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REPORT ON THE

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JOINT EVALUATION OF THE

ASEAN-US WATERSHED PROJECT

(Project Number 498-0258.03)

April 29, 1987

LETTER OF TRANSMITTAL

30 April 1987

S I R :

We have the honor to transmit herewith the Report of the Major Joint Project Evaluation of the ASEAN-US Watershed Project held in the ASEAN participating countries on April 01-30, 1987.

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Member

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Member

The Honorable Chairman
ASEAN Committee on Food
Agriculture and Forestry
Jakarta, Indonesia

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Glossary of Acronyms

AID	Agency for International Development
ASEAN	Association of Southeast Asian Nations
BFD	Bureau of Forest Development
FAO	Food and Agriculture Organization
PIL	Project Implementation Letter
PIO/C	Project Implementation Order Commodity
PLS	Project Liaison Specialist
PP	ASEAN Watershed Project Paper
PSC	ASEAN Watershed Program Steering Committee
UPLB	University of the Philippines at Los Banos
UPM	Universiti Pertanian Malaysia Serdang, Selangor, Malaysia
USAID	United States Agency for International Development
USLE	Universal Soil Loss Equation

EXECUTIVE SUMMARY

1. The ASEAN-US Watershed Project is a five-year project implemented by the Philippine government representing ASEAN and funded by USAID and ASEAN countries. The original purpose was to start a watershed management research network among the ASEAN countries. The project is guided by a Project Steering Committee of Forest Department directors from the four ASEAN countries, and, as ex-officio members, an AID representative and the Project Director. The project is implemented by a central office located at UPLB and four country coordinators based in the Philippines, Indonesia, Malaysia and Thailand. The Los Banos Center is staffed by a Project Director, two division chiefs, a project liaison officer and 34 support personnel. It collaborates with national agencies and educational institutions in each of the four countries through the country coordinators.

2. A five-person team, consisting of representatives from Indonesia, Malaysia and Thailand, and two U.S. consultants, performed a major evaluation of the project one and one half years before the project is supposed to end

3. The project has five components: 1) project sponsored symposia, seminars and workshops; 2) long-term and short-term training; 3) research support; 4) the central office and 5) U.S. Liaison and consulting services.
Originally, the project was to establish a watershed management research network among the ASEAN countries. The evaluation team has reservations, whether the project as originally designed is more appropriate for a regional approach to research and policy development than are bilateral arrangements and traditional channels for interaction in so a broad an area as watershed development in so diverse a region. Praise is due for orienting the project away from the untenable position in the broad area of watershed research toward greater emphasis on training and information exchange.

4. Training has been the major emphasis of the project, and an experience has been built in organizing training activities in the region under constraints of poor communication facilities, differences in language and differences in the various regional institutions. The project should continue to strengthen the training component. A procedure has been developed to plan training activities on a year-to-year

basis but there is no long range strategy to organize training topics, select audiences to be reached, and devise the most suitable type of activity within a prioritized framework of mutually agreed upon needs. Instead, there has been an ambitious attempt to present all of the many aspects of watershed management to a variety of audiences using a wide array of methods. The project should scope down the training subjects to a few important subject areas, the knowledge of which will help solve high priority problems. At his stage of the project, the country coordinators should canvass their respective national agencies to determine high priority needs and then collaborate with the Los Banos Center in selecting no more than four subject areas for training. Those countries with the most suitable facilities or expertise in a particular subject chosen should provide the training on a repeating basis.

5. Information exchange is also an important effort of the project that should be strengthened, but should be more tightly directed. There is a need in the region for comprehensive training materials on tropical watershed manangement. There is also a large body of information, published and unpublished, both within and outside the region that could be assembled into a useful training

manual. The project should develop such a training manual that would be used by university students, professionals and technicians . The task should be contracted out after precise guidelines have been developed by project management, in collaboration with regional agencies and at least one U.S. consultant.

The center staff is efficient and well-qualified, and publications produced by the center are distributed using a continuously upgraded mailing list. At present, the center is laboriously preparing abstracts of journal articles which are already abundantly available from a number of documentation services. The project should have the capability to access computerized documentation services. If direct link-up is not possible, commercial facilities in the major cities in the region can be contracted. A consultant in documentation may be needed.

6. The research component of the project has been implemented only to a limited extent. It has been plagued with poor design, questionable purpose, delays in receiving equipment, and, in some countries, by lack of solid commitment from [illegible] There is a strong risk that the equipment might not be utilized to its full potential. At this late stage, the most feasible option is to make efforts to assure the effective use of the equipmnent already ordered

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7. The team saw no indications and heard no comments suggesting that the oprganizational structure of the project needs to be revised.

8. Based on its findings, the team proposes eight concrete outputs which the project should achieve during the time remaining and outlines a tentative implementation plan to attain them. If funds are left over after the project termination date (December 1988), more time should be given, provided the outputs are being achieved. If more funds are to be allocated, the project should be redesigned.

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ii) ACKNOWLEDGEMENTS

We are most grateful to the Project Director, Dr. S.R. Saplaco and all the staff members at the Project Office in Los Banos, for their unselfish and conscientious effort in providing logistic support during our stay in the Philippines. We thank Dr. W.D. Striffler, the Project Liaison Officer and Mrs. Angie I. Obmasca of the AID office in Manila for their help. We also acknowledge the useful suggestions given by Dr. G. Armstrong from USAID, Washington during the introductory briefing in the Philippines.

To all PSC members, country coordinators, participants and the senior personnel in the various Forestry Departments, universities and research institutions in Indonesia, Malaysia, the Philippines and Thailand, we express our heartiest gratitude for their time and warm hospitality. Their frank answers and opinions have been most helpful in formulating this report. We would also like to thank the governments of Indonesia, Malaysia, the Philippines and Thailand for providing

the facilities necessary to conduct the evaluation task in their countries.

Last but not the least, we particularly appreciate the cheerful help of Ms. Maridol R. Cumpio and those of her colleagues who spent long overtime hours typing this report.

1. EVALUATION TEAM AND ITINERARY

A five-person team conducted an interim evaluation of the on-going ASEAN-US Watershed Project. The team was composed of Dr. Achmad Sumitro, team leader and head of the Department of Forest Resources at Gadja Mada University in Yogyakarta, Indonesia; Ir. Nik Muhamad Majid, Head of the Department of Forest Production at the Universiti Pertanian Malaysia in Solangor, Malaysia; Mr. Judha Krishnamra, Director of Soil and Water Conservation, Department of Land Development, Ministry of Agriculture and Cooperatives, Bangkok, Thailand; Dr. Heinrich M. Tschinkel, Regional Forestry Advisor for Central America, USAID, Regional Office for Central American Program, Costa Rica; and Dr. John L. Thames, Program Chairman, Watershed Hydrology, University of Arizona, Tucson Arizona, USA.

For the field work component of evaluation, the team spent six days in Thailand, three days in Bangkok and three in Chiang Mai. Six days were spent in Malaysia and four in Indonesia, two of which was spent in Yogyakarta and one in Solo. The remainder of the time was spent in traveling and in the Philippines. A complete itinerary is given in Annex 1.

2. PROJECT DESCRIPTION

The project consists of five components intended to help establish a watershed management research network among the ASEAN countries of Indonesia, Malaysia, the Philippines, Singapore and Thailand. The network will coordinate and assist research by participating national agencies and institutions on the common theme:

> Watershed management research for productive and protective uplands with emphasis on sustained yield, soil erosion reduction and improved water quality, quantity and distribution.

The first project component is project-sponsored symposia, seminars and workshops to set joint research and training objectives, to encourage information exchange and to improve skills of network participants.

The second project component is training to raise professional qualificatios and research capabilities of network participants. Training may be long- or short-term and is expected to take place within the ASEAN Region or in the United States.

The third project component is research support. This support will consist of equipment and training in its use to improve and standardize data collection and analysis in common theme activities.

The fourth project component is a Center in Los Banos, Laguna, in the Philippines. The Los Banos Center will coordinate network activities and will provide training and information exchange support services. The Project Director and other professional staff will manage project activities from this center.

The fifth project component is U.S. Liaison and consulting services. An American Project Liaison Specialist will be contracted to help make AID inputs available to the project and to assist the Project Director. Consultants and resource persons from the U.S and contracts for U.S. consulting, training and evaluation services will also be provided.

3. METHODS OF EVALUATION

The purpose of this interim evaluation was to appraise the overall effectiveness of project implementation, the validity of project design, the adequacy of project funding, and to make recommendations with respect to project objectives, project management, and the future of the project. The complete terms of reference are given in Annex 2.

The team focused on evaluating the progress and quality of project output. This included an analysis of project documents and discussions among evaluation team members in addition to interviews with participants in project training and research activities, project management and staff and officials in counterpart and associated institutions in each of the four ASEAN countries.

The evaluation was structured as follows:

* An outline was prepared of project activities with specific issues and questions thought to be pertinent to project output.
* Both structured and informal interviews were held with relevant individuals in the Philippines, Thailand, Malaysia and Indonesia.

* Findings and recommendations were developed through analysis of the interviews and project documents and through group consultation.

* An outline of the report was prepared and each team member was assigned by mutual agreement a [illegible] chapter.

* The drafts were reviewed by the team members and assembled in rough form for review and comments by project management and the AID project officer.

* The draft report was discussed at length between the team members, ASEAN/AID Regional Development Officer, Project Liaison Specialist and Project Director. Relevant comments were incorporated in the report.

* Before the end of the evaluation team's assignment the report was edited and the final version reproduced which represents the consensus of the five evaluation team members.

* The team worked in the ASEAN-US spirit of cordiality, friendship and cooperation.

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4. PROJECT COMPONENTS

4.1 Training

Intent

Training has been the major emphasis of the project. According to the project paper, the aim of the training component is to strengthen the skills in watershed [illegible] committee members, [illegible] the project and the ASEAN/USFAR group: 2) senior professionals, managers, and directors; 3) researchers, field officers, [illegible] and professors; and 4) technicians and mid-level support staff.

Findings :

In reality, the project has not limited itself to training to strengthen research but has offered general watershed management training. The team considers this a healthy shift and the report later discusses how this trend can be further encouraged.

The following five findings and recommendation apply to all activities (seminars, symposia, workshops, short courses, study tours and scholarships) classified by

the project as training. The findings and recommendations for the specific training activities are given in sections 4.1.1 through 4.1.4 and 4.2.1 through 4.2.3.

Finding 1:

The project has already been successful in exceeding the stated goal of training 120 participants. However, the diversity, within the same training event, in the level and interest of participants, due to inadequate selection and screening has had a negative effect on quality of the training. Although guidelines on the appropriate background and present position of the prospective candidates have been distributed by the Los Banos Center prior to training activies, these guidelines have frequently not been respected by the national institutions. The Los Banos Center does not have authority to reject inappropriate candidates. Although many of the participants have a very sincere desire to gain new knowledge and take every advantage of opportunities to do so, some participants have been selected on the basis of their availability at the time or as a reward.

Recommendation :

For the benefit of all, the PSC needs to grant authority to the Los Banos Center to reject inappropriate candidates. For each event, the center should set up very specific and detailed requirements on background and present positions of participants. For each slot, the country coordinators should submit the CV's and a detailed description of current duties of at least two prospective candidates. Review and final selection of one of the two (or rejection of all) should be made by the Los Banos Center. More emphasis needs to be placed on quality and less on number.

Finding 2 :

Subject for training and the locations for training activities are decided upon at the annual Country Coordinators meeting. Ideally, the coordinators have a list of subjects solicited from the agencies associated with the project. Subjects that are familiar to all are most often chosen which results in courses that deals only in generalities. In attempting to distribute the various training activities fairly among the four countries, the location chosen for a specific activity is not always the most suitable.

Recommendation :

Place less emphasis on selecting topics that must be satisfactory to all countries. If there are problems important to any one or two countries, or if one country has better facilities for a specific activity, design the training activity accordingly. Each country has special problems and unique facilities. The project should make use of the comparative advantage of each (See Section 6 for details).

Finding 5 :

An almost universal [illegible] among lecturers and speakers is the inadequate lead time and instruction given to prepare presentations. Some participants have cited the need for early notification and information in order to be better prepared for the training activity.

