

PROJECT EVALUATION SUMMARY (PES) - PART I

1. PROJECT TITLE Soil Conservation Project		2. PROJECT NUMBER 527-0220	3. MISSION/AID/W OFFICE USAID/Peru
		4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No., beginning with No. 1 each FY) FY 84-02	
		<input type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First FRC/AG or Equivalent FY 80	B. Final Obligation Expected FY 86	C. Final Input Delivery FY 86	A. Total \$ 2,140.00 B. U.S. \$ 1,600.00	From (month/yr.) July/83 To (month/yr.) November/84 Date of Evaluation Review

B. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite their item, pending further study. (NOTE: Mission decisions which anticipate AID/W regional office action should specify type of document, e.g., program, SPAR, PID, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
<p>After three years of Project operation in the Sierra substantial gains toward achievement of the Project purpose have been made through training, establishing and extending practical soil and water conservation methods and through institutional coordination to develop a national soil and water conservation system. In summary the following achievements may be noted:</p> <ul style="list-style-type: none"> - Extension training of 4,504 farmers. - Establishment of 2,529 test plots. - Conservation training of 802 professionals and paraprofessionals. - Extensive coordination across public sector agricultural institutions and a greater understanding of conservation problems by those institutions. - Social and Economic data collection and analysis which have demonstrated very positive results implying: increased incomes; an easing of production risks; conversion of class IV land to what may effectively be considered class II or III land and fundamentally, achievement of some conservation of the nations scarce soil and water resources. <p><u>Major Evaluation Recommendations:</u> Extend the Project for an additional 18 months in order to: (1) complete the ongoing and planned activities that are necessary for the establishment of a national system of soil and water conservation, as originally envisioned in the Project Paper; (2) Conduct additional extension, continued...</p>		

8. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS	10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT
<input checked="" type="checkbox"/> Project Paper <input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network <input checked="" type="checkbox"/> Financial Plan <input type="checkbox"/> PID/T <input type="checkbox"/> Logical Framework <input type="checkbox"/> PID/C <input checked="" type="checkbox"/> Project Agreement <input type="checkbox"/> PID/P	<input checked="" type="checkbox"/> Other (Specify) <u>Proj. Authorizat.</u> <input type="checkbox"/> Other (Specify) _____ A. <input type="checkbox"/> Continue Project Without Change B. <input checked="" type="checkbox"/> Change Project Design and/or <input checked="" type="checkbox"/> Change Implementation Plan C. <input checked="" type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)	12. Mission/AID/W Office Director Approval
Francisco Espinoza, Project Manager Jerome Arledge, USDA/SCS, Project Technical Advisor Julio Cesar Hernandez/Director of DGASI	Signature: <u>George A. Hill</u> Typed Name: <u>George A. Hill</u> Date: <u>12/14/84</u>

continue ...

No. 8

experimentation and analysis of pasture-land/range-management and reforestation in arid zones and, (3) maintain and improve the Project's current data collection and analysis efforts to adequately monitor longer-term results from conservation practice application.

Action Taken To Date (11/27/84)

- (1) The first National Soil Conservation Convention is currently taking place, The principle topic of discussion is with respect to the Project's proposed system for institutionalizing a National Soil and Water Conservation Program.
- (2) PIO/Ts for additional technical assistance services from the USDA/SCS Technical Advisor and the Peruvian, local contract, Project Director are being prepared and will be submitted to AID/W by mid December.
- (3) A revised Operational Plan covering the period of the extension is in draft form.

Action to be Taken:

1. Draft Project Paper Supplement.
2. Prepare Amendments to the Project Authorization and Agreement and gain approval of these documents.

SOIL CONSERVATION PROJECT LIMITED

SCOPE EVALUATION

PROJECT No. 527-0220

November 20, 1984

SOIL CONSERVATION PROJECT LIMITED SCOPE EVALUATION
PROJECT No. 527-0220
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SOIL CONSERVATION PROJECT LIMITED SCOPE EVALUATION
PROJECT No. 527-0220

I. Evaluation Purpose:

The purpose of the evaluation was to:

- (1) briefly assess overall Project success with respect to the original goal, purpose and end of Project status;
- (2) specifically measure Project progress since the major evaluation conducted in July, 1983 and,
- (3) make recommendations for possible future activities in light of the Project's assessed merits.

