and Manpower Development Project in Indonesia. This is the final report by Dr. Robert Gearheart and is based on his trip to Indonesia from 26 July to 5 September, 1981.

This assistance is the result of a request by the Mission on 19 May, 1981. The work was undertaken by the WASH Project on 26 June, 1981 by means of Order of Technical Direction No. 44, authorized by the AID Office of Health in Washington.

If you have any questions or comments regarding the findings or recommendations contained in this report we will be happy to discuss them.

Sincerely,

Craig R. Hafner
Acting Director
WASH Project

CRH:jml

cc: Mr. Victor W.R. Wehman, Jr.
S&T/HEA

WASH FIELD REPORT NO. 28

INDONESIA

THE RURAL SANITATION AND MANPOWER DEVELOPMENT PROJECT IN INDONESIA: APPROPRIATE TECHNOLOGY AND INFORMATION DISSEMINATION

Prepared for the USAID Mission to the Republic of Indonesia
under Order of Technical Direction No. 44

Prepared by:

R. A. Gearheart, Ph.D.

November 1981

Contract No. AID/DSPE-C-0080
Project No. 931-1176

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LIST OF ABBREVIATIONS USED AND DEFINITIONS

APK:	Schools for Sanitation Technologists (2 year program)
BUPPENAS:	National Planning Board
CBT:	Compentency Based Training
CHIPPS:	AID Loan Project - Comprehensive Health Improvement Project Province Specific
D.I. Aceh:	Special District in Northern Sumatra
Dian Desq:	Private University in Jogjakarta
DTC:	Development Technology Center - Institute of Technology Bandung
FKM:	School of Public Health - Jakarta
INPRES:	Special Sanitation Construction Project - Presidential Directive - Ministry of Health
ITB:	Institute of Technology Bandung
HAKLI:	Professional Association of Environmental Health Specials
Kapupaten:	Village Cluster
PUSDIKLAT:	Training and Education Division of the Ministry of Health
SPPH:	Schools of Sanitarians (nine-month Program)
RSMD:	Rural Sanitation and Manpower Development - AID Loan Project, 1976-1982.

ACKNOWLEDGEMENTS

The tasks associated with this directive would not have been accomplished without the assistance of the training section of the Ministry of Health of the Government of Indonesia (PUSDIKLAT) staff and USAID staff. Mr. Soewardi of the PUSDIKLAT staff was always willing to supply the historical data and future directions of the Rural Sanitation and Manpower Development (RSMD) program. He also personally accompanied the consultant on all site visits to the RSMD schools and provided direction and insight with the RSMD project and the sanitarian profession in Indonesia. Mr. Soedaryanto, Director of the RSMD project of PUSDIKLAT, was most helpful in explaining administrative and budgetary mechanisms and identifying constraints on the project. Dr. Moh-Issa, Director of PUSDIKLAT, afforded me a confortable office and working environment while in Indonesia. A general feeling of openness and mutual trust was created by his management style and by his staff's commitment to the goals of the agency.

Mrs. Helen Exawirya of the USAID staff proved to be of invaluable assistance in understanding RSMD loan agreements and the various Government agencies' operating policies. Her knowledge and assistance enhanced the outcome of this assignment.

Special acknowledgement is offered to Nick Studzinski and Molly Mayo Gingerich of the USAID staff for coordinating my activities with PUSDIKLAT.

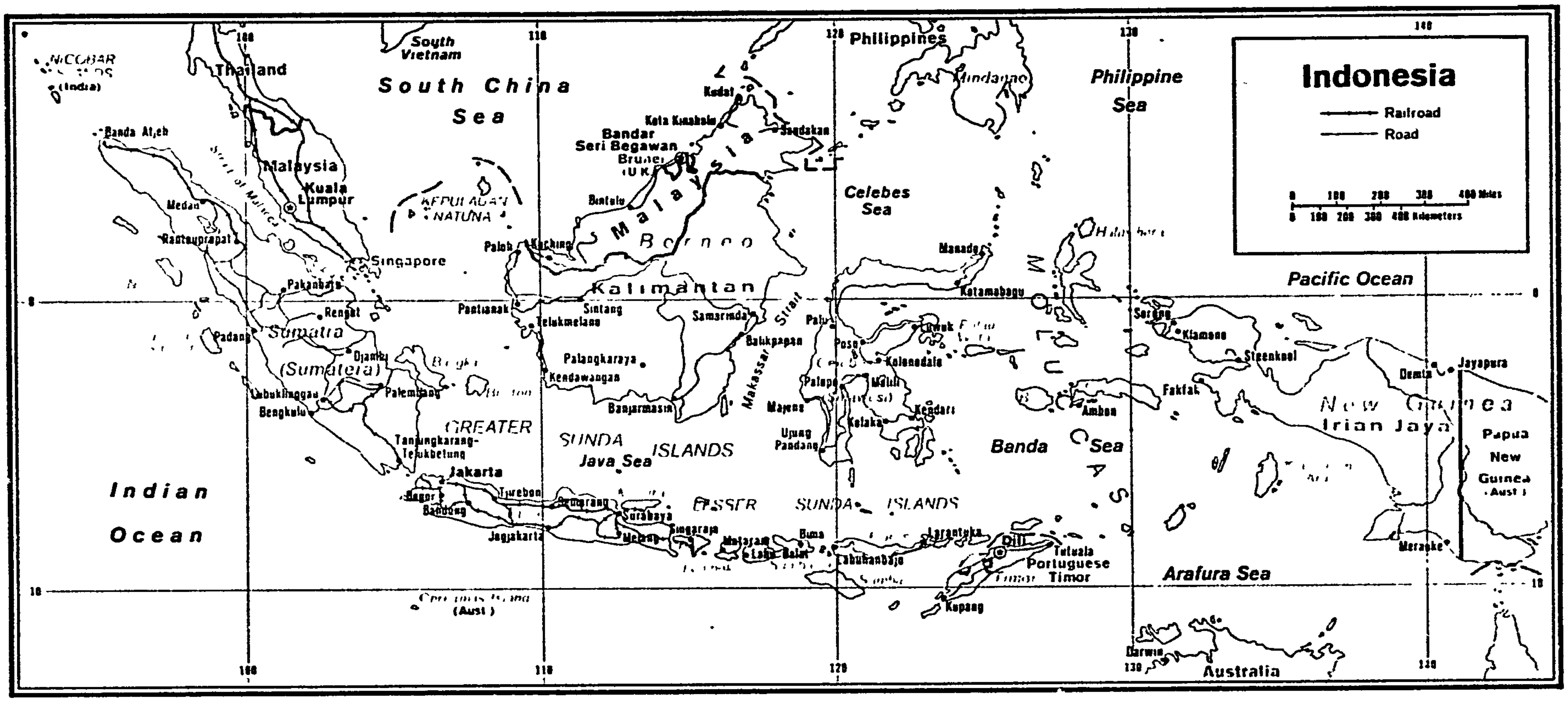
EXECUTIVE SUMMARY

The Rural Sanitation Manpower Development (RSMD) project is in its last year of activity and the construction of the project's nine schools is being completed. The faculty has been prepared, and competency based training in each of the schools has begun. Current needs of the project include laboratory equipment, library resources, appropriate technology, field training exercises; media development, information systems, and a master plan for RSMD faculty development. During this consultant visit to Indonesia efforts were made to expedite the delivery of the laboratory equipment, to develop a library acquisition list, to develop appropriate technology field training instructional modules, and to supply each school with information on appropriate technology. The preparation of a master plan for the development of the RSMD faculty was begun with assistance from PUSDIKLAT staff while the consultant was in Indonesia and will be completed in the United States by the consultant based on agreement with and guidance of PUSDIKLAT staff prior to departure.

USAID/Indonesia also requested assistance with initial discussions regarding the CHIPPS project at D.I. Banda Aceh. In order to clarify the project objectives, these discussions emphasized that the project was not a public works project as such, that monies would not be used for large-scale construction, but rather that the project was a comprehensive community health project and that the use of funds should be conceived of in that framework.

While the RSMD project has had problems associated with the construction of the schools and in receiving commodities, the RSMD staff has gained experience and confidence in many aspects of project management which will be useful in the future. The RSMD project also serves as a model for project management within PUSDIKLAT.

In discussions in London with Industrial Training Services (ITS), The International Reference Center for Community Water Supply and Sanitation (IRC), and the International Association for Water Pollution Research (IAWPR) it was generally agreed that the primary goal of technical assistance is self sufficiency. There are many factors in program design which could enhance, modify or negate that goal. The most important factor, though, is the manner in which the technical assistance is provided, not necessarily the technical qualifications of the consultant. Other important factors which affect the success or failure of programs include the ability of consultants to communicate, to perceive visible and/or hidden roadblocks to implementation, and the ability to motivate counterparts.