Recommendation

Specific and detailed instructions on format and substance of presentations should be in the hands of speakers or lecturers at least two months before an activity. This will require the combined effort of country coordinators and project management to develop a thorough and

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coherent plan for each activity at the beginning of the year and to act promptly upon that plan. To increase lead time the PSC should meet in October/November instead of December. Training materials, or at least a detailed outline of the activity, should be given to the participants one month before the event.

Finding 4:

A common complaint of many participants interviewed who are involved in the watershed is the lack of specific instruction on how-to vs not what-to-do in the training program. This is understandable since researchers often tend to follow lines of professional interest or expertise. More importantly, is the method of selecting training activities on a year to year basis. There has been a lack of program coherence and progression in moving from broad generalities to specific problem solving. This is attributed to an inadequate long-term training plan and to an ambitious attempt to cover all of the many aspects of watershed management in the training program.

Recommendation :

Scope down the training subjects to only a few important problem areas that exist in the general region or in a specific country. This will require a cooperative effort of the Los Banos Center, the Country Coordinators and the key institutions. (See Section 6 for details.)

Finding 5 :

Hydrologic measurements and relationships have been the main emphasis of training. Most technical problems in this area are readily tractable, but the real problems that must be faced in managing watersheds have their origin in the economics of exploitation and the social and political forces behind them. An almost universal complaint made to the team was the lack of training in this area. The team recognizes the difficulties in dealing with the complexities of social and institutional problems that differ greatly between and within countries. However, methods are available for economic analyses of natural resources and for understanding and modifying social behavior.

Recommendation :

Training courses should be organized for professionals which include basic principles of socio-economic measurement and survey, incentives, market and infrastructure development, methods of determining economic production functions, benefit-cost analyses and case studies (successes and failures). A training course should be developed for these subject areas. It should be repeated two or more times to reach a wide audience. The course material could be used also in a training manual (See Sections 4.4.1.4 and 6).

4.1.1 Technical Short Courses

Intent

Two short courses were given at UPLB; one was given in 1985 to 23 junior and mid-level personnel and the other in 1986 to 20 professionals. An additional course was held in 1986 in UPM for 20 mid-level participants.

The objectives were to review basic concepts, improve scientific skills, provide on-the-job training and promote interaction among the participants.

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Findings :

It appears that the review of basic watershed concepts was satisfactory for all three courses, but the cost is questioned of bringing lecturers from the U.S. for the first course to talk on basic concepts which could be covered equally well by regional instructors. Training in the practical application of concepts were not sufficiently covered in the two UPLB courses nor was there on-the-job training. Exercises in problem solving were minimal.

The course held in KL, designed for technicians, involved exercises and informative field demonstrations of hydrologic instrumentation and data collection. However, only about one-quarter of the 20 participants were technicians most of whom were from Malaysia. The rest were professionals or administrators; one was an assistant professor. The course was of benefit to the technicians, particularly in the use of instrumentation and in working through exercises as indicated by interviews but was of limited value to the professionals.

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Recommendation :

There is little need for training in general hydrologic relationships which are well known by professionals and high-level technicians throughout the region, and there is no need for U.S. instructors to cover these aspects of watershed management, as was done at the beginning.

There is a need for technical exercises, useful methods and techniques, and practical examples which should be emphasized in technical training courses. Field trips should be made only as specific supplementary instruction.

4.1.2 Study Tours

Intent

Two study tours to the US were made in 1985. A regional tour was made of the ASEAN countries in 1986. The first 1985 U.S. tour taken in by 15 senior level government officials and educators for the purpose of developing "watershed research plans which are realistic, practical and address specific local, regional and national needs" synchronized within the

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attendance at the World Forestry Congress at M[illegible]. Cost of the tour was $ 7,[illegible].

The second U.S. [illegible] was to provide 16 mid-level professionals [illegible] opportunity to observe hydrometeorological [illegible] data gathering, instrumentation, monitoring and [illegible]. The cost was $ 55,206. The 1984 [illegible] was taken by 12 mid-level professionals from Indonesia, Malaysia, the Philippines and Thailand for the purpose of observing on-site/on-going watershed research and development projects. The cost was $17,671.

Findings :

Many of the sites visited on the first U.S. tour had active research and operational projects that could provide information useful to the project. The objective of developing watershed research plans was not realized. This may have been because many of the participants were not professionals. Several of the participants were high-level administrators with little experience in watershed management, which also has little relevance to their present responsibilities. It was also apparent that selection of some of the other participants was made as a type of bonus or reward.

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A large portion of the second U.S. tour was spent in Arizona, a semi-arid state, visiting installations in soil and plant cover types completely different from those of the humid tropics. Although instrumentation is generally similar at most U.S. watershed facilities, there are several facilities in more humid regions of the country that have a broader range of activities more appropriate to problems of ASEAN countries. Apparently, effort was not made to screen potential sites or regions to be seen to select the most suitable for the tour. The Hawaii portion of the tour was primarily devoted to flood control engineering works and to the application of the USLE to erosion in sugarcane fields.

The 1986 regional tour appears to have been successful. Although each country has a different set of watershed management problems and constraints, the general opinion of the participants interviewed was that the tour was useful in acquainting them with the methods and common approaches that can be made for research in the region. Some comments on organization and logistics were registered. Selection of participants appears to have been made on the basis of need. The cost was reasonable considering the potential benefits.

Recommendation :

Study tours to U.S. experimental watershed installations should be discontinued. However, there can be benefits in specialized training in the U.S., possibly of an apprentis c post graduate nature, for specially selected particioants, in some of the methods available for data analyses. Regional tours should continue in the spirit of networking, but the participants should be selected more carefully and itineraries planned to meet specific objectives. Tours to other tropical countries outside the ASEAN group should also be considered and should receive AID approval when notified.

4.1.3 Long-term Scholarships :

Findings :

Scholarship grants have been given to 7 professionals in the ASEAN countries for graduate study in watershed management in the U.S. and at UPLB.

Findings :

The process of selecting candidates for graduate work appears to be reasonable, but may be somewhat

(unavoidably biased toward those candidates selected to attend U.S. universities who are proficient in English.

Specific curricula of study are sometimes not prescribed or are not followed by the universities nor is there adequate screening of institutions that could provide the most suitable specialized education. Part of the screening of institutions is partly outside the control of the project office.

Recommendation

The return on investment in graduate scholarships can be great provided the curriculum chosen fills an important national or regional need. Graduate studies in general watershed management are not justified. There could also be value in special training in the U.S., possibly fellowships for carefully selected professionals. There is a regional need for using methods available for hydrologic, economic and social analyses.

4.1.4 Short Term Scholarships

Intent

The objective of short term scholarships is to upgrade

professional exp[illegible] t[illegible] through on-the-job training in watershed research. [illegible] visits were made to each of the four host [illegible] by three participants from each of the non-host countries.

Findings :

Only participants [illegible] attended programmes in Indonesia and Thailand [illegible] by the [illegible]. The Indonesian programme [illegible] approach to training in watershed research with [illegible] simple techniques to answer research questions. Practical experience on an almost one-to-one basis was given in using a variety of hydrological measurement techniques. One participant is now developing a training programme for his technical staff using the [illegible] and slides collected during the 5 days of study.

The Thailand programme was not so successful. A method which is still undergoing modifications, was the subject area. The method is being developed to classify watersheds for the unique conditions of Thailand and may have little use or acceptance in the other countries, particularly in Malaysia. Instruction was reported as less than adequate.

Recommendation :

This type of training is inexpensive and is a good vehicle for interaction of participants at the

same professional level. It should be continued, but with care given to subject matter and organization.

The workshop served to examine the value of training [illegible] national water policy formulation. Some of those that have received training under the project are in position to influence policy in watershed management either through status of position, or, as appropriately intended by the project, by accomplishing research which produces results that can be used to direct national policy. National water policies. Each country has policies for regulating activities on national watersheds lands, and there has been some exchange of ideas among the participants on the various policies at symposia. It is also recognized that policies vary among the ASEAN nations. There is also some commonality to the policies, but there has been a lack in the training program of using the framework of this commonality to point up deficiencies in knowledge and then to direct research toward finding answers to the specific questions necessary to make up the deficiences. However, it should be pointed out that a common interest or deficiency in policy may have different priorities among the nations, and that networking may not be the most appropriate approach to

so complex a problem as formulating national water policies in such a large region.

4.2 Project Sponsored Symposia, Seminars and Workshops

4.2.1 Symposia

Intent :

A planning symposium for senior policy makers and professionals was held in 1983 in Indonesia to define [illegible], and formulate [illegible]. The proceedings were published.

The project provided several senior delegates to attend the 1986 IUFRO World Congress held in Yugoslavia. The purpose was to interact with forestry officials involved in watershed management from around the world.

Findings :

The 1984 planning symposium presented an opportunity to set life-of-project direction and priorities early in the project. It failed to do so. Instead, description of the watershed management practices, strategies, research status, problems and needs were presented for

each country. Only cursory treatment of national priorities were given by some of the participants.

The IUFRO symposium costs FIP,$nd and it should be questioned if international senior personnel at large meetings improve FIP and research in watershed management.

Recommendation :

Establish long-term priorities and develop plans for the remainder of the project as recommended in Section 4, finding 4, and in Section 6.

Discontinue symposia in general and especially as a vehicle for decision making. Restrict and fully justify attendance at international symposia; presentation of a paper should be a minimum requirement.

4.2.2 Seminars

Intent

Seminars were given in Indonesia in 1984 and in Singapore and Malaysia in 1985, a roving seminar visited each of the new ASEAN countries in 1986.

The Indonesian and Malaysian seminars were given for watershed specialists. The main objectives were to exchange technology, identify knowledge gaps, establish priorities and collate research results. The purpose of the Singapore seminar given for senior project officials was to [illegible] understanding of watershed management [illegible] of upgrade skills in planning watershed management [illegible] search.

Findings:

The 1984 Indonesian seminar provided an opportunity for specialists to [illegible] the technical aspects of project activities which could then be considered by the senior project officials who would attend the 1985 Singapore symposium. This is [illegible]; but regional priorities were not established in either the Indonesian or Malaysian seminars, although a number of information needs for each country were identified in the papers presented. There has been no collation of research results.

Roving seminars offer opportunities to reach a large audience at low cost. The roving seminar given in this case was as much a training exercise as seminar. Again, a common complaint among those interviewed was

the lack of socio-economics in the presentations. The usefulness of some of the presentations, water harvesting, for example, was also questioned.

Seminars allow people to become acquainted with the problems, policies and work being done in the various countries, but they are not a suitable means for solving problems, influencing policy or directing the work that should be done. The lack of action results from seminars may be an attempts to conform to project objectives which are laudable but vague and poorly defined.

Recommendation :

Eliminate seminars from the program at least until the time a body of significant research results has been developed in the region.

4.2.3. Workshops

Intent

Four workshops were given, two in Thailand in 1984 and 1986 on standardization of guidelines for research and technology exchange, and two were given in Indonesia, one on land use planning and the other on reading.

The objective of the first Thailand workshop was to standardize guidelines for research. The second workshop was to be a continuation of standardization with an additional component technology transfer.

Findings:

In general, the first Thailand workshop seemed to identify some gaps in knowledge, particularly in watershed characterization, and to produce a glossary of hydrologic terms. Standardization of experimental design, as stated in the objectives, was not fully accomplished, and any effort to develop manuals, another objective, was not carried through to the second, and last, workshop.

The second workshop was conducted with a different group of participants, some of whom were not involved in watershed management research. The recommendations from the first workshop were endorsed rather than continued or refined. The exchange of ideas on methods of technology transfer were reported useful as was identifying problems in technology transfer.

The Indonesian workshop was successful in developing a useful set of needs and recommendations for basic land use planning in the region.

the workshop on rainfall, according to those interviewed, was very successful. This is attributed to the specific nature of the workshop and to the engineering backgrounds of the participants. The enthusiasm of one participant interviewed points up the desire of professionals for the region for more specialized training.

Recommendations :

Workshops can be useful if the scope is narrow. They should be continued, but only if the problems addressed fit within a prioritized framework of needs. For example, flooding is a regional problem, but how it fits in hierarchy of priorities is not known.

4.3 Research Support

Intent

According to the Project Paper, the research support component aims to provide $1.1 million in equipment and training in its use ($300,000 AID and $800,000 NSF/AID), in order to strengthen watershed research. The recipients are to be the primary counterpart institutions of the project which are engaged in watershed research.