The evaluation was carried-out during September and October, 1984 with approximately 20 person days dedicated to its conduction (See Annexes 1 and 2).

II. Background:

The Soil Conservation Project Grant Agreement providing a \$1.0 million Grant was signed on September 30, 1980. As defined in the Project agreement, Amendment No. 3 and Project Authorization Amendment No. 2, the Project consists of assistance to institutionalize a GOP soil and water conservation system, promote soil and water conservation technical development in Peru, and carry out demonstration soil conservation activities in pilot areas of Cajamarca and test-plots in various regions of Peru. The General Directorate of Water, Soils and Irrigation (DGASI), a division of the Ministry of Agriculture, is the implementing institution under the project. The original Project Assistance Completion Date (PACD) (December 31, 1983) has been extended twice for periods of six months each, establishing the current PACD of December 31, 1984 (See Annex 3).

Originally, Cajamarca was designated the pilot area for carrying out experimental soil and water conservation practices and training. Test results of the soil and water conservation methodologies were to be evaluated and applied, as appropriate, in other regions of Peru. In November, 1981, AID approved an Operational Plan submitted by the Directorate in fulfillment of the conditions precedent to disbursement for Project activities. The Operational Plan followed the "pilot area" approach by limiting testing of soil and water conservation techniques to Cajamarca in preparation for projecting the results nationally in a National Soil Conservation Program.

The Operational Plan had been approved by USAID prior to the arrival of the USAID long-term Advisor for the Project, Jerome E. Arledge. After viewing field activities and assessing Project implementation problems, the long-term Advisor, in coordination with the Directorate, recommended three changes in the Project: (1) allow field testing of soil and water conservation practices through on farm test plots in every department of Peru; (2) reprogram project funds to permit national field testing of such practices; and (3) emphasize on-the-job training for the professional and technical personnel employed by the Project to disseminate conservation technology to small farmers, while de-emphasizing: (a) the priority ranking of watersheds, (b) development of farm level investment programs for conservation practice adoption, and (c)

socio-economic analysis. Project Authorization Amendment No. Two and Project Grant Agreement Amendment No. Three incorporated these changes as did the Project's 1983 Operational Plan. The original Project purpose of developing, proposing and institutionalizing a National Soil Conservation System remains unchanged. The revisions basically refocused Project activities away from the concept of one pilot area to working in a number of areas throughout the country with immediate, practical farm level impacts.

An in-depth evaluation of the project was conducted in July, 1983 by four locally contracted agriculture specialists. The general conclusions of the evaluation were positive and a PACD extension was recommended. Consideration of a two year extension was made, however, lack of additional funds prevented extension beyond December 31, 1984. At the same time, the evaluation identified important project deficiencies in administration, and in data collection analysis and management that required attention. The 1984 Operational plan was developed and approved based on recommendations of the evaluation. Project Implementation Letter (PIL) No. 6 (January 1984) approved the 1984 Operational plan and extended the PACD to the current date. PIL No. 6 also expressed the intention of involved parties to assess Project progress, in June 1984. At the same time, programming of additional funds and supplemental activities was to be considered. This evaluation is the realization of the intent expressed in PIL No. 6. The evaluation was delayed however, until September to permit additional time for the Project to analyze the socio-economic data.

III. Evaluation Methodology

This evaluation will necessarily focus on the Project's progress since the July '83 evaluation. The 1984 Operational plan will serve as the terms of reference for the study. Such a focus is warranted in view of the fact that the 1984 Operational plan was developed from the 1983 evaluation results. The 1984 Operational plan activities will be viewed as benchmarks of performance and will be evaluated in and of themselves as discreet project activities as they relate to actual Project performance. Additionally, the evaluation will review Project activities from the following broader perspectives:

- (1) Technical, Social and Economic Impacts
- (2) Project Administration and Human Resources Management
- (3) Project Financial Flows
- (4) Major Project Accomplishments versus original goal, purpose and end of Project status

The evaluation followed these steps:

a) Delineation and comparison of planned benchmarks of performance as stated in the 1984 Operational plan with actual performance as recorded in project documentation.

b) Conduction of an analysis of the preliminary results of the social and economic evaluation in order to better understand the project social and economic impacts.

c) Conduction of interviews with key personnel of DGASI, OGA and AID related to the program in order to identify Project administration and management problems and,

d) Presentation of results and recommendations with respect to:

- 1) General Recommendations.
- 2) Specific Recommendations.