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Chapter 1

BACKGROUND

1.1 The Rural Sanitation and Manpower Development Project

The Rural Sanitation and Manpower Development (RSMD) project is a joint USAID/Government of Indonesia loan project of $14 million initially funded over a four year period. The scope of this project included the construction and/or the rennovation of nine schools for sanitarians (SPPH's) and two schools for sanitarian technologists (APK's). The completed RSMD schools will have classrooms, faculty offices, libraries, laboratories, workshops, field demonstration sites, dormitories, kitchen units, and staff housing. The nine SPPH's have a graduating class capacity of 40 students in a nine-month program. The two APK's have a graduating class capacity of 40 in a two-year program. These graduates will be employed as educators by the provincial health department, the national health agency, and by PUSDIKLAT.

Ten man-years of foreign technical assistance were provided PUSDIKLAT to train instructors and to assist with the development of several other specific activities. These proposed special activities included the review and development of curricula, the revision of the methodology for pre-service training, the development of in-service training courses to improve skills in basic sanitation subject areas, the writing of a field environmental sanitation manual for use in rural Indonesia, the upgrading of courses in advanced sanitation and the implementation of 26 fellowships for academic non-degree training and other educational opportunities for faculty to pursue graduate level academic training.

The proposal called for the following activities to occur during the duration of the project: two courses, four to five months in duration, were to be given to instructors from all the sanitation schools. An in-service training course of six weeks duration was to be given to the entire cadre of instructors. Two presentations of the one-year program for the pre-service training of sanitarians were to have been conducted. Two classes were to be enrolled in each of the two schools for Sanitation Technologists (APK's) leading to graduation. All graduates from pre-service and in-service courses will be supplied a field manual and an environmental sanitation field kit. The technical assistance team from the University of Hawaii was to have produced the field manual and to order the commodities and equipment for the field kit.

According to the manpower goals, for the program for trained sanitarians and sanitation technologists the number of trained professionals in the rural areas was to have increased from 830 in 1977 to 2,442 in 1981. The number of supervisory per-

sonnel in this area was projected to increase from 180 in 1977 to 348 by 1981. Nine schools for rural sanitarians were to be functioning and graduating 360 sanitarians annually with the APK's graduating 80 sanitarian technologists annually.

1.2 Indirect Outputs and Effects of the Implementation of the RSMD Project

The major secondary effect of the RSMD is the creation of the Environmental Health Association (HAKLI). The organization was formed and nurtured principally by RSMD faculty and associated project personnel. The organization is involved in upgrading and expanding the role of the environmental health professional in Indonesia. The impact of the Association is being felt at the national level in terms of problem definition and long-term strategies for environmental health and at the local level where practicing environmental health professionals can be informed of career and educational opportunities and can develop an esprit de corps relative to their profession.

HAKLI, which was chartered in April of 1980, plays an important role both directly and indirectly in implementing water supply and sanitation programs in the country. The president of the organization, Mr. Rasyid, is the executive secretary for the Directorate of Sanitation in the Ministry of Health and is, therefore, involved professionally at a high level in program implementation. The organization has approximately 3,000 members serving in national, provincial, village, and educational positions and has indirectly contributed to its success by providing a communication and coordination linkage between the schools and provincial health departments. The RSMD Project has assisted in planning and organizing national meetings to discuss curricula and goals for the future. The career development of environmental health specialists is one of the principal concerns of this group. Retention of trained sanitarians and sanitation technologists is a problem, and any reduction in leakage of manpower would benefit the overall manpower picture of Indonesia. The Ministry of Health is active in presenting in-service training courses and seminars and publishes a monthly publication.

Another indirect effect as a result of the RSMD project was the management opportunities and experience afforded PUSDIKLAT staff. This project was complex introducing construction elements, technical assistance, training and education, equipment procurement, and storage into the operational sphere. All of this has provided significant experience for PUSDIKLAT staff, and the benefits will be seen in future programs and projects.

This opportunity for a secondary effect is due in part to the concentrated resources which were directed at the specific problem of sanitarian and sanitarian technology manpower development.

Following are some of the specific areas in which the staff have gained significant experience:

1. Construction administration
2. Design of educational institutions
3. Equipment procurement
4. Management aspects of dealing with bilateral donors
5. Project management and coordination
6. Library resource development
7. Production and dissemination of educational materials
8. Staff language proficiency in English
9. Local construction techniques and assessment of local contractors' performances.
10. Articulation with other schools and institutions dealing with environmental health problems -- for example discussions with ITB in Bandung for advance sanitary engineering training for sanitarians.

Chapter 2

SCOPE OF WORK

An initial request by USAID/Jakarta and the Government of Indonesia (GOI) in February 1981 for WASH services addressed the need for technical assistance for technology development and media production in the Rural Sanitation Manpower Development (RSMD) program of PUSDIKLAT. The RSMD project organized and coordinated a one-week workshop in Batu-Malang in February of 1981 with participation from each of the RSMD schools, from other sanitation technology institutions in Indonesia, bilateral and multilateral organizations. Two position papers (WASH Field Report No. 16) were developed at this workshop which will be used by educational institutions in Indonesia in implementing the sanitation programs in the future. The first paper dealt with curricula and articulation matters among the schools. The sequence of training and career development is as follows: a short three-month crash course for sanitarians, the SPPH program, APK programs in Jakarta and Surabaya, FKM in Jakarta, and the Sanitary Engineering Degree at ITB.

The second issue dealt with at the workshop was that of the role of the various schools in technology development in water supply and sanitation. Spheres of interest and areas of need for appropriate technology development, demonstration, and information dissemination were identified. The roles for each institution and agency were developed and possible linkages for coordination and control were developed. This workshop served to focus the educational institutions and the Government of Indonesia's rural sanitation programs on areas of mutual interest in meeting the challenges of the water Decade.

The RSMD program was responsible for the workshop concept and its implementation. The Batu-Malang workshop served as an initial activity for several future activities and provided direction for PUSDIKLAT and for the Government of Indonesia. The two position papers resulted in a GOI/USAID request for further services and the issuing of Order of Technical Direction No. 44 (see Appendix A).

Discussions with USAID officials and RSMD staff members during the first week of the second consultant visit resulted in the following scope of work for the OTD.

1. To conduct a review of the RSMD project to determine effective use of final year funding.

2. To develop appropriate technology and technology development materials for RSMD project.

3. To assist in developing a short-term and long-term faculty development proposal for PUSDIKLAT.

4. To assist in problem definition and coordination of D.I. Aceh's (a province in Northern Sumatra) involvement in construction of water supply and excreta disposal system within the context of the CHIPPS project.

Chapter 3

COORDINATION WITH MULTILATERAL ORGANIZATIONS

Several international agencies were contacted in London. The first objective was to explain the WASH concept and the role it plays within USAID and AID missions. The second objective was to discuss particular experiences they might have had in the areas of water and sanitation in Indonesia. The third objective was to discuss in general rural water supply and sanitation programs in developing countries and to explore alternative approaches and solutions.

Discussions were held in London with representatives of the Industrial Training Services (ITS), the International Reference Center for Community Water Supply and Sanitation (IRC) and the International Association for Water Pollution Research (IAWPR). There appeared to be a firm understanding of the WASH mission and the mechanisms for requesting its services by these organizations. Genuine interest was expressed in the uniqueness of the WASH organization by representatives from all of the groups as well as an interest in maintaining a close liaison with its personnel and activities. This liaison should prove extremely valuable because of the exemplary work being done by these groups in the training field.

Discussions pertaining to water and sanitation in Indonesia centered mostly on operation and management training problems associated with community water supply systems. Most of the activities of these groups were in the area of operation, maintenance, and management of community systems of developing countries. Comments were made in these discussions alluding to lack of coordination and communication between national agencies, multinational organizations, and bilateral organizations. This apparent duplication of effort is found in most countries, both developed and developing, and obviously results in waste of resources and could lead to poorly defined manpower requirements. Collaboration with these groups will help minimize this waste of resources.

General comments were made about the duplication effort that exists between the Ministry of Public Works and Ministry of Health in the area of water supply and sanitation. The experience of all present was that highly motivated and well trained personnel do exist in Indonesia in the area of water supply and sanitation. The demand, however, for these people often results in work overload and reduced efficiency in the management of these programs. It was also agreed that adequate numbers of trained personnel do not exist in any sector of water supply and sanitation to insure timely implementation of top-down projects. Manpower development programs, both for environmental health technicians and educators and for program managers, are appropriate steps at this point in the development of water supply and sanitation programs in Indonesia.

In summary, the approaches and conditions for technical assistance to agencies in developing countries were discussed. It was generally agreed that self sufficiency was the goal and short-term benefits might be sacrificed to meet long-term goals when operating under this approach. It was suggested that many technical assistance programs are self-defeating in that they develop dependency rather than self sufficiency.

In general it was agreed that:

1. A thorough understanding of the political, economic and cultural aspects of the problem sphere should be developed prior to designing a technical assistance program.

2. The expectations of the results of a project should be realistic and should be flexible in its design to account for acceleration and deceleration in the time schedule.

3. Staffing requirements in a manpower program, for example, should be based upon realistic in-country assessments not on imported criteria from multilateral agencies and/or developing country criteria.