4.3.1 Country Research Proposals

Intent

The Los Banos Center requested the countries to submit research proposals [illegible] type of equipment and its use. Proposals were to be reviewed by the Center and conform to procedures [illegible] AID procurement regulations.

Findings

The evaluation team found that, in general, with the exception of Malaysia, scarcity of research equipment is a constraint to watershed research. PC based computers were frequently mentioned as being urgently needed for data analysis. Very few of the researchers interviewed have access to them now. An exception were Malaysian researchers who expressed that their computing facilities are adequate.

The Los Banos Center requested research proposals and instructions for their preparation at the end of 1984. The countries submitted their proposals in early 1985.

Thereafter followed a lengthy process of review of the proposals and list of equipment. At the time of the arrival of the PET in October 1985, the research

proposals had already [illegible] [illegible] by AIDAB, and one of his first jobs was to [illegible] the equipment lists, based partly on his [illegible] [illegible] tour of the countries. Unfortunately, the [illegible] proposals were not revised [illegible] [illegible] [illegible] equipment, so that discrepancies occur [illegible] [illegible] possibly obsolete [illegible] and [illegible].

[illegible] [illegible] [illegible]: Thailand submitted a proposal that had previously been proposed by an FAO consultant [illegible] [illegible] a two-year project in general hydrological data [illegible] and compilation. The [illegible] [illegible] [illegible] [illegible] but for obtaining additional [illegible] and [illegible] data organization, synthesis, and [illegible], perhaps a valid purpose. There was no clear connection between the proposed activities and the [illegible] for the equipment, nor specifics on where the equipment was to be installed. The quantity [illegible] by [illegible] [illegible] than requested in the original proposal [illegible] [illegible] additional items were added.

<u>Malaysia Research</u> [illegible]: Malaysia submitted a brief proposal for a study which intends to compare the hydrologic behavior of forest plantations with that of logged over areas by [illegible] hydrologic variables on

"two to three", [illegible] [illegible] [illegible] Mogen-cover watersheds as they are planted and [illegible] plantation development. It is implied, although not explicitly stated, that the first phase will serve as a calibration period. Although the proposal is not clear, the good quality of the hydrologic research observed led the team to believe that the [illegible] will be well designed before installation and [illegible] [illegible] [illegible]. For most items of equipment, [illegible] [illegible] ordered by AID is two to three times the [illegible] requested in the original proposal.

[illegible] [illegible]: The Indonesian research aims to measure the hydrologic impact of soil conservation measures on [illegible] intensively cultivated watersheds. The proposal is very general. However, the researcher in charge of the studies is well aware of the need and difficulties of calibration. Funds for installation and operation included in last year's budget could not be used because of the delay in the delivery of the equipment and unfortunately no funds are now available for this purpose.

Philippine [illegible] proposal: The Philippine proposal, [illegible] combination of six studies to evaluate the hydrology of major forest types

and forest land uses in all or most parts of the country. All the studies used single [illegible] watersheds and most are already ongoing. [illegible] from the summaries submitted, the designs of the studies seem to be sound. The one study for which the [illegible] process could be examined was well documented. Unfortunately, even if the equipment were received, [illegible] seem to have no funds for installation, operation of the new studies, or publication of [illegible] on the ongoing ones. It [illegible] that original data are sent to [illegible] headquarters for [illegible]. Since results are not returned to the [illegible] difficult for researchers to discover [illegible] in data collected and correct them.

4. [illegible]

[illegible]ment

All requests in the [illegible] were to be reviewed on a technical basis by three [illegible] panels.

Findings

The equipment ordered is of the simple, standard type seems to be appropriate to the general conditions of

the ASEAN countries [illegible] of the lack of detail, even in the latest [illegible] for research proposals, it is not possible to judge whether the equipment is exactly what is needed for the Mariculture project.

4.3.3 Procurement of Equipment

Intro

All equipment will be procured by USAID through a Procurement Services Agent, contracted by the Mission, and shipped directly to [illegible].

Findings

The procurement of equipment has been plagued by delays. The revised lists of equipment (except for the Philippines) was submitted to the Logistics Office of ASEAN/Manila in May 1986. The PIO/C, the document authorizing AID to contract the Procurement Services Agent was signed by the AID/ASEAN Office in August 1986. At the time of this evaluation (April 1987) as far as could be determined no equipment has yet been shipped, nor is it expected to arrive before June 1987. The Philippine request has only recently been submitted to AID. This means that equipment intended to be used for research support by the Project will arrive about 1 1/2 years before the Project ends. Considering the

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time needed for installation, it is doubtful that it can be used during the second rainy season of 1987. The team heard numerous recent cases of frustrations and constraints caused by delays on the receipt of the equipment. Nevertheless, it can still serve a useful purpose, even beyond the life of the project. One unfortunate result of the delay has been that the Indonesian counterpart has reserved for installation and operation have been committed to cancellation.

In retrospect, several things should have been done differently by the [illegible] component. The inclusion of funds for equipment for the project without specifying its use in detail, was probably a flaw in design because it presented a temptation to order equipment just because there was money for it. Dr. Thomas Beary of the Forestry Support Program already warned of this in his trip report of October 1984 when he wrote "Authorization to purchase research support equipment should not be given until the Project sets its priorities, the equipment needs are related to training and research activities, and the receiving unit shows that they have funds to operate and maintain the equipment." . Considering that this is a one-time only acquisition, there is little point in dwelling on what should be done.

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Recommendation :

The project now needs to concentrate efforts on assuring the rapid deployment and effective use of the equipment once it arrives. Based on the vague research proposals, the quality of most of the watershed research with which the team became familiar and the scarcity of the national funds for installation and operation, there is a strong risk that the equipment might not be utilized to its full potential. The design of the studies in Thailand and Indonesia needs to be critically re-examined.

4.4 Information Exchange

Intent

The information exchange component of the project [illegible] information on watershed [illegible] and training in the ASEAN region. The main objective is to provide information on current practices, problems, research findings and other issues useful to those involved in watershed management.

The service was to be carried out through the distribution of information and publications. The project intended to produce at least five types of publications, viz: 1) newsletter, 2) proceedings of project-sponsored seminars, symposium or workshops, 3) information [illegible], 4) annual directories of water use projects, organizations and personnel in ASEAN countries, and 5) translation of publications from Thai/Indonesian to English.

Logging

The [illegible] has [illegible] and well-equipped [illegible] facilities [illegible] for communication. (See Sec 4.4.2.2). There [illegible] computer facilities for documentation or [illegible] search services.

Recommendation :

The Center as well as the countries should have use of computerized documentation/library search facilities to improve access to world literature. It is not envisaged to acquire new installations, but to make arrangements to utilize facilities that exist in other institutions. If computer linkup is not possible at UPLB, there might be commercial facilities in Manila that could be contracted. Making such a service available to the

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Center and in each of the countries might require a consultant.

Finding:

Since 1987, the Project has published eight newsletters (issued quarterly) [illegible] proceedings. Proceedings of four other project-related seminars/workshops are in press or being printed. The Project has also compiled over 500 abstracts of research papers from the ASEAN region and abroad. [illegible] small collection of texts and other training material at the Center. Information exchange [illegible] to be a one-way system from the Center to the participating countries.

Recommendation :

The information exchange system should be a two-way system. Greater encouragement should be given to the other countries to channel information on watershed issues to the Center for redistribution. Since country coordinators do not have the time for this task, individuals need to be contracted to periodically identify, summarized and submitted this information.

4.4.1 Subject matter of publications

Finding :

The evaluation team and participants interviewed felt that the newsletter should carry more information on project sponsored activities and also on other watershed activities not directly sponsored by the project. Information on research findings or new publications pertinent to the region have not been extensively incorporated in the newsletter.

Recommendation :

The newsletter should contain more information on technical matters. It should also have greater use as a vehicle for exchanging ideas and findings among professionals and managers in the network.

Finding :

Some of the papers published as proceedings have useful information while others are superficial and have little relevance to the intended theme.

The papers published in the proceedings of the seminar held in Bogor, Indonesia (27-31 August 1984) are examples. They give substantial information from research conducted on surface runoff and soil erosion

but failed to point [illegible] how this information could be translated into practice for a more productive and protective watershed management, as the theme implied.

4.4.2 Users and Distribution of Publications

Findings

Publications produced by the Centre have been equitably distributed by means of a mailing list to member countries, various [illegible] and institutions, governmental agencies, [illegible] and non-participants as well as individuals and agencies outside the ASEAN region. The availability of materials is also spread by word of mouth. The Central Office is presently compiling a directory of researchers and agencies which should help in further developing a mailing list and with networking.

Recommendation :

Continue compiling the directory and distribute.

4.4.3 Quality and Impact of Publications

Most of the papers presented during the seminars/workshops/courses are generally academic in nature and some are merely country reports. This obviously limits their applicability. Recommendations

or resolutions from [illegible] meetings are rather vague and [illegible]

The evaluation team discovered that little attention is given to these publications by the recipients. Only a small number of people interviewed seriously read the material.

4.4.4 Translation Service

Finding :

A few papers for translation have been sent to the Central Office for translation. Nothing has been decided to date, and procedures for selecting material for translation have to be established.

Recommendation :

The translation service should be continued and accelerated. There is an abundant pool of knowledge/research findings within the region which is not available in the Center. This is especially true for Thailand and Indonesia. The relevant literature should be translated to English and those in English translated into Thai or Malay. Translation should be contracted to local country professional translators of

technical material. A procedure should be developed for selecting papers to be translated.

Finding :

At present, there is no comprehensive reference on watershed management in the ASEAN region. All of the available texts on watershed management and the majority of literature pertain to temperate climates and have limited value for operations in the humid tropics. However, a large body of information, both published and unpublished, is available on humid tropical ecosystems which is applicable to various specialties in watershed management. This information has not been summarized in a form useful to researchers, practitioners and students involved with watershed management in these ecosystems. There is an opportunity for the project to use the existing knowledge available from ASEAN countries and other tropical regions to produce manual that could be used as a text for students and a handbook for practitioners and researchers.

Recommendation

The team strongly recommends that the project produces such a handbook that would be used by professionals with B.S. degree or higher,

technicians with extensive experience in watershed management, university students pursuing degrees in natural resources, soils or agriculture, and administrators of programs in extension, research, and training in the various aspects of watershed management. This should be written in modular form so that components will stand on their own and can eventually used separately. The manual should include basic principles, examples, exercises, useful computer programs, conversion tables and nomographs, and readily obtainable references. It should first be written in English and then [illegible]

The task should be contracted out and funded by the project. Precise guidelines should be developed by project management with the support of appropriate regional personnel and at least one U.S. consultant. Preparation time should be limited to one year. Costs are estimated at $200,000. Suggested topics are given in Table 1.

4.5 Project Management

Intent

[illegible] point of [illegible]

was to "coordinate [illegible] network activities in the [illegible] countries, manage project activities [illegible] of the network, provide publication [illegible] exchange services, and [illegible] to support research [illegible]

[illegible]

[illegible] (p.23). [illegible] comments [illegible] reviews.

Personnel: The [illegible] has a total staff of 37 [illegible] of these 17 are [illegible]. All except the [illegible] by the Government of the Philippines. [illegible] indicates that the size of the of the staff [illegible] and that there is a healthy balance between [illegible] and support personnel. The quality and experience of the Philippine staff seems to be adequate for their tasks. Almost all of those interviewed were working in areas closely related to their background. [illegible] of the Philippine staff

Table 1. Suggested Topics for a Training Manual

Soil Conservation	Mass Soil movement	Water Resource development	Forest roads	Hydrologic methods and analyses	Economic analyses	Social analyses	Statistical methods	Agroforestry
Measurement techniques and estimation methods	identification and avoidance of problem areas	small dam location and construction	planning and alignment	field estimation techniques	data collection	survey	[illegible]	types of systems
erosion control techniques	control	diversion structures	drainage [illegible]	measurement structures and methods	benefit cost analyses	behavior modification	[illegible]	socio-economic [illegible]
[illegible] methods and structures		[illegible] design and construction	[illegible] design	[illegible]	production functions	marketing	[illegible]	
				estimation methods and models			[illegible] methods [illegible] simulation	

seems be a problem. However, all staff are on one-year contracts which are renewed annually by the BFD, a factor which decreases morale and threatens continuity.

Recommendation: The government of the Philippines should extend the contracts of its essentials staff at the Benos Center so as to be coterminous with the end of the project, subject to the availability of funds.