IV. 1984 Operational Plan Benchmarks of Performance and Project Performance:

A. Institution Building:

1. Elaborate technical directives for the development and proposal of a national program of soil conservation with respect to the following areas: (1) Priority ranking of watersheds methodologies; (2) Analysis of area physical conditions and prescription of conservation practices for maximum effectiveness; (3) Analysis of social and economic factors of a given target area; (4) Analysis of test plot results and (5) Methodologies for the formation of small scale conservation projects.

Status: The first three above have been completed and approved, but have not been sent out to the Agrarian Regions nor participating agencies. The last two are in draft and need to be officially approved. The value of these documents lies predominately in their use by the Agrarian Region offices and participating agencies as reference materials. However, since program participation by other agencies is to a large extent voluntary, the actual use and utility of the documents will be a function of the anticipated success of the upcoming National Convention (See IV. A.4.) and subsequent coordination among institutions to achieve consensus and gain more active participation, by the same institutions, in soil conservation practice extension activities.

2. Execute/develop institutional agreements between public sector agricultural agencies on the regional and national level in order to facilitate development of the National Program of Soil and Water Conservation.

Status: A lot of inter-institutional coordination has been accomplished as reflected by a total of twenty institutional agreements. Seven Agrarian Regions have signed agreements with the Project agreeing to utilize PL-480 counterpart funds to establish test plots. However, due to the fact that there have been problems and delays in the acquisition of the counterpart funds, none of the planned test plots had been established as of the time of this evaluation. The agreements collectively represent a commitment of 175 million soles during 1984. Additionally, 13 other inter-institutional agreements were signed with Agricultural Research and Extension Centers (CIPAs) and Forestry Research and Extension Centers (CINFORS) committing \$100,000 of the Project's grant funds to establish test plots and collect data. Forty-three test plots were established as a result of these agreements, which represents a unit cost to the Project (considering USAID funds only) of \$2,325 for each test plot. Benefits derived from

individual farmer gains and spread effects are unascertainable, but the collective judgement of Program personnel believes that the agreements yielded fewer test plots than expected and were therefore disappointing.

3. Conduct three regional inter-institutional meetings including international cooperation agencies.

Status: Three regional meetings were held during the year in Cajamarca, Huancayo and Cusco. The agreements mentioned in No. 2 above were the major outputs of the meetings along with support and ideas for the National Program.

4. Conduct one national meeting of agriculture sector public agencies to coordinate activities related to the development of the national program.

Status: Scheduled for this coming November 26 through 29. Expectations are high for positive results from this Convention in terms of consolidating collaboration among institutions and in terms of information diffusion i.e. the Program's Technical Manual should be completed, printed and ready for distribution as will audio and visual aids which are also in the preparation stage. The current month-old strike by Ministry of Agriculture personnel has been and could continue to be a formidable obstacle to the information preparation activities of the Project, but operations have been transferred to a large degree to the USAID Project Manager's office and progress is continuing.

B. Technical Capacity Improvement:

1. Training of farmers by the program's technical specialists in the application of soil and water conservation practices at the farm level to achieve voluntary adoption of the practices and facilitate spread effects.

Status: 728 farmers were trained during the first six months of this year surpassing the project goal of 500 for the entire year. A total of 4,504 farmers have been trained by the Project. This is the most noteworthy achievement of the Project to date given that it most vividly represents the Project's efforts to have direct and practical impacts at the farmer level. Additionally, the raw number of farmers exposed to conservation farming equals 273% of the Project's originally planned goal. The Project has had as a result, a significant practical impact and a positive image/profile at the farm level with a per beneficiary cost ratio (not including GOP counterpart funds) of approximately \$222.