4. Projects requiring technical assistance should be sequenced to allow for staged activities in which specific tasks are assigned to consultants, specific tasks are assigned to both agency and staff, and specific tasks are assigned to agency staff. The implementation of a project should require completion of each step prior to progressing to the next step.

5. Criteria for the selection of consultants should weigh the ability of the person to work with counterparts higher than their academic and prior consulting experience. The principle role of the consultant should be to develop a working relationship with the counterpart or counterparts which will result in a shared experience. The consultant should be more of a motivater rather than an information bank and should be responsible for orchestrating all aspects of the communication process during the period of the consultancy.

Chapter 4

RSMD PROGRAM NEEDS

The future success of the RSMD schools is dependent upon the dedication and the educational level of the respective faculties. A strong and dedicated staff currently exists in the RSMD project. Therefore it is incumbent on PUSDIKLAT to carefully plan and complement its faculty development to insure a well planned and flexible organization which can meet future needs. This long-term development should incorporate into its program: a short-term, in-service training program for existing faculty in specific problem areas such as appropriate technology, operation and maintenance of water and wastewater systems, educational technology, and technology development. In addition, the program should provide short-term training in information dissemination, media production, project management, and technical areas within the environmental health field (see RSMD Project Paper, USAID, Indonesia, December 1975).

The second area of faculty development is in the selection and training of new faculty members for the SPPH and APK schools. This program should be on-going to insure that technically competent and education oriented sanitarians and sanitation technologists are available as faculty resources. The success to date of the RSMD project is partially attributed to the selection of environmental health professionals in the various health departments who became educators and school administrators. As pressure mounts to increase the number of graduates from each of the schools the demand for faculty members will also increase, a demand that will affect the program at the provincial level as experienced professionals are incorporated into the educational system.

4.1 Faculty Resources

The development of the faculty resources at the SPPH and APK institutions is a major priority in both the short-term, four to five, and in the long term, five to fifteen years. A strong cadre of instructors now exists at the nine SPPH and two APK institutions which should serve as a nucleus for future faculty development. The demand for sanitarians and sanitation technologists will be dramatically increasing to meet existing environmental health problems, specifically those associated with rural water supply and excreta disposal programs, as well as improved environmental health associated with economic development and urban consolidation. The problems posed to environmental health professionals in Indonesia demonstrate the complexity and breadth of skills necessary to develop effective programs.

4.1.1 Need for Special Skills

The rural sanitation problem will become more intense in the next five years as population increases and as villages and urban fringe densities increase. Effective solutions will require the skills of the environmental health specialist, appropriate technology capabilities, and information systems. For measuring program effectiveness and for dissemination of alternative solutions, the schools should begin immediately to strengthen and to develop staff capability by initiating the following actions:

1. Develop a strong information base of the appropriate technology resources of each schools including books, periodicals, pamphlets, publications, etc. on appropriate technology strategies, solutions, construction plans, and assessment studies. PUSDIKLAT should develop a common information storage and retrieval system to be used by all schools in coordination with the schools' librarians.

2. The schools should immediately develop and implement hands-on training for various examples of appropriate technologies in the areas of water supply, excreta disposal, wastewater treatment, solid waste collection and disposal, and housing. The development of the material should be coordinated by PUSDIKLAT to minimize duplicaton of common elements and to identify unique solutions indigenous to problems of specific regions. This material should be packaged in a standard format to be used by SPPH and APK institutions and in special health department training programs. The format of the material should be a complete stand-alone document in Bahasa Indonesian starting with a brief literature review and discussion of environmental conditions that are amenable to a particular solution and those that preclude the technology as a solution. The material should include a step-by-step description of the process of how to design, construct, and operate the technology, an economic analysis with and without volunteer assistance, and a brief discussion of any assessment of existing systems.

   Two separate documents should be produced. The first document should be an instructor's manual directed toward the students of the schools who later will implement tnese or similar projects in the field. The second document to be produced will be the user's document which will possibly have to be adapted to local traditions and cultures and possibly produced in selected languages or dialects. This activity should be funded by USAID through the RSMD project by establishing an agreement with each school to produce an instructional package on appropriate technology coordinated by PUSDIKLAT. These packages should include testing and evaluation data for each solution over an expected range of environmental variables. The last step of

this process is to incorporate these instructional packages into the curriculum of each school. Such incorporation could take place through workshop sessions and/or laboratory exercises to insure that each student has actively constructed and/or tested various appropriate water and excreta disposal alternatives. This curriculum then could be broadened and incorporated into local health department projects by allowing students to construct devices for regional and centrally funded projects. The important aspect of these items from an educational point of view is student involvement in the design, construction, and operation of an appropriate water and excreta disposal technology.

3. To further strengthen and focus the appropriate technology capabilities of the schools, field observation and seminar courses should be developed. In-country expertise at the Development Technology Center in Bandung (DTC) and Dian Desa (in Jogjakarta) in consultation with PUSDIKLAT, for example, could be used to develop this element. This could include site visits to typical institutions for selected faculty members within Indonesia and possibly to sites in neighboring countries. A seminar series could be designed for presentation to interested faculty showing results to date and areas of future work. This would serve a coordinating function within Indonesia for appropriate technology in water supply, excreta disposal, and wastewater treatment. All GOI agency projects involved, as well as donor country projects, could be presented and discussed at this seminar.

4.2 Graduate Education in Critical Problem Areas

The next most critical need in terms of faculty development is the provision of opportunities for graduate education in critical problem areas. This program should be implemented to insure an orderly transfer of existing strategies and techniques for use in environmental health problems. For purposes of developing self-sufficiency in education it is necessary at this time to select and train PUSDIKLAT personnel at the graduate level. Not only would the program begin to develop in-country capabilities in specific technical areas of environmental health, but it would also assist in developing career paths for environmental health educators in Indonesia.

Selection should begin as soon as possible for the first Ph.D. candidate in environmental health. Because of the three to four year time lag in the education process, this decision affects programs at least five years from the starting time. This candidate should be graduated at the MS level and should be currently active in an area of leadership and responsibility in the environmental health field in Indonesia. Staffing of schools of higher education in environmental health is de-

pendent upon in-country self-sufficiency for teaching, research and administration. A possible area of specialization for the first candidate should be in the area of water supply and wastewater treatment with minor emphasis on industrial waste and general environmental health.

A second equally important selection is that of candidates for training at the MS level. Faculty members trained at this level will be needed to implement applied technology and to provide teaching on emerging problems in environmental health such as industrial waste, air pollution, solid waste management, industrial hygiene, pesticide hazards, and environmental impact assessment. In the next years these emerging problems will be formulated into action programs at the local level where trained professionals in these areas will also be required. Even though many of the emerging problems are currently of only regional significance, the economic and industrial development pattern in Indonesia might allow any of the above mentioned problems to occur in any of the provinces of Indonesia. The mobility of environmental health professionals is increasing as job and career development opportunities are established in various provinces and at the national level. An important consideration for PUSDIKLAT at this time is the preparation of a detailed long-term faculty development plan to be used to secure GOI and donor country resources.

The third area of needed faculty development is in the area of educational technology. The long-term success of any educational system is dependent upon its ability to be efficient and effective in the transfer of that information which can be readily used in problem solving. There is a long-term plan to maintain and develop faculty skilled in educational technology and to develop in-house capability for instructional development. A target of opportunity for PUSDIKLAT is the area of educational delivery systems.

Advanced degree programs with the following areas of emphasis should be initiated:

1. General Education:

    a. curriculum development
    b. teacher training
    c. administration supervision
    d. educational planning
    e. tests and measurement
    f. research design and evaluation

2. Educational Technology:

    a. instructional material development
    b. systematic design and use of instructional material
    c. formative and summative evaluation
    d. instructional systems design and communications

3. Non-formal Education:

   a. program design and development skills training
   b. evaluation and assessment
   c. instructional materials development
   d. policy development
   e. manpower development

Chapter 5

PUSDIKLAT REORGANIZATION

5.1 Effects of the Reorganization

PUSDIKLAT has recently undergone a reorganization which will greatly affect next year's staffing of the agency. This reorganization makes each of the health sector activities such as sanitation, nursing, medical technology, nutrition, a discrete unit within PUSDIKLAT. Each of these units will have a training section, an evaluation section, an administrative and financial section. The projected staffing requirement, for example, for the RSMD project, which incorporates all of the sanitarian training, will go from four to approximately twenty. This reorganization will add needed manpower in specific currently understaffed areas. The training function of the RSMD group will be one of the greatest benefactors of this reorganization. At present, one training officer must cover all personnel training functions. Competency-based training has been introduced to PUSDIKLAT and many of the programs have produced excellent training systems. What is needed now as the organization has expanded its staffing and function, is continual review and an in-service training program.

5.2 Recommendations

1. An educational consultant should be assigned to the PUSDIKLAT-RSMD program to assist in establishing an in-service training system and an on-going evaluation of existing curricula. A six month period of technical assistance should be sufficient to develop the framework and the implementation policies for these tasks. This next year is a critical time as the reorganization takes place and many field oriented environmental health specialists become educational specialists.