Project Director [illegible] that the Project Director's position [illegible] qualified for the post. [illegible] with the job, he has performed very well [illegible] considering the [illegible] activities of the Project. [illegible] consciousness in his duties. He plans [illegible] arrangements for him and he has done an excellent job in recruiting and maintaining the morale of the staff members. He is diplomatic in his approach and has maintained a warm and cordial working relationship with the country coordinators, the [illegible] personnel in Manila and other related agencies [illegible].

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Country Coordinators: The four country coordinators play a vital role in the project and they do their job well. Practically all contacts between the Los Banos Center and the countries pass through their hands. Besides the Project Director, they are the individuals who have the most influence on the technical orientation of the project, since they represent the views of their countries at the annual Country Coordinators' meeting. The evaluation team was impressed by their professionalism and effectiveness. Their good performance is all the more surprising when one considers that for all of them this is responsibility in addition to their regular jobs in their agency.

They receive no extra pay and no extra support for their role (except the Philippine who has an assistant), nor is their contribution to the project counted towards promotion. The only compensation seems to be the opportunity for international travel connected with the project. All stated that lack of help for routine tasks (typing, logistics, arranging [illegible]) is a limiting constraint to their finding time for substantive issues.

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Recommendation: The host country agencies should hire full-time, qualified assistants for the Country Coordinators. They should consider paying [illegible] supplement or should find other means of encouraging their performance beyond their normal duties.

Project Steering Committee (PSC): As the name implies the function of the PSC is to give overall guidance to the project. It is made up of senior government officials from each country and, as ex-officio members, an AID representative and the Project Director. Except for the latter, most tend to be individuals in policy making positions but not specialists with a sound understanding of R&D or research management. Changes in the composition of the Committee are frequent. Consequently the PSC does not really advise the project on highly technical matters. This role is fulfilled by the country coordinators and the Los Banos Center. The PSC almost always approves the technical activities proposed in the Country Coordinators meeting. In the spirit of ASEAN cooperation the PSC tends to work by consensus so that there is a strong tendency to arrive at agreeable rather than productive solutions. Given the realities of the ASEAN system, it is not suggested to change this division of labor between the PSC and the country coordinator meetings.

Recommendation : Country Coordinators meetings should be held immediately preceeding the PSC meetings. The Country Coordinators should thereafter be invited to participate in the PSC meeting in the capacity of observers, in order to facilitate communication.

Facilities : Physical facilities at Los Banos and in the other countries are apparently considered adequate. No interest was expressed by officials in a possible move of the Center to another country, except for one comment in favor of a move to Indonesia.

4.5.2. Functioning of administration

Communication is a problem due to the nature and dispersal of the project. Telephone is too expensive for routine use. None of the project offices have access to telex. Urgent messages are sent via commercial telegram. Letters take around ten days in the mail.

Recommendation : The Los Banos Center should explore the possibility of using computer linkages for the transmission of messages and documents. Quality of telephone connections might be an obstacle but this needs to be confirmed.

All official correspondence originating in the Los Baños Center must be signed by the Project Director. If it concerns AID, the draft is usually reviewed by the PLS which is sometimes made difficult by his short office hours at Los Baños.

Correspondence from the Los Baños Center to the Country Coordinators is direct on routine matters. However, invitations for the nomination of participants and instructions for preparing reports must pass through the respective governments. This process evidently causes serious delay, with the result that participants and instructors are often notified only at the last minute, leaving insufficient time for preparation, which detracts from smooth implementation of events.

The project has created a mechanism whereby national institutions have ample opportunity to express their preferences for project activities. Arrangements vary by country but in all countries, either through meetings or in writing or both, national institutions related to watershed management are able to communicate their views, which are then collated by Country Coordinators. At the same time, ideas are also

generated at the Los Baños Center.

The Country Coordinators consult and mediate with national institutions to reach a consensus for the country. Thereupon, they bring the wishes of their respective countries to their annual planning meeting. Here during two to three days the coordinators with the Los Baños Center discuss proposals until a [illegible] to date events the project [illegible] and which countries should be responsible.

The result of the work of the Country Coordinators meeting is then submitted to the PSC at its bi-annual meeting, which almost always approves the proposal without major changes. The proposal thereby becomes the projects' official work plan for the year. The process seems to be adequate as a mechanism for obtaining input from the countries and reaching decisions. However, several problems occur during its operation.

First, the national institutions other than the direct counterpart institutions are usually not very active in making proposals, or their suggestions are so specialized that they are of little interest to the project. As one Country Coordinator put it, the

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counterpart institution "usually wins". In practice, the active project linkages in each country are limited to one or two institutions. This is not a criticism. It might be the most practical arrangement since these are always the institutions most involved in upland watershed management and research. However, it is a reality that the linkages of the network beyond these key institutions are very weak ones, essentially limited to their sending participants in response to invitations.

Second, both the Country Coordinators and the FSC meetings work by consensus. Subjects and events of common interest are usually chosen. As a consequence, the activities tend to be too broad and lack depth.

Third, planning is done on an annual basis. The FSC has not identified specific long-term topics of emphasis for the project, which is needed in order for the project to have more cohesion and impact. There is a need for a greater synoptic vision and the ability to develop clear, feasible concepts to guide training and research.

Preparation and Support for Project Evaluation

The project did an excellent job in preparing for and supporting this evaluation. Upon arrival the team members were presented with background information and a consolidated project report which saved considerable time. Throughout the evaluation and in all countries, the project was very responsive to the needs of the team and did everything possible to make its work more effective.

4.5.2 Budget and Disbursements

Tables 2 and 3 show the project expenditures as planned in the PP and as actually spent or earmarked by country and by source of funding (AID and ASEAN). Until the end of 1986, 21% of the total project funds had been spent. Another $1.9 million has already been earmarked, leaving a balance of $ 1.1 million.

Obtaining funds on time for project events has been a problem. Although the annual amount for project sponsored events is always prepared near the end of the preceding year, AID funds are approved separately through a Project Implementation Letter (PIL) for each event. Since there are about ten such events each

year there is always a very tight schedule between the projects request for funding, AID's approval of the PIL, transfer of funds and implementation of the event. The normal procedure is for the travel agents (who have been reduced through a bidding process) to telex prepaid air tickets to each participant by name. Checks for per diem are transmitted by AID to the Country Coordinator for each participant. Since the procedure is complicated and since the countries sometimes submit

Table 2. Summary of USAID contributions to project implementation until 31 December 1986. (US $ 000).

COMPONENT	DISBURSED	EARMARKED/ OBLIGATED	PP	BALANCE (=4-2)	NON-OBLIGATED BALANCE (=4-3)
Project-Sponsored Activities	264.2	400	500	235.8	100
Training	168.8	582	800	631.2	218
Res. Support	21	150	500	479	350
Los Baños Center	260	300	600	340	300
US Liaison	290.6	305	600	309.4	295
TOTAL	1004.60	1737	3000	1995.4	1263

SOURCE: Comprehesive Pipeline Report of USAID as of December 1986.

Table 3. Summary of ASEAN contributions to project implementation until 31 December 1986. (US $ 000).

Component	Country INS	MAL	PHI	THA	Total	PP	Balance
Project-Sponsored Activities	30	62	29	11	132	300	168
Training	34	42	15	25	116	500	384
Res. Support	.185	0	0	0	.185	600	599.815
Los Baños Center	.857	2.6	201	7.6	212	800	588
US Liaison	0	0	0	0	0	0	0
TOTAL	65	106.6	245	43.6	460.2	2200	1739.80

SOURCE: Records in Los Baños Center.

NOTE : Amounts contributed by the countries are incomplete and real contributions are probably slightly higher.

names of participants very late, it is not suprising that the evaluation team heard of numerous instances where funds did not arrive in the countries on time, upsetting the smooth execution of the event and causing embarassment due to participants who had no per diem to cover their expenses in a foreign country.

It should be pointed out that this is not a criticism of the individuals who administer these funds. On the contrary, the administrative staff was frequently praised for their dedication, performance and capability. The team feels that the system is at fault needs to be changed.

Recommendation :

The establishment of a U.S. dollar imprest account which would be periodically replenished or a revolving fund under the signature of the Project Director and a co-signator as has already been proposed would simplify administration and accelerate transfer of funds for per diem and materials needed for project events, With such an arrangement, the Project Director could send a check or telex the funds for each event as needed. AID is urged to approve such a procedure.

Other AID disbursements for routine expenses, such as the operation of the Los Banos Center, are made as reimbursements against vouchers and do not seem to be a serious problem. Although procurement of vehicles and other equipment has suffered delays, no more large equipment procurement is foreseen under the project.

[illegible] Bureau of Forest Development (BFD) contribution to the Los Banos Center primarily for reasons of start-up of the project or for by budget releases has caused delays in the payment of staff salaries (which are discouragingly low) by many months.

Recommendation:

The Bureau of Forest Development of the Philippines is urged to upgrade salaries of the staff at the Los Banos Center based on a merit system and to assure that personnel are paid on time.

4.5.4. ASEAN commitment

Intent

The Project Paper stipulated that the ASEAN countries would contribute the equivalent of $2.2 million over the five year duration of the project.

Findings

ASEAN contribution over the first three years of the project is estimated to total almost US$ 461,957, that is after 60% of the time of the project has elapsed only 21% of the stipulated funds have been spent. The real amount is probably greater since some of the country contributions have not been reported.

4.5.5 The Los Banos Center as a focal point

Only to a limited extent, has the Los Banos Center served as a "focal point for the ASEAN watershed management research network" in the sense that it truly coordinates network activities in the participating countries. Any coordination until now has been done through the Country Coordinators meeting in which the Project Director, Division Chiefs and the PLS play key roles. However, the coordination is limited to the

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activities supported by AID funds. For practical purposes the primary function of the Los Baños Center has been to channel AID resources to the participating countries. The team found no significant cases where the Center had been consulted for technical guidance or looked on as a source of technical information, except for the routine publications covering project events. Nor has the Center developed strong, lasting links with universities, research centers or other pertinent institutions outside the region.

4.6 U.S. Liaison and Consultant Services

4.6.1 Project Liaison Specialist

Intent

The Project Liaison Specialist (PLS) will expediate project start up, facilitate flow of AID inputs, provide service to both headquarters and member countries in design, development and operation of the project's training and information exchange component and assist the Project Director in monitoring and evaluation of the project.

Findings

The project has had considerable difficulties recruiting a PLS, so that he did not start work until October 1985, that is one year and nine months after initiation of the project. This delay defeated one of the major purposes of the PLS which was to assist in the critical start-up and initial orientation of the project. Sixteen events had already been implemented and the research proposals processed before his arrival. The position between AID and the project is [illegible] problems inherent in the system, that is the interface between the AID and the national bureaucracies, tend to be unfairly attributed to deficient performance by the individual in this position. Apparently a desire exists that he spend a greater amount of time at the Los Banos Center, attending to technical tasks. The PLS has spent a large amount of time in administrative matters for which a watershed specialty is not needed, probably not by choice but because no one else is available to do the job. He critically reviews budget requests in order to stretch out AID the resources. Perhaps a good administrative assistant could handle some of the workload, this is especially so because the PLS usually has to consult with AID anyway. The direct relations between the Project Office and AID which used to exist

were cited as often being more expedient. Perhaps one of the main the main contributions of the PLS has been the revision and selection of the research equipment. He seems to have only limited influence on the overall orientation and direction of the project although given ample opportunity to interact and persuade, but neither is this responsibility included in his terms of reference.

As is common with this type of technical assistance, because of its relatively high cost, the national staff tend to have high expectations. It is easy to overlook the constraints under which such an individual works. In order to have a significant impact, the individual in the PLS position needs not only a solid technical background but also an unusual amount of initiative, energy, the ability to overcome obstacles, and delicate balance between aggressiveness and diplomacy.

Also, given the advanced status of the project and the recommended down-scoping of activities, the need for a PLS position is less now than it was originally.

Recommendations : The need of the PLS position at present should be re-examined.

4.6.2 Consultant Services

Intent

Short term consultant, evaluation and training services were to be provided in support of the project.

Findings

None of these consultant services has been implemented. The Country Coordinators have recently been requested to propose consultant needs of the countries. Judging from the quality of the research proposals received previously, it is doubtful that this process will result in the best utilization of these expensive consulting services. However, there is an urgent need for consultant to help assure that the research equipment is well utilized.