2. PUSDIKLAT should establish a long-term plan for an in-service training program in the areas of competency-based training, evaluation and review, project management, media development, and appropriate technology application.

Chapter 6

OUTPUT FROM THE ORDER OF TECHNICAL DIRECTION

6.1 RSMD Equipment

6.1.1 Need for Equipment

The site visits to the various SPPH and APK institutions uncovered the dire need for laboratory supplies, equipment, and field equipment. Directors at three of the schools asked specifically for assistance in acquiring these commodities. The RSMD project ordered, through GSA, the necessary items as described in the loan agreement to equip the laboratory and field courses in the curriculum. This equipment had arrived in the Port of Jakarta sometime prior to December of 1980. The necessary customs release documents were processed, but an administrative problem arose which resulted in a major roadblock to acquiring the commodities. Continuous effort during the six-week tour of duty resulted in the initiation of the necessary letters and administrative procedure to release this shipment.

The problem could have been avoided if purchasing had been done by local agents rather than by GSA and if proper procedures had been followed by PUSDIKLAT. All parties involved, USAID and PUSDIKLAT staff members, felt that local procurement agents could have supplied all the necessary items. These agents could have assisted in packaging the equipment for each school and would have been available for follow-up on breakage and equipment malfunction.

6.1.2 Recommendations

1. There should be follow-up by USAID/Indonesia to insure that commodities and equipment have been released to the RSMD project.

2. The directors of the schools or their designees should attend a two day workshop in Jakarta once these materials have been released to acquiant them with the equipment and to develop the curriculum based on use of this equipment.

3. Any further purchase of commodities should be handled by a local procurement agency to facilitate delivery and any necessary follow-up.

6.2 Library Resource Development

6.2.1 Deficiencies in Library Resources

The libraries at the various schools were totally inadequate for the programs being provided. Some individual faculty members have developed their personal libraries from the University of Hawaii RSMD project and from their own budget.

The original RSMD project was remiss in not identifying library resource needs and not providing more reference and textbooks to the schools. A small line item, in the RSMD project of about $200, was available for acquiring appropriate journals and special documents for the schools. A special need exists for textbooks written in Bahasa Indonesian in the major areas of the curriculum. The library acquisition of the University of Hawaii technical assistance team was given to PUSDIKLAT and will be housed at PUSDIKLAT in Jakarta to be used by all schools. At the present time this source of information has limited circulation.

As a result of this deficiency the consultant directed considerable effort toward the production of a list of books and reference materials. A list of 60 textbooks and reference books was developed with their respective ordering instructions and addresses. This list will serve as a starting point for the compilation of lists to be purchased by the RSMD project. The directors of the schools (SPPH and APK) will make this decision at their October meeting. Contingency money in the RSMD loan agreement will be made available to purchase these books for each of the schools. This is a priority item to insure an adequate information base for instruction and technology development.

6.2.2 Recommendations

1. The final list of books and reference materials for the schools should be compiled by the RSMD staff, school directors, and faculty. This list should include all ordering information such as publishers, addresses and cost.

2. Local procurement agents should be commissioned to purchase as much of the materials as possible.

6.3 Appropriate Technology Reference Material

6.3.1 The Need for Reference Materials

The faculty members at each of the schools visited were actively involved in some aspect of technology development or appropriate technology research.

When reference materials at each of the schools were found to be inadequate another task was undertaken to be accomplished during the six-week assignment. A series of reference articles giving examples of appropriate technologies in water supply and sanitation was compiled and placed into copy-ready form prior to leaving. It was determined that 40 copies of this 290 page document would be reproduced by the RSMD project and three copies distributed to each of the RSMD institutions (see Appendix D).

These reference materials included publications by Indonesian organizations in the Bahasa Indonesian language, from DTC at Bandung and Dian Desa at Jogjakarta, as well as examples from other countries. This package of information also included articles from private non-profit organizations and from multilateral organizations. It was envisioned that this information would serve as an information source and idea book for information dissemination.

This document will, hopefully, serve as a resource for the faculty members and students until such time as the libraries are in full operation. Several different types of media production techniques were chosen to be included in this package so as to serve as a guide for different types of information dissemination systems for the institutions. For example, a research level publication with complete design data was one type of booklet. Another type was a construction and operation booklet for the construction of ferro-bamboo pipe.

One interesting finding during this assignment was that a significant amount of appropriate technology research and application exists in Indonesia. What appears to be needed at this point is an information transfer mechanism within the country to allow for generation of ideas and for the development of informal channels of communications.

6.3.2 Recommendations

1. Forty copies of the Appropriate Technology reference materials should be published and distributed to 11 schools. The cost for publication and distribution should be borne by the RSMD project.

2. A water and wastewater appropriate technology workshop should be organized and coordinated by the RSMD project staff. This workshop should serve as an information transfer mechanism among the government agencies, private organizations, and educational insititutions presently active in water supply, wastewater, and excreta disposal appropriate technology application.

6.4 Format for Appropriate Technology Instructional Material

Each school should select a separate area for development of an appropriate technology instructional package. This instructional package will be used in the existing curriculum as a laboratory or a field demonstration. The material should be designed to provide the student hands-on experience in designing, constructing, operating, and evaluating some element of an appropriate technology device in the area of water supply or waste treatment. The intent is that 11 different appropriate technology packages will be produced and made available to all the schools, allowing each school to use some or all of the packages in implementing their instructional programs. The choice of appropriate technology to be utilized will depend upon institutional resources and local conditions. It is envisioned that the design of the packages should be such that local variations in materials, degree of community participation, technology level, etc. can easily be substituted and incorporated into the instructional package.

These instructional packages should be designed as training documents. The first element of the package is a brief, but thorough, literature review of the type of technology with special emphasis on the environmental constraints which required a specific technology. The second element of the instructional package is the development and statement of design criteria that should follow logically from the literature review and lead to the design phase. The third element of the instructional package is the construction and/or fabrication phase. This element should include all aspects of design beginning with a materials list and continuing through to fabrication. This element should be well thought out to insure that sufficient details and substitution techniques and materials which might be employed are included. The construction element should also include an economic analysis with special attention given to various types of labor inputs. For example, separate analysis could be generated for contract derived labor, government service labor, locally paid labor, and various degrees of involvement of volunteers in the construction phase. This instructional approach has been used elsewhere and a model workshop on its use could be developed quite easily.

6.5 Draft Proposal for PUSDIKLAT Faculty Development

A draft proposal was prepared and presented to PUSDIKLAT staff which would serve as a guide for long term faculty development. This proposal was designed to be an initiating document to be used by PUSDIKLAT late this year in a faculty seminar. The purpose of this seminar was to identify the long-term faculty training and curriculum needs and to develop the coordination framework with other education and development agencies.

This proposal identifies several major activities which must be accomplished over the long-term. The first need is to rank those problem areas anticipated to be within the Ministry of Health's area of responsibility.

Another aspect of the proposal deals with the number of faculty needed to train requisite numbers of sanitarians and sanitation technologists to meet project national needs (see Table 1). This estimate of the needed numbers of faculty demonstrates the direct effect staffing of schools will have on sanitarians in the field. Unless properly managed the drain of trained field sanitarians will have severe consequences for the Ministry of Health's implementation and evaluation programs at the provincial level. Proper management would also include inservice and extra-mural training for RSMD faculty. This training would minimize the lag time between problem identification and acquisition of skills to solve the problem. For example, it is envisioned that in two to four years the Ministry of Health will be responsible for implementation of training programs dealing with the operation and maintenance of individual and community water supply systems. At the present time some in-service training needs have been identified in the area of pump maintenance. Most of the field sanitarians are not equipped to deal with this problem.

Table 1

SHORT RANGE FACULTY DEVELOPMENT PLAN BY YEAR

INSTITUTION	1982						1983						1984						1985						1986						1987					
	1**	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
	Total Faculty(FT)	Program Graduates	FKM	MS	Admin.Educ.Tech.	Ph.D.	Total Faculty(FT)	Program Graduates	FKM	MS	Admin.Educ.Tech.	Ph.D.	Total Faculty(FT)	Program Graduates	FKM	MS	AdminEduc.Tech	Ph.D.	Total Faculty(FT)	Program Graduates	FKM	MS	AdminEduc.Tech.	Ph.D.	Total Faculty(FT)	Program Graduates	FKM	MS	AdminEduc./tech.	Ph.D.	Total Faculty(FT)	Program Graduates	FKM	MS	AdminEduc.Tech.	Ph.D.
PUSDIKLAT (3)*	15			1	2	1	23			1			26			1			28						30					1	32				1	1
APK-JAKARTA (12)	14	40		1			16	40			1	1	18	40		1			20	50					22	50					25	50				
APK-SURABAYA (12)	14	40		1			16	40			1		18	40					20	50				1	22	50		1			25	50				
SPPH-MEDAN (5)	6	40	5				7	40	2				8	40	2	1			9	60	2		1		12	60	1				15	80	2			
SPPH-LAMPUNG (6)	7	40	4				8	40	2				9	40	3	1			10	60	3		1		12	60	1				15	80	3			
SPPH-PURWOKERTO (5)	6	40	5				7	40	2				8	40	2	1			10	60	2		1		12	60	1				15	80	2			
SPPH-SURABAYA (5)	6	40	5	1			8	40	2		1		9	40	3				10	60	3				12	60	1	1			15	80	2			
SPPH-DENPASAR (6)	7	40	4				8	40	2				9	40	3	1			10	60	3		1		12	60	1				15	80	2			
SPPH-BANJARMASIN (6)	7	40	4				7	40	2				8	40	2	1			10	60	2		1		12	60	1				15	80	3			
SPPH-MENADO (3)	4	40	3				5	40	2				6	40	2	1			8	60	2		1		12	60	1				15	80	3			
SPPH-UJUNG PANDANG(4)	5	40	3				6	40	2				7	40	2	1			9	60	2		1		12	60	1				15	80	3			
SPPH-BANDUNG (5)	6	40	5	1			7	40	2		1		8	40	2				10	60	2				12	60	1	1			15	80	2			
TOTAL	97	440	38	5	2	1	118	440	22	1	4	1	134	440	19	9			154	640	19		7	1	182	640	9	3		1	217	820	22		1	1
GRADUATES																																				
SPPH		360						360						360						540						540						720				
APK		80						80						80						100						100						100				

* Existing number of full-time faculty

** Numbers Indicate the Following:

1) Projectd number of full-time faculty.
2) Targeted number of graduates for each institution.
3) The number of positions at FKM (School of Public Health).
4) Number of APK and SPPH faculty members accepted into M. S. environmental health graduate programs.
5) Number of APK and SPPH faculty members accepted into M. S. instructional technology graduate programs.
6) Number of APK and SPPH faculty members accepted into Ph. D. environmental health graduate programs.

Chapter 7

BANDA ACEH SITE VISIT (CHIPPS PROJECT)

7.1 Background of the CHIPPS Project

The D.I. Aceh Department of Health has been involved in developing aspects of the Comprehensive Health Improvement Program Province Specific (CHIPPS) project for approximately a year. The D.I. Aceh's first understanding of the CHIPPS project was that construction monies could be used for developing community water supply and sanitation systems. The sub-villages for this development had been identified as high risk sites for water-related diseases. Health records indicated cholera outbreaks and endemic levels of waterborne bacterial diseases in many of the villages. One such reported outbreak of cholera was later found not to be cholera by Dr. Curlin of USAID after a site visit and laboratory analysis. The need to establish priorities of water supply development based upon epidemics of cholera or other serious water-related diseases is the principal criterion apparently used by health agencies in determining development projects in water supply and sanitation.

It would appear that the potential exists for cholera outbreaks in many if not all of the sub-villages considered and that the health records, regardless of their accuracy and validity, must be considered to some extent in developing priorities for water supply systems and excreta disposal. Since the CHIPPS project has focused on health records and epidemiological studies as the basis for its comprehensive coverage, it appears that expansion of the scope of work to include technology development is consistent with the goals of the project.

7.2 Current Activities

The latest CHIPPS project proposed by the D.I. Aceh Health group is a scaled-down pilot project from their original proposal. This project would select 10 sub-villages, which equals approximately 16 percent of one kapupaten (an administrative unit consisting of clusters of villages), and develop for each sub-village a total water and sanitation system.

The latest project proposal from D.I. Aceh, with some reduction and integration, could fall within the scope of the CHIPPS program and should be considered. The reduction in scope should include a comprehensive sanitation element for various sub-villages, to include excreta disposal and solid waste disposal as well as water supply development. The integration of any new request should include the pilot and demonstration potential for the use of appropriate technologies and community involvement as it relates to the INPRES program. The

INPRES program, a centrally funded GOI project, will last for seven to 10 more years. The INPRES program has a high priority, as stated by the President, and will serve as an important development project for the Ministry of Health. Because of the political nature of the distribution of these monies, though, it is difficult to demonstrate site-specific impacts. An opportunity does exist through the CHIPPS project to demonstrate low-cost appropriate technologies which can be utilized by the INPRES program and also to demonstrate community support and technology transfer programs.

USAID/Indonesia's impression of the D.I. Aceh request was one of possible inappropriateness and of being over-ambitious. Upon arrival at Banda Aceh, discussions were initiated with Abdurahman, a sanitarian, M.P.H., concerning the expectations and details and the specific requests. Discussions the following morning with the Secretary of the D.I. Aceh Health Department served to further define the D.I. Aceh request and clarify the rationale for the request.

The problem from their perspective was one of possible philosophical difference and lack of communication. They viewed their request as a token pilot program which could be used both as an intervention program at specific sub-villages in the water diseases and as a demonstration project in developing alternatives to be used by the INPRES program. The INPRES program seldom places enough resources in any one location to affect short-term health patterns and therefore could have minimal community acceptance.

In summary the D.I. Aceh health officials were concerned with the omission of any tasks associated with the development and construction of water supply systems. It was pointed out, though, that the environmental impact requirement did mention the possibility of wells and simple piped water systems.

7.3 Recommendations

1. A concept approval by USAID and D.I. Aceh should occur early in the planning phase, late 1981, relative to the scope and the intent of the CHIPPS project.

2. A suggested scope of work could include construction of sanitation and water supply systems at those sites selected by provincial health officials with cooperation from the local population.

3. This technology development activity should serve as a demonstration project for reduction of waterborne disease and for community volunteerism in construction and operation of appropriate technological solutions.

4. Problem definition and alternative solutions including background epidemiological studies and project evaluation should be designed and implemented by the users with assistance from D.I. Aceh Health Department personnel.

5. Linkages should be developed between the CHIPPS program and INPRES program to maximize the information transfer from the CHIPPS program, a provincial project, to INPRES, a top-down project.

6. A working relationship should be developed with one or more of many organizations in Indonesia actually involved in appropriate technology. Organizations such as Dian Desa in Jogjakarta and the Development Technology Center in Bandung are examples of two which are active in the area of water supply, excreta disposal, and wastewater treatment. Technical assistance is available in-country to assist with application of appropriate technology. They should be involved early in the planning process to insure maximum utility.

7. It is recommended that representatives from these organizations be retained to serve as on-going resources as the project is designed and implemented.

8. The school for sanitation technologists (SPPH) in Medan should allow for an increased quota of students from D.I. Aceh to insure adequate staff at the personnel level for implementation of CHIPPS project.

9. A draft budget for construction activities could include the following budgeted elements.

1.	Excreta Disposal	15×10^6 Rp
2.	Community Water Supply	35×10^6 Rp
3.	Artesian Spring	10×10^6 Rp
4.	Dug Well Protected	15×10^6 Rp
5.	Shallow Pump	30×10^6 Rp
6.	Rainwater Collection	40×10^6 Rp
7.	Spring Protection	5×10^6 Rp
8.	Training Material for Construction and Operations	10×10^6 Rp
		160×10^6 Rp

This amounts to approximately $250,000 over the five-year period to be funded from the field studies and trial work element in the CHIPPS program.

10. It is imperative that to be considered as an element in the CHIPPS program the technology development activities be coordinated in a comprehensive manner with other work elements and that all construction activities be localized in regions where community involvement will be optimal. It is important that the effect of construction intervention not be diluted but instead concentrated in order to increase the probability of measurable impact.

Chapter 8

FUTURE ACTIVITIES OF THE RSMD PROJECT

Several areas of needed technical assistance have been identified. Present activites in PUSDIKLAT and those proposed activities to be incorporated into the Ministry of Health establish PUSDIKLAT as a key organization nationally in the implementation of rural water supply and sanitation programs. Listed below in order of importance are the technical assistance needs.

1. A need will exist for a technical assistance consultant in the area of competency-based training and curriculum development. Assistance will be needed when reorganization occurs to develop a strong instructional base for RSMD and future programs. This assistance should be available for a three- to six-week period after reorganization has occurred and a training coordinator has been selected. In all probability this training coordinator will be an existing staff member at one of the RSMD institutions with no formal training in instructional technology.

2. A need will exist for a librarian to assist in organizing the reference and textbook resources in each of the institutions and in PUSDIKLAT. This technical assistance will not be needed until after all books and reference materials have been received by the schools and all libraries have been constructed or remodeled. Special seminars on library organization and management could be given to the librarians from each of the schools and to school directors. An unusual opportunity exists to develop information storage and retrieval systems since each school of 11 schools are coordinated by PUSDIKLAT. Other tasks could include use of advance technology for information transfer. The tasks associated with this activity would require a three- to five-week assignment.

3. A need exists for a specialist in the area of media production and dissemination. Each of the schools have been assigned tasks in this particular area and have already begun to produce documents for various targeted audiences. Tasks associated with this assistance could include format standardization, media production techniques, evaluation and assessment techniques, media selection criteria, equipment operation and maintenance, etc.

4. A need exists for technical specialists in areas of water supply, excreta disposal, wastewater treatment, and construction materials and techniques. Short one-week workshops for RSMD staff and Provincial Health Department personnel are needed in specific areas such as hand pump maintenance, ferro-cement construction techniques, iron removal systems, biogas generation, excreta disposal al-

ternatives in various climatological conditions, well drilling techniques, etc. These activities could occur at any time and could be coordinated with in-service training activities.