RELEVANCE OF THE PROJECT

5.1 Validity of the project purpose as stated in the PP

Intent

The project purpose is stated as :

To start a watershed management research network among ASEAN countries.

To coordinate research in participating agencies and institutions to relate to the common theme:

Watershed management research for productive and protective uplands with emphasis on soil erosion reduction and improved water quality, quantity and distribution.

Findings :

The Project Paper briefly describes the upland watershed problems of the ASEAN countries. Although the problems are not analyzed in any detail in the Project Paper, the evaluation team has no reason to object to the alarming picture that is presented.

The PP then makes a logical jump to state "Research is essential to find better ways for conservation and wise use of upland resources." No evidence is given in the PP on why research is important to solving watershed problems, nor is it specifically stated which constraints are amenable to research solutions. It is simply assumed that "research is essential". Of course it is always possible that good research will make a contribution, but when it comes to the allocation of as large an amount as $5.2 million of research funds, one could expect a more profound analysis of the specific problems whose solutions require research. The team saw little evidence during its evaluation to support

this very fundamental assumption as to the priority that watershed research merits in helping to solve ASEAN watershed problems. However, it did see abundant evidence to suggest that the main obstacles to improving watershed management are of a social, organizational and economic nature.

The PP goes on to state, the "critical needs . . . are to improve planning and management of research , upgrade expertise of personnel, and increase information exchange by development of ASEAN watershed research network." No doubt these improvements are always useful, however, it is a major assumption to include that a research network is the proper mechanism. Again, no analysis or justification is presented in the PP to persuade that a research network is an effective strategy to address these particular problems. The findings of the evaluation team did not convince it as to the advantage of a formal network for alleviating ASEAN watershed research difficulties. (See Section 5.2)

The purpose quoted above is limited enough so that it can be addressed by a project of this magnitude. The team does not question the clarity or scope of the purpose, however, it saw little evidence to show that

the assumptions that led to the determination of this project purpose are valid. Fortunately, implementation of the project has not adhered to the research oriented purpose as stated in the PP, but has tended to give more emphasis to general training and information exchange related to watershed management. Section 6 suggests how this tendency could be encouraged further.

5.2 Functioning of the research network

Intent

Part of the project's purpose is "to start a watershed management research network among the ASEAN countries".

Findings

The advantage of a formal network of research institutions has been amply demonstrated. One of the best know and closest examples is the dramatic success of the rice research network coordinated through IRRI, also centered in Los Banos. The creation and support of networks has become fashionable in AID.

However, to be successful, a research network requires, among other conditions, a specific research question of common interest to all involved and a clear division of

functions. Neither one of these conditions seems to be wholly fulfilled in the present project.

First, the research theme of "productive and protective uplands" evidently is too wide to properly focus project supported research, as the wide disparity in research and training demonstrate. For instance, Thailand's main interest has centered around finding and assessing in hydrologic terms, land use alternatives to shifting cultivation in the northern hills; whereas Malaysia, where shifting cultivation is not a major problem, concentrates its work in the hydrologic evaluation of different natural forest management and cropping practices. Indonesia concentrates its studies in the uplands of Java assessing the impact of intensive soil conservation measures. Given the wide range of conditions existing in these large countries, there are of course many problems which they do have in common. The point here is that priorities for action are (and should be) different. Given this disparity of problems and conditions it very difficult to transfer research results between countries of the network (certainly more difficult than the transfer of rice varieties or tree species and their management) and thus diminishes one of the main advantages of a network.

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Secondly, the division of activities in the project has not been by function or subject, rather the tendency has been to simply distribute the work and benefits equitably. For example a particular institution will be requested to offer training events of a widely varying or general nature, which does not encourage it to build up expertise in a particular specialty and help it to upgrade and institutionalize training in a specific field. For example, Malaysia has excellent capability in hydrologic data collection and reduction.

The development of training courses in this subject by Malaysian experts could benefit the region as well as fine tune their own capability.

Recommendation

The project should give even less emphasis on training than it does at present, but should assist the main participating research institutions in identifying and agreeing upon areas of specialization. Subsequent training should concentrate on these specialty areas in order for each institution to develop excellence in a particular field. Possible divisions are outlined in Section 6.

Appropriateness of watershed research to a regional approach

Intent

The PP implies that a regional project through ASEAN is the most effective means of strengthening watershed research in the four countries involved.

Findings

A fundamental justification for a regional focus of a project is that the advantages of carrying out the activities on a regional rather than a national (bilateral) basis outweigh the disadvantages due to the added complexity. Some of the common justifications for regional projects are the following:

> Regional cooperation is imperative in order to solve problems which transcend national boundaries (i.e. pests and diseases such as coffee rust and locusts, management of international rivers and their watersheds)

However, the watershed problems of the four ASEAN countries do not directly impact on any of the other countries.

Significant economies of scale can be achieved by working on a regional basis (i.e. small countries which can not afford to establish their own specialized research or training programs).

This justification is not really pertinent since all four of these relatively large countries already have several sizeable institutions engaged in watershed research.

The task can be divided and results recombined in such a way that each country concentrates on one part of the job to be done (i.e. genetic improvement of a crop or tree species).

Until now, this has not been adequately done by the project, but it is a possibility as indicated in the discussion on the network approach (See Sec 5.2).

A problem common to several countries, of itself alone, does not usually justify a regional project (i.e. most countries have common community water supply problems yet this is usually dealt with most effectively on a national basis).

On the other hand, as a disadvantage, the regional approach brings with it several added difficulties such as [illegible] additional level of bureaucracy and the difficulty of maintaining control of the use of project resources.

Consequently, the evaluation team has serious reservations whether this project as originally designed is suitable for a regional approach. Operations to date have not demonstrated the advantage of a regional approach as compared to a national or bilateral focus. No one would argue the need for scientific communication and the importance of exchanging experience between countries. However, these useful functions could probably be adequately fulfilled through the traditional channels of technical publications and easy access to them, attendance at technical international meetings of various kinds and by sending some researchers abroad for training. Such interchange is done by most countries without a regional project. On the other hand, the evaluation team realized that valid political considerations have played an important role in the design and implementation of the project, a role which might outweigh the technical and organizational criteria

mentioned above. The team is not in a position to make judgements regarding the political arguments for a regional project.

Recommendation :

Because of the very limited technical advantage of a regional approach to watershed research in the ASEAN region, the project should no longer attempt to encourage a regional research network. However, watershed training and exchange of information might be more appropriate to a regional approach. Nevertheless, before considering any additional funding for the project, AID should critically assess this issue.

5.4 Appropriateness of project supported watershed research and training to ASEAN conditions.

Intent

The project aims to encourage research needed "to find better ways for conservation and wise use of upland resources."

Findings

Current research and training supported by the project seems to lean heavily towards watershed studies aimed at answering questions about comparative hydrologic effects of different land uses. No doubt much of this focus is due to exposure to U.S. watershed research. Traditional types of watershed research, particularly the use of paired watersheds as supported by the project, has been in rapid decline during the past decade in the U.S. Based on the following considerations, the team questions whether this hydrologic topic and research technique should continue to be given such relative importance.

- It was observe that during conception of the studies, insufficient attention tends to be given to experimental strategies, in order to form well founded hypotheses before embarking on the research. This might be due in part to the difficulty that researchers have in obtaining access to foreign technical literature.

  General answers are already available as to the comparative effects of extreme differences of land

use : i.e. bare cultivation vs forest, terraced vs. non-terraced. Impact of such uses on erosion are usually evident without measurement. Scarce resources need not be used to prove the obvious.

It is questionable what effects small changes in hydrologic inputs will have on land use decisions, & on which these are made by government [illegible] are made by farmers on non-hydrologic criteria, especially economic ones.

Watershed experiments are extremely costly and need long-term continuity which can seldom be guaranteed under conditions in ASEAN countries, perhaps with the exception of Malaysia. Adequate answers can usually be found through other types of short-term studies such as those using runoff plots.

The constraints to better land use of the uplands tend to be of a social and economic nature. There is a need to develop financially viable cropping, grazing and forestry practices appropriate to local conditions. For example, some of the critical questions are : What constrains farmers from accepting better land use

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practices and how can those constraints be overcome ? How can farmers be motivated to change land use practices ? How can extension be made more effective ? What incentives are the most effective to encourage changes in land use ? What are the costs and benefits of various uses ? To make such economic analyses, physical data is needed, but not necessarily of the type obtained through most of the watershed studies which were examined. The entire production system must form inputs/outputs, not just hydrology. Although these above questions were cited by many senior officials as being of great importance, such social and economic issues have received very little attention by the project.

On several occasions the evaluation team became acquainted with particularly appropriate research which might serve as examples: 1) Runoff plots in Malaysia 2) Runoff plots at Mae Sa in Thailand 3) Introduction of fruit trees in Thailand.

Recommendation : The project should encourage only watershed research which helps solve important practical problems.

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CONTINUITY

6.1 Future direction of the project

The team discussed various options and mechanisms for identifying research priorities for the project and encouraging the countries to reorient their watershed research in accordance with these priorities and with the division of responsibilities within the network. One of the alteratives considered was a "blue ribbon" task force to assist the countries in this undertaking. However, in view of the several opportunities that have already been missed to give the project more coherent direction, (during PP preparation, the first symposium in 1984, the numerous PSC meetings and through more forceful concentration on dedication to the conceptual aspects of the project by the Project Director, PLS and the division chiefs) it is difficult to be optimistic that an additional attempt will bring the desired result. The team is of the opinion that, at this advanced juncture of the project, the most feasible strategy is to reduce the breadth of the project by concentrating the remaining resources and time on information exchange and on training, not in watershed research as foreseen in the PP, but in selected topics of watershed management (See Table 1 for examples).

Recommedation : If funds remain after the project termination date (December 1988), more time should be given provided the recommendations given in this report are followed. If more funds are to be allocated to the project, it should be redesigned, and the Center should remain in Los Banos.

The following is a preliminary list of suggested targets to be achieved during the remainder of the project. Hopefully, this proposal will serve project leadership as a point of depature for rapidly developing a feasible plan until the end of the project. A proposed plan of the activities needed to attain these outputs is given in Annex 7.

OUTPUT 1: At least one institution in each country officially committed to offer training to the members of the ASEAN network each in a different specified subject of watershed management mutually agreed upon.

OUTPUT 2: Two repetitions of a two-week course in the subject specified in Output 1, held at each of the four institutions, for professional level participants from the ASEAN countries. (total= 8 courses)

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OUTPUT 3: Two repetitions of a 10-day regional study tour to visit watershed work in the specified subject area, held in each of the four countries for professional level participants from the ASEAN countries (total = 8 study tours).

OUTPUT 4: One university level comprehensive training manual in watershed management relevant to conditions in ASEAN countries, published in English, Thai and Bahasa.

OUTPUT 5: Easy access by student, professionals and researchers engaged in watershed management to and existing computerized documentation service for technical literature, and to instructions in its use.

OUTPUT 6: Translation into English of at least 3,000 pages of technical publications very carefully selected for their relevance to watershed training in the ASEAN region.

OUTPUT 7: All research equipment acquired by the project installed and functioning in relevant, correctly designed studies.

OUTPUT 8: Four graduates from the U.S. and eight from regional universities (4 only from UPLB) with masters degrees in one of the subject areas of watershed management specified in Output

ANNEX 1 ITINERARY

Date/Day	Place/Activities
April 01 (Wednesday)	Team arrival in Manila, the Philippines
02 (Thrusday)	USAID briefing in USAID Philippines Office, Manila. Courtesy call: Director, BFD, Manila. Visit: Office Project Management, MNR, Manila
03 (Friday)	Briefing with US-ASEAN Watershed roject Director in Los Banos. Team discussion in evaluation, planning and methodology. Courtesy call: Director, Forest Research Institute, Los Banos. Courtesy call: Dean College of Forestry, UPLB
04 (Saturday)	Interview with Project staff, Project activity participants at the Project Office, Los Banos.

05 (Sunday)	Travel to Bangkok, Thailand
06 (Monday)	Public holiday in Thailand.
07 (Tuesday)	Visit to Royal Forestry Department. Interview with Thai PSC Member and Thailand IHP. Visit Forestry Faculty, Kasetsart University. Interview with Staff and Project particlpants.
08 (Wednesday)	Interview of Project activity participants and Country Coordinator at Watershed Project Office, Chiang Mai.
09 (Thursday)	Visit mae Chaem Watershed Project, Chiang Mai
10 (Friday)	Visit Mae-Sa Watershed Project, Chiang Mai. Travel to Bangkok
11 (Saturday)	Travel to Kuala Lumpur, Malaysia.
13 (Monday)	Visit Forestry Department of Malaysia in Kuala Lumpur.