ACTIVITY	1981		1982											
	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Competency Based Training					←	→								
Library Resources														
Organization and Acquisition	←	→												
System Developed		←	→	→										
Training of Librarians					←	→								
Media Production and Information Dissemination			←	→										
Technical Workshops (Appropriate Technology)														
Management Skills		←	→											
Community Participation & Volunteerism				←	→									
Water Supply					←	→								
Excreta Disposal							←	→						
Wastewater Treatment											←	→		
Constuctional Materials & Technologies													←	→

Table 2

SUGGESTED SCHEDULING OF PROPOSED ACTIVITIES

BIBLIOGRAPHY

Gearheart, R.A., and C.E. Calbert, Indonesia Rural Sanitation and Manpower Development Project. The Development of Appropriate Technology and the Improvement of Curricula for Training of Sanitarians, WASH Field Report No. 16, March 1981, Arlington, VA.

University of Hawaii/Indonesian Ministry of Health, Final Project Report--Rural Sanitation Manpower Development Project, October 1980.

USAID/Indonesia, Indonesia--Rural Sanitation Manpower Development, AID-DLC/P-2133, Jakarta, December 1975.

USAID/Indonesia, Project Identification Paper for the Comprehensive Health Improvement Program Province Specific (CHIPPS), Jakarta, July 1981.

WHO/IBRD, Republic of Indonesia Water Supply and Sanitation Sector Study, International Bank for Reconstruction and Development/World Health Organization Cooperative Publication, Geneva, February 1977.

APPENDIX A

Water and Sanitation for Health (WASH) Project
Order of Technical Direction (OTD) Number 44

June 26, 1981

MEMORANDUM

TO: Dennis Warner Ph.D., P.E.
WASH Project Director (Acting)

FROM: DS/HEA, John H. Austin

THRU: DS/HEA, Victor W. R. Wehman, Jr., P.E., R.S.
AID WASH Project Manager

SUBJECT: Provision of Training and Technical Assistance for Technology Development and Dissemination in Water and Sanitation for RSMD/USAID, Indonesia

REFS: 1) JAKARTA 07976, 2) JAKARTA 08178, 3) Memo Keller to Wehman, 3 June 81, 4) WASHAID 64552 - TLX 066, 5) STATE 146531, 6) Letter Meade to Austin, 8 June 81, 7) Clive Chapman-Curriculum Vitae, 8) Alan Spencer-Curriculum Vitae, 9) Manpower Development Programme for Community Water Supply in the Republic of Indonesia -IRC, Jan 81, 10, Manpower Development for the Urban Water Supply Sector, Indonesia. Manpower Classification System-IRC, April 1981. 11) Manpower Development for the Urban Water Supply Sector: Plan of Operation IRC, Sept. 1, 1980, 12) Manpower Development Programme for Community Water Supply in the Republic of Indonesia. Report of Training Consultant. IRC. Jan 1981, 13) JAKARTA 09302, 14) JAKARTA 09516, and 15) Business cards

1. WASH contractor requested to provide technical assistance to USAID/Jakarta per Scope of Work (REF 14)

2. WASH contractor/subcontractor/consultants authorized to expend up to 60 person days effort over a 3 month period for this.

3. Contractor to provide final draft report to mission on Scope of Work elements before leaving mission. Contractor to make arrangements for local secretary and typewriter as needed. Contractor to provide final report to USAID within 30 days of contractor's staff leaving Indonesia.

4. Contractor to coordinate directly with USAID/Jakarta (Mr. Bob Pratt) in the Health Office of Mission. Make sure Dr. Curlin (ASIA/TR/HNP), ASIA/PD Indonesia officer, Indonesia AID desk officer and ASIA/PD/ENGR (Mr. Hasan Hasan), are aware of this technical assistance effort and of travel itineraries and clearances of all consultant staff.

5. Contractor authorized up to 56 person days of international and domestic per diem.

6. Contractor authorized one round trip travel from consultant's home base through Washington to Jakarta, return to Washington for debriefing and return to their home base.

7. Contractor should ensure a timely and thorough briefing and debriefing for Asia Bureau and DS/HEA personnel in Washington, D.C. before and after trip.

8. Contractor authorized to pay local expenses in Jakarta or other Indonesia sites for local hire of secretary, interpreter, xeroxing, car rental or other miscellaneous expenses.

9. Contractor authorized up to 6 round trips within Indonesia to RSMD sites, if required, from Jakarta to sites and return to Jakarta, if necessary, to carry out mission.

10. Mission should be contacted immediately and technical assistance initiated as soon as possible and convenient to USAID/GOI.

11. In Indonesia contact should be made with Alan Spencer on his implementation plan for training. He can be contacted at:

IRC Manpower Development Programme
c/o Mr Dol
Dutch Embassy
Kebon Sirim No. 18
Jakarta, Indonesia

12. In order for contractor to prepare himself for his mission, it is suggested that he make the following visits (no more than 2 days maximum):

Contact

(1) WASH staff, AID staff

(2) Industrial Training Service, (See Ref. 6-12 and 15)
J.P. de C. Meade
Clive Chapmen
Anthony Milburn

(3) IRC, Rijswijk, Netherlands (See Ref. 6-12 and 15)
Gareth Howell
Hans van Damme
Jan Haijkens

ACTION COPY

Department of State

TELEGRAM

PAGE 01 JAKART 07976 260744Z 9027 013311 AID9233
ACTION AID-35

ACTION OFFICE DSHE-01
INFO AAAS-01 ASEM-01 ASDP-02 STA-10 ASPD-03 ASTR-01 AADS-01
CMGT-02 CTR-02 ENGR-02 POP-04 IT-06 CH8-01 HEW-09 RELO-01
MAST-01 ASSP-02 AGEE-01 /051 A1 426

INFO OCT-01 /036 W 242300 260744Z /34

R 260619Z MAY 81
FM AMEMBASSY JAKARTA
TO SECSTATE WASHDC 4277

UNCLAS JAKARTA 07976

AIDAC

EO 12065: N/A

SUBJECT: SHORT-TERM CONSULTANT - WATER AND SANITATION FOR HEALTH (WASH)

1. MINISTRY OF HEALTH, CENTER FOR EDUCATION AND TRAINING (PUSDIKLAT) THE IMPLEMENTING AGENCY FOR THE RURAL SANITATION MANPOWER DEVELOPMENT PROJECT (RSMD) HAS REQUESTED ASSISTANCE FOR A PROGRAM OF TRAINING AND TECHNICAL ASSISTANCE FOR TECHNOLOGY DEVELOPMENT AND DISSEMINATION IN WATER AND SANITATION FIELD AS FOLLOW-ON TO MARCH WORKSHOP FOR WHICH WASH CONSULTANTS GEARHEART AND CALBERT PROVIDED TECHNICAL ASSISTANCE. IN ORDER TO REFINE THE PROPOSED PLAN, INCLUDING IDENTIFICATION OF APPROPRIATE INPUTS WHICH MIGHT BE MADE BY WASH AND OTHER SOURCES, PUSDIKLAT AND USAID REQUEST THAT WASH PROVIDE SERVICES OF DR. ROBERT GEARHEART FOR SIX WEEKS BEGINNING EARLY JULY 1981. HE WOULD WORK WITH THE PUSDIKLAT RSMD STAFF TO REFINE THE PROPOSAL AND PLAN SPECIFIC ACTIVITIES. PLEASE ADVISE IF CONSULTANCY POSSIBLE AS REQUESTED. MASTERS

Received in DS/HEA (Washington) 6/3/81
Passed to WASH. 6/3/81

UNCLASSIFIED

UNITED STATES GOVERNME

memorandur

DATE: June 3, 1981

REPLY TO ATTN OF: Howard B. Keller, Asia/TR/HPN

SUBJECT: Short Term Consultancy (WASH)- Indonesia RSMD Project

TO: Victor Wehman, DS/HEA Water Supply & Sanitation

We have today received by Telegram Jakarta08178 a request from our Mission in Indonesia for follow on T/A for their Rural Sanitation Manpower Development project. They request that through WASH we obtain the services of Dr. Gearhart for six weeks commencing in early July to assist the Indonesian Ministry of Health, Center for Education & Training in establishing a program of training and technical assistance for technology development and dissemination in water supply & sanitation.

This would be a follow on to the T/A which Dr Gearhart & Dr. Calbert furnished in March.

Asia/TR will appreciate your expeditious assistance in arranging for the requested short term assistance to USAID-Jakarta.

(4)

Vic Wehman

C/120

WUI GA
79644218+*
WASHAID 64552

0157058 1512 06/18

44218 AMEMBJKT

OUR TLX 066

TO: DAVID CALDER
AMEMBASSY, USAID
JAKARTA

FROM: DENNIS WARNER
WASH PROJECT

SUBJECT: REQUEST FOR WASH CONSULTANT SERVICES OF DR. ROBERT GEARHEART

REF: JAKARTA 08178

GEARHEART IS AVAILABLE FOR SIX WEEKS STARTING APPROXIMATELY JULY 15 IN THE FIELD. PLEASE FORWARD DETAILED SCOPE OF WORK TO DS/HEA IMMEDIATELY SO OFFICIAL AUTHORIZATION CAN BE ISSUED TO WASH.

WASHAID 64552
*
44218 AMEMBJKT
MMMMM
001.7 MIN

Department of State

OUTGOING
TELEGRAM

PAGE 01 STATE 146531 0603 020830 AID6238
ORIGIN AID-35

ORIGIN OFFICE ASTR-01
INFO AAAS-01 ASPD-03 AADS-01 DSHE-01 CH8-01 RELO-01 ASSP-02
/011 AO

INFO OCT-00 /035 R

DRAFTED BY AID/ASIA/TR/HPN:H KELLER:PAC → V. Wehman
APPROVED BY AID/ASIA/TR/HPN:G CURLIN
AID/ASIA/PD:R ASSELIN (INFO)
AID/ASIA/ISPA:R DAKAN (INFO)
135573 050458Z /34

R 050417Z JUN 81
FM SECSTATE WASHDC
TO AMEMBASSY JAKARTA

UNCLAS STATE 146531

AIDAC

E.O. 12065: N/A

TAGS:

SUBJECT: SHORT TERM CONSULTANT - WATER SANITATION FOR HEALTH (WASH)

1. REQUEST FOR GEARHART T/A PASSED THROUGH DS/HEA TO WASH WHO ADVISE THEY WILL DO THE NEEDFUL. HAIG

Received DS/Hea (Wehman) 6/9/81
Passed to WASH 6/9/81

UNCLASSIFIED

WASH Proj. Dir.

UNCLASSIFIED

Department of State

INCOMING TELEGRAM

PAGE 01 JAKART 09302 180314Z 7619 042652 AID571

ACTION AID-35

ACTION OFFICE ASTR-01
INFO AAS-01 ASEM-01 ASDP-02 ASPD-03 AADS-01 DSHE-01 ENGR-02
CH8-01 RELO-01 MAST-01 ASSP-02 /017 A2 018

INFO OCT-01 /036 W

074347 180314Z /34

P 180210Z JUN 81
FM AMEMBASSY JAKARTA
TO SECSTATE WASHDC PRIORITY 4853

→ V. Wehman

Received DS/HEA (Wehman) 6/22/81

Passed to WASH 6/22/81

UNCLAS JAKARTA 09302

AIDAC

PASS TO: DENNIS WARREN, WASH AID

EO 12065: N/A

SUBJECT: WATER AND SANITATION FOR HEALTH (WASH) CONSULTANT ROBERT GEARHEART.

REF: A) JAKARTA 0796; B) JAKARTA 08178; C) TELEX FROM DENNIS WARREN RECEIVED HERE JUNE 11, 1981.

1. IN REPLY TO YOUR REF. TELEX, PLEASE REFER TO REFTEL A REQUESTING GEARHEART'S SERVICES NEEDED TO HELP DEVELOP AND REFINE GOI PLAN FOR TRAINING AND TECHNICAL ASSISTANCE FOR TECHNOLOGY DEVELOPMENT AND DISSEMINATION, INCLUDING THE IDENTIFICATION OF INPUTS TO BE LATER PROVIDED BY THE WASH PROJECT AND OTHER SOURCES

2. PLEASE ADVISE GEARHEART'S ETA WHEN AVAILABLE. GARDNER

PAGE 01 JAKART 05516 230550Z 5444 001210 AID9133
ACTION AID-35

ACTION OFFICE ASTR-01
INFO AAAS-01 ASEM-01 ASDP-02 STA-10 ASPD-03 AADS-01 DSHE-01
DSFN-01 CHB-01 RELO-01 MAST-01 ASSP-02 /026 A5 1123

INFO OCT-01 /036 W
------------------216354 230551Z /34

P 230405Z JUN 81
FM AMEMBASSY JAKARTA
TO SECSTATE WASHDC PRIORITY 4345

UNCLAS JAKARTA 05516

AIDAC

ATTN: A) DR. G.CURLIN, ASIA/TR/HPN; B) DR. E.MCJUNKIN, DS/HEA

EO 12065:N/A

SUBJECT: SCOPE OF WORK FOR SERVICES OF DR. R. GEARHEART.

REF: A) R.B. ISELY'S TELEX 063; B) JAKARTA 09302;
C) DENNIS WARNER'S TELEX 066; D) STATE 146531;
E) JAKARTA 07976; F) JAKARTA 08178.

FOLLOWING IS TEXT OF SEPARATE TELEX SENT TO R.B. ISELY IN RESPONSE TO HIS REQUEST FOR DIRECT MESSAGE TO AIDWASH:

1. MISSION TRANSMITTED TO AID/W THREE CABLES (REFTELS E, F, AND B) REQUESTING GEARHEART'S SERVICES. REFTEL E AND F WERE, BY OVERSIGHT, IDENTICAL. REFTEL B WAS MARKED QUOTE PASS TO UNQUOTE DENNIS WARREN, WASH AID AND REPEATED THE SUBSTANCE OF PRIOR CABLES.

2. AFTER DISCUSSION WITH COUNTERPARTS AT MINISTRY OF HEALTH WE ARE NOT ABLE TO PROVIDE SCOPE OF WORK IN FORM ANY MORE DETAILED THAN YOU ALREADY HAVE. A LITTLE BACKGROUND HISTORY MAY HELP: MOH PROPOSAL RECEIVED BY USAID REQUESTED AID WASH SUPPORT FOR TRAINING IN APPROPRIATE ENVIRONMENTAL SANITATION TECHNOLOGY IN VARIOUS ASIAN COUNTRIES; CONDUCT OF WORKSHOPS; OBSERVATION TOURS IN U.S.; AND CONSULTANT ASSISTANCE TO DEVELOP AND REFINE THE MINISTRY'S TECHNOLOGY-DEVELOPMENT PLAN.

USAID ENDORSED THE PROPOSAL IN PRINCIPLE BUT, BECAUSE OF EXCESSIVE COST AND SOME SHORTCOMINGS, AGREED TO REQUEST THE SERVICES OF DR. GEARHEART WHO IS BOTH FAMILIAR WITH THE PROPOSED ACTIVITIES AND SPECIFICALLY PREFERRED BY THE MOH. WE FEEL DR. GEARHEART'S TECHNICAL ASSISTANCE WOULD PROVIDE THE INPUT NECESSARY FOR THE IMPROVEMENT
UNCLASSIFIED

OF THE EXISTING PLAN AND THE POTENTIAL FUTURE INVOLVEMENT OF WASH IN THIS IMPORTANT FIELD.

3. A COPY MEMO RECEIVED HERE FROM ASIA/TR, DATED JUNE 3, 1981 INDICATES SYMPATHY WITH OUR PRIOR REQUEST FOR GEARHEART AND EXPLICITLY REQUESTS DS/HEA ASSISTANCE WITH PROCUREMENT OF HIS SERVICES. REFTEL D ADVISES THAT DS/HEA QUOTE WILL DO THE NEEDFUL UNQUOTE IN PROVIDING US WITH GEARHEART'S SERVICES.

4. INASMUCH AS BOTH YOUR TELEX MESSAGES (REFTEL A AND C) SUGGEST GAP IN COMMUNICATION BETWEEN AIDWASH AND DS/HEA PLEASE CHECK WHETHER ALL MESSAGES WERE PASSED BETWEEN YOU AND DS/HEA.

5. MISSION PREFERS TO COMMUNICATE WITH AIDWASH VIA DS/HEA,

JAKART 05516 230550Z 5444 001210 AID

THUS AVOIDING COSTLY COMMERCIAL TELEX. IS THERE A PROBLEM WITH THIS? MASTERS

→ F. WEHMAN

PASSED TO WASH 6/24/81

~~Austin~~ JNC

McJunkin

UNCLASSIFIED

Best Available Document

Industrial Training Service Limited

ITS

Registered office:
73/75 Mortimer Street, London W1N 8HX
telephone 01-637 8876/7
telegraphic address: Industrain, London, W.1.
telex: 888941 LCCI G prefixed INDUSTRAIN

Director and Secretary:
J P de C Meade OBE

Our ref: JPCM/SJG/359

8th June, 1981

John H. Austin Esq,.
Environmental Engineer,
Office of Health,
Development Support Bureau,
USAID,
Washington D.C.,
20523

Dear John,

... Many thanks for the copy of the Indonesian R.S.M.D. Project Report. John Densham is looking at it now as Clive Chapman has just departed to Tanzania.

Any news of a possible "Network" meeting this summer?

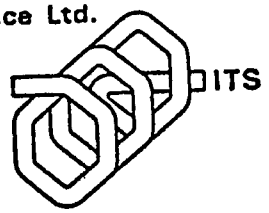
Yours sincerely,

J. P. De C. Meade
Managing Director

C.C. Mr F W. Greig,
Mr J. K. Densham.