16 (Thursday)	Team discussion on findings.
17 (Friday)	Travel to Jakarta, Indonesia.
18 (Saturday)	Visit Forestrys Department Jakarta. Interview with Project activity organizer and participant.
19 (Sunday)	Leave Jakarta for Yogyakarta 1 Solo.
20 (Monday)	Interview with Project participants at Watershed Development Center, Solo. Visit Project research site.
21 (Tuesday)	Leave Yogyakarta for Jakarta Discussion and interview with Project activity participants PSC member and Country Coordinator.
22 (Wednesday)	Team discussion on findings.
23 (Thursday)	Travel to Manila, the Philippines.

	Courtesy Call: Deputy Director General, Forestry Department.
	Discussion with Country Coordinator.
14 (Tuesday)	Visit Forest Research Institute Malaysia (FRIM).
	Coourtesy Call: Director General of FRIM.
	Visit: Laboratory of Hydrological Data Processing and Analysis.
	Interview of Project Activity participants.
	Visit: Universiti Pertanian Malaysia (UPM).
	Courtesy Call: Dean, Faculty of Forestry, UPM.
	Interview with Project participants
15 (Wednesday)	Visit hydrological Research Station at Berembun, Kuala Pilah, Negeri Sembilan.

24 & 25 (Friday & Saturday)	Report preparation.
26 (Sunday)	Travel to Bacolod City.
27 (Monday)	Bureau of Forestry Department; Visit field station.
28 (Tuesday)	Travel to Manila.
29 (Wednesday)	Briefing and report presentation by Team Members to Project Director and AID staff.
30 (Thursday)	Departure for home country.

ANNEX 2 TERMS OF REFERENCE

1. Purpose of subject evaluation is to appraise the overall effectiveness of Project implementation, the validity of Project design, the adequacy of Project funding, and to make recommendations with respect to Project objectives, Project management, and the future of the Project. The evaluation will be conducted in April 1987.

2. BASIC SCOPE OF EVALUATION

   A. The quality and relevance of research assistance to ASEAN watershed problems will be examined with respect to: the effectiveness of a regional approach to research; use of Project assistance for addressing national research problems; improvement and standardization of research results; uses made of Project financed equipment; and linkages of research activity to national watershed policy.

   B. The value of training will be examined with respe to: the role of trainees in national water polic formulation, research or training activities; the positions held by returned trainees; number and diversity of participants in seminars, workshops,

and training courses; and the performance of trainees in academic or other training activities. In addition, the long term need for academic and/or specialized training in watershed management will be assessed as will the present and potential future role of UPLB as a regional center of excellence in watershed management training.

Exchange will be examined with respect to: the use made of information disseminated; the extent and quality of information collected and the number and quality of Project publications; and the degree to which information is shared among countries.

D. Project management will be examined with respect to: the extent to which it has increased research coordination and cooperation among ASEAN countries; the degree to which it has made the Los Banos Center a useful regional resource for addressing watershed problems; and the degree to which it coordinates Project activities with other national, regional and international watershed development activities.

E. ASEAN commitment to the Project will be assessed in terms of the amount of country support for Project activities, particularly the degree to which member countries contribute to the Project in financial terms, compensation of professional staff, support of participants to activities and support of research activities. Also of interest are in-kind contributions to Project activities in terms of personnel, travel, facilities, other direct support.

F. Such other items/matters as the team considers appropriate to the purpose at hand.

3. Composition of evaluation team. Evaluation team will be composed of 2 US and 3 ASEAN members to be nominated by the AID/ASEAN Regional Office and the ASEAN member countries, respectively, and to be selected by the Project Steering Committee. The Chairman of the team will be 1 of the 3 ASEAN experts and will be selected in consultation with the PSC members.

4. The evaluation will be divided into two parts:

A. Philippines' Project Office and AID/ASEAN Regional Office (ARO). The first part of the evaluation will

be conducted in the Philippines at the Project Office in Los Banos and ARO in Manila. The evaluation team will interview key administrative and professional staff and will review implementation documentation in the Project files. The team will also interview selected key people at the University of the Philippines at Los Banos, Forest Research Institute, Bureau of Forest Development and Ministry of Natural Resources as well as ASEAN scholars at UPLB and selected participants from past activities.

B. ASEAN Countries. During the second part the team will visit participating ASEAN countries to interview PSC members, Country Coordinators, selected participants in ASEAN activities and organizers of ASEAN activities in the country. Team members will also review research activities receiving Project assistance.

5. Reporting Requirements

A. Procedures. The evaluation team will prepare a report addressing the items of concern outlined in Paragraph 2 above plus any other items the team determines to be consistent with the objectives of the evaluation.

A preliminary draft of the evaluation report will be provided to the Project Director, ASEAN Watershed Project and the AID/ASEAN Regional Development Officer in Manila for review and comments prior to preparation of the final evaluation report and its submission to the ASEAN committee on Food, Agriculture and Forestry (COFAF) and AID/Washington.

The evaluation team will present a briefing on the results of the evaluation to the Director and Professional staff of the Project, the Regional Development Officer, Chairman of the Project Steering Committee (PSC), and others as deemed appropriate.

B. Format of Report. The preliminary draft evaluation report shall adhere to the following format:

1. Executive Summary
2. Main Text of Report
3. Appendices

ANNEX 3. Training Activities

TYPE OF EVENT	TITLE	PLACE	DURATION (DAYS)	NUMBER OF PARTICIPANTS BY TYPE SP	SPI	F	T	PARTICIPANTS BY SEX M	F	NUMBER OF INSTRUCTORS
Seminar	Watershed Management and Conservation for Productive and Protective Uses in the ASEAN Region	College, Laguna, Philippines	June 25- [illegible] 1984	5	15	14		7	6	
Seminar	Resources for Productive and Protective Watershed Resources in the ASEAN Region	Bogor, Indonesia	August 27-31, 1984	5	7	6	4	1	5	4	5	
Study Tour	Study Tour of ASEAN Watershed Management, Research and Conservation Projects	ASEAN Member Countries	Oct. 21 - Nov. 14, 1984	25		1	4	3	2	2	2	3	
Workshop	Workshop on Standardization of Guidelines for Watershed Management Approaches and Researches in the ASEAN Region	Chiang Mai, Thailand	November 22-30, 1984	9		3	12		5	5	5	5	
Training Course	Training Course on Watershed Management and Environmental Monitoring	IFSC/UPLBCF, College, Laguna, Phil.	Feb. 18 - March 08, 1985	14		4	17	2	9	6	9	9	7
Workshop	Workshop on Land-Use Planning in Watershed Context	Mangupala Manufacturing, Indonesia	April 1[illegible] 1985	9	3	7	9	1	5	5	5	5	
Fellowship Tour	Fellowship Tour of Watershed Management and Development Projects	U.S.A.	June 7-[illegible], 1985	22	5	7			1	4	4	4	
Study Tour	Watershed Instrumentation, Design, Data Monitoring and Analysis	Arizona, U.S.A.	August 22 - Sept. 12, 1985	22	4	9			4	4	4	4	
Training Seminar	Training Seminar on Watershed Management Technology	Hotel Equatorial, Singapore	September 22-28, 1985	7	17	13	1		6	7	7	7	3
Seminar	Seminar on Watershed Research and Management Practices for Effective Watershed Resources Management	Serdang, Selangor, Malaysia	Oct. 28 - Nov. 02, 1985	6	3	9	12		5	5	5	4	
Training Course No.1	Watershed Management and Environmental Impact Assessment and Monitoring	IFSC/UPLBCF, College, Laguna, Phil.	April [illegible], 1986	21	7	22	1		4	4	10	5	22
Study Tour	Study Tour on Watershed Research and Development Projects	ASEAN Member Countries	June 15 - July 14, 1986	30	2	9	1		2	5	4	3	
Training Course No.2	Watershed Research and Management	Serdang, Selangor, Malaysia	June 22 - July 05, 1986	14	1	13	7		5	6	5	5	14
Workshop	Workshop on Roading and Development Activities in Relation to Soil Erosion and Sedimentation Control in Watersheds	Jakarta, Indonesia	July 21-25, 1986	5	5	7	4		5	5		4	
Review Seminar	Watershed Research and Management Practices	UPLBCF, College, Laguna, Phil. Kosa Hotel, Khon Kaen, Tailand Solo, Central Java, Indonesia Universiti Pertanian, Malaysia	August 13-16, 1986 August 20-23, 1986 August 25-30, 1986 September 02-04, 1986	4 4 6 3	89	141	11		41	76	59	72	16
Workshop	Workshop on the Standardization and Technology Transfer of Watershed Research and Management Techniques	Chiang Mai, Thailand	Oct. 28 - Nov. 01, 1986	5	10	10			5	5	5	5	
Training Program	Research Training Program Practices and Terminologies	Baguio City, Philippines	November 17-29, 1986	10			12		3	3	3	3	3
Workshop eee	Workshop on Integrated River Basin Development and Watershed Management	Indonesia	March 22-26, 1986	5		3			1	1		1	
Symposium eee	International Symposium on Tropical Forest Hydrology	Thailand	June 11-15, 1986	5	2		8		2	3	3	2	
World Congress eee	International Union of Forest Research Organization	Ljubljana, Yugoslavia	September 7-21, 1986	14	5				1	1	2	1	
Participation to non-project sponsored activities													

E8A

	COST TO ASEAN (US$)	
10.[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
1157	[illegible]	28.20[illegible]
[illegible]	7,910	[illegible]
[illegible]	11,246	33,50[illegible]
18,[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	63244
[illegible]	[illegible]	22,484
11317	[illegible]	83503
[illegible]	[illegible]	[illegible]
67,[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	28421
16,477	17,710	34285
10,257	184 [illegible]	20884
12,[illegible]	[illegible]	23244.97
5,33[illegible]	3[illegible]	[illegible] 7023
1,47[illegible]	—	1473
[illegible]	[illegible]	7306
[illegible]	[illegible]	19918

ANNEX 4

Individuals Interviewed

Indonesia

Name	Post
1. Mr. Bambang Sukartiko	Director of Soil Conservation Directorate General of Reforestation and Land Rehabilitation Ministry of Forestry Jakarta, Indonesia
2. Mr. Engkah Sutadipradja	Chief, Subdirectorate of Watershed Management Ministry of Forestry Jakarta, Indonesia
3. Mr. Wartono Kaeri	Directorate General of Reforestation and Land Rehabilitation Ministry of Forestry Jakarta, Indonesia
4. Dr. Ombo Satjapradja	Subdirector of Land-Use Design Ministry of Forestry Jakarta, Indonesia
5. Ir. Suherdi	Head of Section on Monitoring Land Rehabilitation and Soil Conservation Ministry of Forestry Jakarta, Indonesia
6. Mr. Dwiatmo Siswomartono	Subdirector for Soil Conservation Techniques Directorate of Soil Conservation Ministry of Forestry Jakarta, Indonesia
7. Mr. Sopari Wangsadidjaja	Chief. Watershed Management Technological Center Solo, Indonesia
8. Mr. Bambang Murdiono	Staff, Watershed Management Technological Center Solo, Indonesia

9. Mr. Rumoko D. Daru	Chief, Programming Section Watershed Management Technological Center Solo, Indonesia
10. Mr. Prapto Suhendro	Staff, Watershed Management Technological Center Solo, Indonesia

Malaysia

1. Mr. Mohd. Danis bin Mahmud	Deputy Director-General Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
2. Dr. Kamis Awang	Dean, Faculty of Forestry Universiti Pertanian Malaysia Serdang, Selangor, Malaysia
3. Dr. Salleh Mohd. Nor	Director-General, Forest Research Institute Malaysia Kepong, Kuala Lumpur, Malaysia
4. Mr. Mok Sian Tuan	Assistant Director General Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
5. Mr. Chee Tong Yiew	Parks and Recreation Officer Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
6. Mr. Abdul Rashid Mat Amin	Director Forestry Training Unit Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
7. Mr. A. Jayadas	Technical Assistant, Forest Engineering Section Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
8. Mr. Khalid Hj. Ismail	Assistant Silviculturist Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia

9. Mr. Abdul Majid Abdul Rahman	Silviculturist Forestry Department Peninsular Malaysia Kuala Lumpur, Malaysia
10. Mr. Abdul Rahim Haji Nik	Senior Forest Hydrologist Forest Research Institute Malaysia Kepong, Kuala Lumpur, Malaysia
11. Mr. Baharuddin Kasran	Forest Hydrologist Forest Research Institute Malaysia Kepong, Kuala Lumpur, Malaysia
12. Mr. Zulkitty Yusop	Forest Hydrologist Forest Research Institute Malaysia Kepong, Kuala Lumpur, Malaysia

Philippines

1. Dr. S. R. Saplaco	Director ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
2. Dr. W. D. Striffler	Project Liaison Specialist ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
3. Dr. Tongchai Wechasut	Chief, Training Division ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
4. Ir. H. Hardjowitjitro	Chief, Research and Information Exchange Division ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
5. Mr. Marciano Reamico	Training Assistant ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines

6. Mrs. Lolinda Magsanoc	Research Forester ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
7. Mr. Emmanuel Regondola	Research Forester ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
8. Mrs. Vida Carandang	Administrative Forester ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
9. Mrs. Ana Cabatbat	Research Assistant ASEAN-US Watershed Project UPLB-CF College, Laguna, Philippines
10. Dr. F. S. Pollisco	Director Forest Research Institute College, Laguna, Philippines
11. Mr. Dominador Urmatan	Assistant Chief, Watershed Management Division Bureau of Forest Development Visayas Avenue, Diliman, Quezon City, Philippines
12. Mr. J.B. Alvarez	Assistant Director Bureau of Forest Development Visayas Avenue, Diliman, Quezon City, Philippines
13. Prof. L.L. Quimbo	Associate Dean College of Forestry, UPLB, College, Laguna, Philippines
14. Mr. Tonie O. Balangue	Asst. Professor College of Forestry, UPLB, College, Laguna, Philippines
15. Mr. Renato L. Lapitan	Instructor College of Forestry, UPLB, College, Laguna, Philippines
16. Ms. Margaret Mejorada	Instructor College of Forestry, UPLB, College, Laguna, Philippines

17. Mr. Angelito B. Exconde	Research Assistant Watershed and Range Management Division Forest Research Institute College, Laguna, Philippines

Thailand

1. Dr. Kasem Chunkao	Head Department of Conservation Faculty of Forestry Kasetsart University Bangkok, Thailand
2. Dr. Nipon Tangtham	Associate Professor Department of Conservati Faculty of Forestry Kasetsart University Bangkok, Thailand
3. Dr. Samakkee Boonyawat	Associate Professor Department of Conservation Faculty of Forestry Kasetsart University Bangkok, Thailand
4. Mr. Samarn Rouysungnern	Chief Watershed Research Section Watershed Management Division Royal Forest Department Bangkok, Thailand
5. Mr. Sawat Dulyapach	Project Manager Highland Forestry Dev. Project Watershed Management Division Royal Forest Department Bangkok, Thailand
6. Mr. Preecha Ob-eye	Director Watershed Management Division Royal Forest Department Bangkok, Thailand
7. Mr. Sittichai Ungphakorn	Chief Watershed Survey and Planning Division Watershed Management Division Royal Forest Department Bangkok, Thailand

8. Mr. Sathi Chaiyapetch	Program Analyst Planning Division Watershed Management Division Royal Forest Department Bangkok, Thailand
9. Mr. Paijit Wiboonpongso	Director Upper Ping River Development Center, Chiang Mai, Thailand
10. Mr. Samart Sumanochitraoorn	Chief Watershed Development Unit No. 9 (Huai nan Ru) Doi Sam Muen, Chiang Mai, Thailand
11. Mr. Udomporn Anatiwong	Forest Technician Mae Chaem Watershed Development Project Watershed Management Division Royal Forest Department Bangkok, Thailand
12. Mr. Wilat Phewmau	Chief Watershed Development Project Unit No. 2 (Huay Nam Dueng) Chiang Mai, Thailand
13. Mr. Pichart Watnaprateep	Chief Watershed Research Station No. 4 (Chiang Dao) Chiang Mai, Thailand
14. Mr. Kowit Punyatrong	Project Field Manager (Forestry Section) Mae Chaem Watershed Development Project Chiang Mai, Thailand
15. Mr. Chalco Kanjunt	Forest Hydrologist Watershed Development Project Chiang Mai, Thailand
16. Mr. Arthorn Boonsaner	Research Assistant Watershed Management Division Royal Forest Department Bangkok, Thailand
17. Mr. Pakorn Aringsoongnern	Chief Watershed Management Research Center No. 2 Chiang Mai, Thailand

18. Mr. Sayan Banawat

Project Director
Mae Sa Integrated Watershed
and Forest Land Use
Chiang Mai, Thailand

ANNEX 5 ASEAN-US WATERSHED PROJECT

Research Support Component as submitted by Member Country

COUNTRY	PROJECT TITLE	GENERAL OBJECTIVES	SPECIFIC OBJECTIVES	DURATION (YEARS)	PLACES	BUDGET NEEDED
Indonesia	Hydrologic Evaluation of the Conservation Program on Agriculture Watershed in Java, Indonesia	To evaluate soil and water conservation program activities in terms of hydrologic aspect.	1. To alleviate the occurrence of flood, drought and soil erosion. 2. To evaluate further the changes in water yield (total water, sediment, time continuity) caused by implemented activities.	5	1. Cimanuk, West Java 2. Ciliwung, West Java 3. Zerotusaluna, Central Java 3. Solo, Central Java 4. Sampean, East Java	US $65,200.00
Malaysia	Watershed Management and Conservation in Forest Commercial Plantations in Malaysia	1. To evaluate natural logged-over forest catchment prior to plantation establishment. 2. To initiate catchment study on denuded watershed and subsequently forest plantation	1. To quantify fully the hydrologic "input" and "output" of a wooded catchment (before salvaging). 2. To characterize the dynamic processes that influence the quantity and quality of discharge. 3. To determine the extent of soil erosion and the amount of sediment yield resulting from deforestation activities. 4. To monitor the water quality changes over time resulting from forest plantation establishment. 5. To provide a basis for extrapolating results to wider situation within and outside the country.	5	1. Kemasul 2. Perang or Ulu Gadil 3. Johor	US $118,100.00

COUNTRY	PROJECT TITLE	GENERAL OBJECTIVES	SPECIFIC OBJECTIVES	DURATION (YEARS)	PLACES	BUDGET NEEDED
Philippines	Hydrology of Major Forest Vegetation Types and Forest Land Uses in the Philippines	1. To establish and evaluate the influence of different vegetation types upon the hydrologic characteristics and processes in a watershed. 2. To determine and establish the change in hydrologic characteristics particularly water yield.	-	15	1. Peco, Norzagaray, Bulacan 2. San Lorenzo, Norsaka Atoka Benguet (Abukiao Bingal 3. Palapal, Baiko Mt. Province 4. Nueva Vizcaya, 5. College, Laguna	US $96,208.00
Thailand	Upper Watershed Hydrology and Data Analysis	1. To improve the standard of hydrometeorological measurements. 2. To fill out the gaps of reliable hydro-meteorological information of major watersheds. 3. To gather/consolidate, check and analyze existing hydrometeorological data.	-	one		US $99,700.00

ANNEX 6 DOCUMENTS REVIEWED

1. ASEAN-US Watershed Project, Project Paper, Fourth Meeting of the Project Steering Committee of the ASEAN Watershed Project, Annex 6, 7-9 November 1983. Hyatt. Regency, Manila.

2. ASEAN-US Watershed Project, Project Grant Agreement Project General Agreement between the Republic of the Philippines and the United States of America for the ASEAN Watershed Project, AID Project No. 498-0258.03.

3. Report of the Fourth Meeting of the Project Steering Committee of the ASEAN-US Watershed Project, 7-9 November 1983, Manila, the Philippines.

4. Consolidated Progress Report 1984-1986, ASEAN-US Watershed Project Office, Laguna, Philippines.

5. Post Evaluation reports of ASEAN-US Watershed Project-sponsored activities (1984-1986).

6. Research Proposal of Thailand, Malaysia, Indonesia and the Philippines.

7. ASEAN-US Watershed Project. A Mile-stone in Regional Watershed Management and Research Cooperation, Project Office, College, Laguna, the Philippines.

8. Summary of participation in ASEAN-US Watershed Activities as of 31 December 1986, mimeograph, Project Office, Los Banos.

9. Summary of Expenditures, Project Activities, CY 1984-1986, Project Office, Los Banos.

10. Scope of Work for Major Joint Project Evaluation, ASEAN-US Watershed Project, Mimeograph, Project Office, April 1987, Los Banos.

11. Information for Major Joint Project Evaluation, Mimeograph, Project Office, Los Banos.

12. List of participants of the Project Activities. Project Document, Project office, Los Banos.

13. Some Questions and Notes for the Evaluation of the ASEAN Watershed Project, written notes of G. Armstrong, April 2, 1987, USAID, Manila.

14. Philippine Forestry Statistics, 1985. Bureau of Forest Development, Ministry of Natural Resources, Manila.

15. College of Forestry, a Leaflet, University of the Philippines at Los Banos, College, Laguna.

16. Mae Chaem Watershed Development Project, Ministry of Agriculture and Cooperative, Chiang Mai.

17. Forestry in Malaysia, Ministry of Primary Industries, Malaysia.

18. Table of ASEAN-US Watershed Project, Malaysian participants, According to activities and the Participants' institutions.

19. Proceedings of the Symposium on Watershed Management and Coordination for Productive and Protective Uplands in the ASEAN Region, 25-29 June 1984, CFED, UPLB, College, Laguna.

20. Proceedings Seminar on Researches for Productive and Protective Watershed Resources in the ASEAN Region. 27-31 August 1984. Bogor, Indonesia.

21. Proceedings Workshop on Standardization of Guidelines for Watershed Management Appraoches and Researches in the ASEAN Region, Chiang Mai Palace Hotel, Chiang Mai, Thailand, 21-30 November 1984.

22. The ASEAN Watershed Newsletter, Quarterly Publication of the ASEAN-US Watershed Project, College, Laguna, Philippines. Vol. 1, Nos: 1, 2, 3, and 4, 1985; Vol. 2, Nos.: 1, 2, 3, and 4, 1986.

PROPOSED TENTATIVE IMPLEMENTATION PLAN FOR THE REMAINDER OF THE ASEAN/US WATERSHED PROJECT

OUTPUTS + ACTIVITIES	1987 MJJASOND	1988 JFMAMJJASOND	1989 JFMAMJJASOND	RESPONSIBLE
OUTPUT 1: At least one institution in each country officially committed to offfer training to the members of the ASEAN network each in a different specified subject of watershed management mutually agreed upon				
1.1 Identify and contact candidate institutions (Tentative candidates are: Philippines - UPLB; Thailand - Kasesart Univ.; Indonesia - Watershed Mangement Technology Center or Inst. of Hydrologic Engineering)	xx			Los Banos Center(LB
1.2 Invite representatives of the candidate institutions to the next Country Coordinators meeting in order to agree upon subject and responsibilities of each institution (See Table 1 for suggested topics)	x			Los Banos Center
1.3 Submit the agreement to the July 1987 PSC meeting for approval				Los Banos Center
1.4 Obtain written commitment from each institution	x			Los Banos Center
OUTPUT 2: Two repetitions of a two-week course in the subject specified in Output 1, held at each of the four institutions, for professional level participants from the ASEAN countries (total = 8 courses)				
2.1 Submit detailed outline of courses and description of required support to Los Banos Center	xx			Host institutions
2.2 Critical review, outline and requirement of Los Banos Center, using [illegible]	xx			LBC + consultant
2.3 Visit each of the four training institutions to discuss and clarify revision, schedule courses, identify instructors	xx			Proj.Dir. + PLS
2.4 Procure equipment, supplies and contract consultants needed for teaching the courses	xx	xxx		LBC
2.5 Distribute course announcements, including detailed profile of qualifications of participants	x			LBC
2.6 Prepare and reproduce teaching materials		xxx		Host institutions
2.7 Screen participants and inform those selected		xx		LBC + host instit.
2.8 Offer the course for first time		xxx		Host institutions
2.9 Evaluate courses and plan how to upgrade the repetition of course		xxx		LBC + host instit.
2.10 Distribute course announcements for repetition, including detailed profile of qualifications of participant		x		LBC
2.11 Improve and expand teaching materials		xxxxxx		Host institutions
2.12 Screen participants and inform those selected		xx		LBC + host instit.
2.13 Offer the courses for the second time		xxx		Host institutions
2.14 Evaluate courses and plan how to upgrade and repeat courses to be held by institutions without project support.		xxx		LBC + host instit.