(15)

Industrial Training Service Ltd.
(U.K. & Overseas Training Services)



CLIVE CHAPMAN
Senior Consultant

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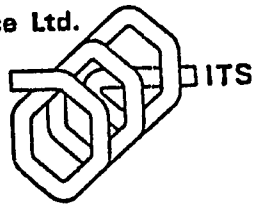

J. P. de C. Meade O.B.E.
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ANTONY MILBURN
SECRETARY-TREASURER

INTERNATIONAL ASSOCIATION ON WATER
POLLUTION RESEARCH.
ALLIANCE HOUSE.
29/30 HIGH HOLBORN.
LONDON WCIV 6BA
ENGLAND.

Gareth LOWELL

International Reference Centre
for Community Water Supply and Sanitation

J.C.van Markentaan 5 -Phone 070 949322
2285 VL Rijswijk Telex: 33296
Mail:P.O.Box 5500 Cable:Worldwater
2280 HM Rijswijk The Hague
The Netherlands Res:In van Meerdervoort 69
2517 AG Den Haag

APPENDIX B

Itinerary

July 20	-	Travel to Washington, D.C. from Arcata, California
July 21	-	Washington, D.C.
July 21	-	Travel to London
July 22	-	London
July 23	-	Chester
July 24	-	London
July 25	-	London - Bangkok - Jakarta
July 26	-	Arrive Jakarta - 4:00 p.m.
July 27	-	Jakarta
July 28 to August 12	-	Jakarta
August 13-15	-	Surabaya
August 23	-	Jakarta - Jogjakarta - travel
August 24	-	Jogjakarta (visit to Dian Nesa)
August 25	-	Bandung
August 26	-	Jakarta
August 27	-	Travel to Banda Aceh
August 28-29	-	Banda Aceh to Jakarta
September 5	-	Departed Jakarta

APPENDIX C

Officials Interviewed

1. PUSDIKLAT Project Staff

   Dr. Moh Issa - Director of PUSDIKLAT
   Mr. Soedaryanto - Director of RSMD Project
   Mr. Soewardi - Assistant Director of RSMD Project
   Mr. Soetigo - RSMD Staff, APK Jakarta Director

2. SPPH and APK - Institutions

   Mr. Soetigo - Director APK, Jakarta
   Mr. Satuhu - Director, Banjarmasin SPPH
   Mr. Parjono - Staff, Banjarmasin
   Mrs. Parjono - Staff, Banjarmasin
   Mr. Wardoyo - Director, Surabaya SPPH
   Mr. Soewito - Staff, APK Surabaya
   Mr. Hardjono - Staff, APK Surabaya
   Mr. Wiyono - Staff, APK Jakarta
   Mr. Saparman - Purwokerto SPPH
   Mr. Santosa - Menado SPPH
   Mr. Asri - Ujungpandung SPPH

3. USAID Indonesia

   Robert Pratt - Office Chief - Office of Health and Nutrition
   Nick Studzinski - Acting Office Chief - Office of Health and Nutrition
   Molly Mayo Gingerich - Public Health Advisor - Office of Health and Nutrition
   Helena Exawirya - Administrative Assistant - Office of Health and Nutrition
   Eddy Kristiawan - Engineering Office
   Bob Adams - Engineering Office
   David Piet - Population Advisor

4. AID Washington - Asia Bureau

   Victor Wehman, Office of Health
   John Austin, Office of Health
   Howard Keller - Public Health Advisor, Asia Bureau
   Harold Rice - Nutrition Advisor, Asia Bureau

5. WASH Washington

   Dennis Warner, Project Director

6. D.I. Banda Aceh

Dr. H. Yuliddin Away MPH - Director Provincial Health Department
Dr. Hali Azir, M.P.H. - Chief of Planning Division
Dadang Setiawan, B.Sc. - Administrative Assistant - Health Department
Abdurahman, SKM - Chief of Sanitarian Section

7. Appropriate Water Treatment System - Bandung

International Water Supply Consultants - Netherlands
IWACO B.V., Box 183, Rotterdam, Netherlands

Ir. Ben van Bronckhourst - Senior Consultant Project Manager
Ir. Hans Hofman - Senior Engineer
Ir. C.L.P.M. Pompe C.E. - Junior Engineer

Development Technology Center, Institute of Technology, Bandung
Dr. Sasmojo - Assistant Director
Ir. Soedjito - Research Engineer

8. Gajah Madali University, Jogjakarta
Traditional Technology Research and Field Demonstration Center
Prof. Ir. Hardjoso - Traditional Technology
Ir. Darmato
Ir. Budi Wignyosukarto

9. Yayasan Dian Desa, Jogjakarta - Private University
Anton Soedjarwo - Director of University

10. Coordination with Multilateral Organizations

Patrick Meade - Industrial Training Service, London
Clive Chapman - Industrial Training Service, London
John Densham - Industrial Training Service, London
Garth Howell - International Reference Center, WHO Hague
Tong Milburn - International Association Water Pollution Research, London
Willey Reyes - WHO Engineer, Jakarta
Mr. Soebagio - UNICEF Consultant - First Director of RSMD Project, Jakarta

APPENDIX D

EXAMPLES OF APPROPRIATE TECHNOLOGY AND INFORMATION TRANSFER MEDIA COVER SHEET AND TABLE OF CONTENTS FOR A 300 PAGE DOCUMENT

EXAMPLES OF APPROPRIATE TECHNOLOGY
AND
INFORMATION TRANSFER MEDIA

AUGUST 1981

TO BE USED FOR INNOVATION
AND CREATIVITY
BY THE
RSMD PROJECT
STAFF AND STUDENTS

Examples of Types of Information
Transfer Systems and
Bibliographic Information
Approximately 300 Pages

1. Pipa Sabut Semen - DTC CITB
2. Handbook on Appropriate Technology Canadian Hunger Foundation and Brace Research Institute
3. Construction Manual - Salawepump
4. Pitcher Pump, Vita Publication
5. Diaphragm Pump, Vita Publication
6. Inertia Pump, Vita Publication
7. Hydraulic Ram Pump, Vita Publication
8. Series of Articles from - Appropriate Technology Journal
9. References - Reclaimed Water - Water Conservation
10. References - Evapotranspiration, and Infiltration Beds
11. References - Excreta Control for Rural Areas
12. References - Compost - Privy
13. References - Individual Waste Treatment Systems
14. References - Regulatory Practices References Individual Waste Treatment Systems
15. References - On-Site Management of Wastewater from Individual Systems
16. World Bank Paper: "Appropriate Sanitation Alternatives: A Technical and Economic Appraisal Summary Report"
17. "Women Water and Waste - Beyond Access", - Mary Elmendorf - Appropriate Designs for Basic Needs
    1514 17th Street N.W.
    Washington, D.C. 20036

APPENDIX E

Sources of Information and Available Publications for RSMD Library Acquisition

1. Intermediate Technology Publications, Ltd.
   9, King Street
   London
   WC2E, 8HN, U.K.

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   ISBN O 903031 23X
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   1211 Geneva 27
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Gibson, U.P., and R.D. Singer, Small Wells Manual, Agency for International Development, Department of State, Washington, D.C., 1969.

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Dunham, D.C., Fresh Water From the Sun - Family-Sized Solar Still Technology: A Review and Analysis, Agency for International Development.

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3706 Rhode Island Avenue
Mt. Rainier, Md., 20822

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Congdon, R.J., Introduction to Appropriate Technology Toward a Simpler Life Style, 1977.

Gouleke, C.G., Biological Reclamation of Solid Waste, 1977.

6. Sr. Felix D. Maramba
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Maya Farms Division Liberty Flour Mills, Inc.
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666 West Quincy Avenue
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W.H. - 550
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401 M Street, SW
Washington, D.C. 20460

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P. O. Box 2754
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49 Sheridan Ave.
Albang, New York 12210

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International Scholarly Book Services Inc.
P.O. Box 555
Forest Grove, Oregon 97116

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1015 Fifteenth Street, NW
Washington, D.C. 20005

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2101 Constitution Avenue, NW
Washington, D.C. 20418

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APPENDIX F

REFERENCE MATERIAL AND COPIES OF PAPERS LEFT WITH RSMD STAFF

COPIES OF THE FOLLOWING PAPERS WERE LEFT WITH PUSDIKLAT STAFF

Reed, S.C., R. K. Bastian, and W. J. Jewelh, Engineers Assess Aquaculture Systems for Wastewater Treatment, Civil Engineering - ASUE, July 81. p. 64 - 67.

Gearheart, R. A., Use of Vascular Plants for Treatment and Reclamation of Oxidation Pond Effluent and Non-Point Source Pollution Loads, Presented at 1981 National Conference on Environmental Engineering, July 8-10, 1981, Atlanta, Georgia. Sponsored by Environ-Engr. Div., ASCE.

Gearheart, R. A. and Finney, B. A., Vascular Plants in Wetland Wastewater Treatment Systems - A Pilot Project, Third National Re-Use Symposium, APHA-EPA, ASEE, etc., August 23-24, 1981, Washington, D.C.

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