PROPOSED TENTATIVE IMPLEMENTATION PLAN FOR THE REMAINDER OF THE ASEAN/US WATERSHED PROJECT

OUTPUTS + ACTIVITIES	1987 MJJASOND	1988 JFMAMJJASOND	1989 JFMAMJJASOND	RESPONSIBLE
OUTPUT 3: Two repetitions of a 10-day regional study tour to visit watershed work in the specified subject area, held in each of the four countries for professional level participants from the ASEAN countries (total = 8 study tours)				
3.1 Submit detailed outline of tours and description of required support to Los Banos Center	xx			Host institutions
3.2 Critically revise outlines and requirement at Los Banos Center, using consultant if necessary	xx			LBC + consultant
3.3 Visit each of the four training institutions to discuss and clarify revision, schedule tours, identify the ructors	xx			Proj.Dir. + PLS
3.4 Procure equipment, supplies and contract consultants needed for conducting the tours	xx	xxx		LBC
3.5 Distribute tour announcements, including detailed profile of qualifications of participants	x			LBC
3.6 Prepare and reproduce teaching materials		xxx		Host institutions
3.7 Screen participants and inform those selected		xx		LBC + host instit.
3.8 Offer the study tour for first time		xxx		Host institutions
3.9 Evaluate tours and plan how to upgrade the repetition of study tours		xxx		LBC + host instit.
3.10 Distribute tour announcements for repetition, including detailed profile of qualifications of participant		x		LBC
3.11 Improve and expand teaching materials		xxxxxx		Host institutions
3.12 Screen participants and inform those selected		xx		LBC + host instit.
3.13 Offer the study tours for the second time		xxx		Host institutions
3.14 Evaluate tours and plan how to upgrade and repeat tours to be held by institutions without project support.		xxx		LBC + host instit.
OUTPUT 4: One university level comprehensive training manual in watershed management relevant to conditions in ASEAN countries, published in English, Thai and Bahasa				
4.1 Contract manual and to plan its preparation	xx			LBC
4.2 Review the consultant recommendations with selected training institutions inside and outside the ASEAN region (Note: CATIE in Costa Rica is in the process of preparing watershed training materials in Spanish for tropical America and has recently prepared a comprehensive training manual for agroforestry)	xx			LBC
4.3 Submit a detailed proposal to the PSC at its second 1987 meeting	x			LBC
4.4 Acquire relevant publications needed as source materials	xxx	xxxxxxxx		LBC + writing team
4.5 Contract a two to four person team to draft the text of the manual		xxxxxxxxxxxx	xxxxxx	LBC
4.6 Contract institutions or individuals to prepare supplementary materials (case studies, practical exercises, audio-visuals, art work, etc.)		xxxxxxxx	xxxxxx	LBC
4.7 Circulate successive drafts to reviewers for revision		xxxxxxx	xxxxxx	LBC + writing team
4.8 Test draft in courses and revise accordingly		xxxxxx		LBC + writing team

PROPOSED TENTATIVE IMPLEMENTATION PLAN FOR THE REMAINDER OF THE ASEAN/US WATERSHED PROJECT

OUTPUTS + ACTIVITIES	1987 MJJASOND	1988 JFMAMJJASOND	1989 JFMAMJJASOND	RESPONSIBLE
4.9 Contract page layout and printing			xxxx	LBC
4.10Distribute free copies and make arrangements for sale			xx	LBC
4.11Test and evaluate manual in courses (after 1989)				
4.12Prepare draft of improve edition (after 1989)				
4.13Translate improved draft into Thai and Bahasa (after 1989)				
OUTPUT 5: Easy access by students, professionals and researchers engaged in watershed management to an existing, computerized documentation service for technical literature, and to instructions in its use				
5.1 Identify and assess technical documentation services available in the ASEAN region, using a consultant if necessary	xx			LBC + consultant
5.2 Select those services amenable to cooperative arrangements and upgrading	xx			LBC + consultant
5.3 Draft an agreement for cooperation, project support and conditions for use of the service	x			LBC
5.4 Submit the draft agreements to the PSC at its second 1987 meeting	x			LBC
5.5 Utilize the documentation services		xxxxxxxxxxxx		CC + host instit.
5.6 Announce the availability of the documentation services and encourage their use		xxxxxxxxxx		LBC + CC
5.7 Integrate the use of the services into the watershed courses (see Output 3)		xxxxxxxxx		Host institutions
5.8 Reproduce and distribute bibliographies with abstracts on selected watershed topics of interest to the ASEAN region, which have been prepared by the documentation services		xxxxx		LBC
OUTPUT 6: Translation into English of at least (number) ... pages of technical publications very carefully selected for their relevance to watershed training in the ASEAN region				
6.1 Identify highly qualified, impartial reviewers to recommend publications for translation	x			LBC + CC
6.2 Prepare criteria for selection of the publications to translate and the languages, giving emphasis to their potential for training, especially for their use in the training manual	xx			LBC
6.3 Request reviewers to recommend publications in accordance with the criteria	xx			LBC + CC
6.4 Screen the recommendations of the reviewers and rank in order of priority	xxxxx	xxxxxx		LBC
6.5 Contract qualified translators	xxxxxxxx	xxxxxxxxx		LBC + CC
6.6 Revise the translations	xxxxxxxx	xxxxxxxxx		LBC + contractors
6.7 Publish the translations		xxxxxxxxxx		LBC
6.8 Distribute the translations		xxxxxxxxx		LBC

PROPOSED TENTATIVE IMPLEMENTATION PLAN FOR THE REMAINDER OF THE ASEAN/US WATERSHED PROJECT

OUTPUTS + ACTIVITIES	1987 MJJASOND	1988 JFMAMJJASOND	1989 JFMAMJJASOND	RESPONSIBLE
OUTPUT 7: All research equipment acquired by the project installed and functioning in relevant, correctly designed studies				
7.1 Request countries to provide new detailed, located research proposals following suggested format	x			LBC
7.2 According to the quality of the proposals received and in response to requests, assist the countries with design of the research proposals	xxx			LBC
7.3 Provide technical assistance, or procure it locally, for installation of the equipment and start-up of observations	xxxxx			LBC
OUTPUT 8: (Number) ... graduates from the U.S. and (number) ... from regional universities with masters degrees in one of the subject areas of Watershed Management specified in Output 1				
8.1 Announce scholarships available and invite applicants	xx			LBC
8.2 Create selection committee	xx			LBC
8.3 Screen and select candidates	xx			Selection committee
8.4 Upgrade English proficiency of candidates if necessary	x	xxxx		Commercial courses
8.5 Select appropriate universities and curricula	x	xxx		LBC
8.6 Submit applications for admission to selected universities		xxxxxx		LBC + candidates
8.7 Send scholars abroad for study (return during 1990)		xxxxx	xxxxxxxxxxxx	LBC
8.8 Monitor progress of studies and suggest adjustments if needed		xxxxx	xxxxxxxxxxxx	LBC

Note 1: Outputs 1, 2, and 3 forsee repetition of the same courses and tours more than once, rather than presentation of a greater variety of events. This is strategy is proposed in order to improve the quality of the courses and to assure their integration into the regular function of the host institutions, so that the courses and tours will continue to be offered once the project ends.

Note 2: The graduate scholarships of Output 8 are only recommended if funds are still available after fully budgeting Outputs 1 through 7. Consequently the number of scholarships will depend on the funds remaining.

Note 3: It will not be possible to finish the contract for the training manual (Output 4) or the scholarships (Output 8) before the December 1988 end of the project. AID should make the arrangements so that additional time can be allocted to complete these two commitments.

AID 1020-25 (1-73)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1983 to FY 1989
Total U. S. Funding $3,000,000
Date Prepared: April 8, 1983

Project Title & Number: ASEAN WATERSHED PROJECT (498-0258.03)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: (A-1) To find and apply better methods of watershed management which will conserve land and water resources and improve their productive uses.	**Measures of Goal Achievement: (A-2)** National watershed management methods developed by project-assisted research result in conservation and productive uses benefits.	**(A-3)** Ex post evaluation.	**Assumptions for achieving goal targets: (A-4)** Participants and, possibly, donors continue support for and use of the research network begun under the project. Research develops improved methods of watershed management. National policy and programs apply improved methods.
Project Purpose: (B-1) To start a watershed management research network among ASEAN countries. To coordinate research in participating agencies and institutions to relate to the common theme: Watershed management research for productive and protective uplands with emphasis on soil erosion reduction and improved water quality, quantity and distribution.	**Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)** Research designs and results among network participants begin to be coordinated and to be related to the common theme. Research data collection, analysis and standardization begin to improve. Training and information exchange under the project increase awareness of research methods and results throughout ASEAN. Linkages with researchers in lowland land use and related fields and with national policy makers and program managers are established. A capability to participate in broader Asia-Pacific regional and worldwide research networks developed.	**(B-3)** Major joint evaluation. Symposia. Annual Evaluation by Project Director. AID PIR reports.	**Assumptions for achieving purpose: (B-4)** Watershed management problems among ASEAN countries are sufficiently similar to make a regional research approach cost effective and efficient. Participating agencies and institution will continue to support project approach to watershed management research, training and information exchange.
Project Outputs: (C-1) 1. Project-sponsored symposia, seminars and workshops. 2. Training, long-term and short-term, in the Region and the U.S. 3. Research support -- equipment and training in its use. 4. Information exchange and project administration at a center in Los Banos, Laguna, the Philippines. 5. Liaison, consulting and other U.S. services.	**Magnitude of outputs: (C-2)** 1. Project Activities (and total participants): (a) 3 symposia (90); and (b) 24 seminars, workshops, technical short courses and study tours (375). 2. Trainees: (a) 5 U.S. long-term; (b) 15 U.S. short-term; (c) 10 Regional long-term; and (d) 30 Regional short-term. 3. Equipment (and training) to improve data collection and analysis. 4. Los Banos center where 1 Project Director, 2 Division Chiefs and other staff provide project administration information exchange support and training and research support for fellows. 5. U.S. Services: (a) Project Liaison Specialist (5 person-years); and (b) Short-term consulting, training and evaluation services.	**(C-3)** Major joint evaluation. Annual evaluations and quarterly progress reports by Project Director. Symposia. AID PIR and PFAR reports.	**Assumptions for achieving outputs: (C-4)** AID, GOP and other participants continue cooperation and support for project activities over life-of-project. ASEAN and donor agencies and institutions increase support for watershed research over life-of-project.
Project Inputs: (D-1) AID: U.S. and ASEAN professional and training services and imported commodities, travel and per diem, communications, honoraria and facilities not available to participating ASEAN agencies. ASEAN: As available, facilities, utilities, services, travel, communications, interpreting services and operating and maintenance costs. The logical framework narrative provides further details.	**Implementation Target (Type and Quantity) (D-2)** Contributions to project components as follows: ($ thousands) Component / AID / ASEAN / TOTAL 1. Project Activities 500 300 800 2. Training 800 500 1,300 3. Research Support 500 600 1,100 4. Los Banos Center 600 800 1,400 5. U.S. Services 600 - 600 TOTAL 3,000 2,200 5,200 The logical framework narrative provides further details.	**(D-3)** Quarterly progress reports of Project Director AID PIR AND PFAR reports.	**Assumptions for providing inputs: (D-4)** AID, GOP and other participants funds are available. Initial activities are carried out on a timely basis to prepare for future year's activities.

ANNEX A

Annex I
Amendment No. 2

BUDGET SHEET
(Grant Funds Allocation)

The additional grant amount of $595,000 provided by A.I.D. in Amendment No. 2 to the Grant Agreement is allocated to the Project Components as follows:

Project Component	Previous Funding Level	Increase By this Amendment	New Funding Level
Project Sponsored Activities	$ 360,490	$100,000	$ 460,490
Training	582,000	168,000	750,000
Research Support	318,000	132,000	450,000
Los Banos Center	339,510	100,000	439,510
U.S. Consulting Services	305,000	95,000	400,000
TOTAL	$1,905,000	$595,000	$2,500,000