2. Training of the program's professionals in the Agrarian Regions in the execution of conservation extension.

Status: 40 professionals were trained during the second trimester of 1984. They represented agencies of the Ministry of Agriculture, such as INIPA, Plan Meris and CINFOR, the Universities of Cusco and Cajamarca and the Bishop of Cajamarca's agriculture program in Cajabamba. Over the life of the

Project 408 professionals from all over the country have been trained. Additionally, a total of 394 para-professionals have been trained, although none during 1984. These achievements significantly surpass original goals. Project personnel maintain that the reason for low training numbers during 1984 is due to the fact that most if not all of the potential training recipients had already been trained and therefore specific program goals were not established in this area for 1984. What all of this means is difficult to determine given the widely dispersed nature of the trained individuals and the lack of direct lines of communication for reporting on individual efforts. However, the Project has received several reports on extension efforts carried out by Project-trained individuals of their own volition. For example, in July, 1984 Alto Huallaga Project professionals along with several farmers constructed terrace test plots, after having been trained by Soil Conservation Project personnel. The test plots were constructed in two areas along the Carretera Marginal near Aucayacu and Pucallpa. They were constructed on 40% to 60% slopes and totaled over 350 square meters.

3. Promote greater awareness of Soil and Water Conservation concerns in other public sector agriculture institutions with the intent of spreading project influence. This was to be achieved by inviting four professionals from other public sector agricultural institutions to attend meetings of the Latin American Network for the Management of Highland Watersheds.

Status: Representatives from the Latin American Network for the Management of Highland Watershed will participate in the Project's National Convention. Attendance by Peruvian professionals at meetings of the Network has not been accomplished; however, the Project has probably not suffered greatly as a result.

4. Send one or more professionals from DGASI to external meetings of the Latin American Network for the Management of Highland Watersheds.

Status: No one from DGASI will be attending said meetings, but the Director of DGASI will be travelling to the U.S.A. prior to the National Convention to visit several USDA/SCS projects and to interact with their professional staffs. The intended benefit to the Project will be derived from the exposure and knowledge gained by the Director of DGASI and the extent to which the information will be of use under Peruvian conditions. Perhaps a less tangible, but potential added benefit to be realized through the Director's visit will be due to the enthusiasm gained by the Director as a result of the experience. The trip will last approximately four weeks and includes meetings and site visits in Guatemala, Washington, D.C. and nine states.

C. Development of the Program to the National Level:

1. Establishment of Conservation practice test sites which will serve as the basis for collecting social and economic data.

Status: 382 new test sites were established (116 from the pilot

area) during the first six months of 1984. A total of 2,529 such sites have been established over the Project life. Since all test plots were established on farms, the above statistic indicates that of the 4,504 farmers reached directly by the Project through demonstrations and site visits 56% elected to cooperate with the Project to test the conservation technologies. This is a significant indicator from both the immediate impact and data base collection perspectives, although the quality of the data collected may have suffered from such an immense task. Such a large sample was not necessary from a statistical perspective.

2. Evaluation of the technical, social and economic data from the test sites.

Status: The first draft is complete but not completely typed yet. Of the 2,529 test sites, data were collected from 1,164. This is a substantial achievement that more than satisfies the needed statistical base. This subject will be dealt with in more detail later (See Section V).

3. Assist the Project's technical residents based in the Agrarian Regions in the prioritization of watersheds, diagnosis of social, economic and physical characteristics and conditions for effective Project impacts.

Status: The Agrarian Region of Junin was assisted by 3 Project specialists over a 3 month period during the year. Similar activities are planned before the end of the year for the Departments of Lima and Cusco. This activity area is considered by the Project personnel to be excessively academic in orientation and inconsistent with the realities that the technicians face.

4. Assist in the formation and operation of interinstitutional committees of soil conservation at the Agrarian Region level.

Status: Formal committees based on personal contacts made by the technicians are operative in Cajamarca, Junin, Ancash, Piura, Cusco and Cajabamba on an ad hoc basis. The establishment of three committees was the programmed goal for 1984.

5. Assist in the formation and operation of farmer level conservation committees.

Status: The following committees have been established: One in Junin, 3 in Cusco and 8 in Cajamarca with a collective outreach to an estimated 3,500 farmers. The potential for practical impacts through farmer level committees appears to be the most promising mechanism for achieving rapid diffusion.

6. Promote diffusion of conservation practices through audio-visual aids and mass media such as publications, radio and television.

Status: The Project produced and distributed 2,000 posters promoting the use of terraces and 8,000 pamphlets which describe and promote the National Program. Three TV programs were developed and aired in Cajamarca

of 15, 18 and 27 minutes in length. One TV program was produced in Huancayo and another in Cusco that was aired without sound (still being developed). The Project's media specialist recently completed (in August) 17 radio program messages in Spanish and 14 in Quechua and Aymara utilizing taped interviews with participating farmers. These are now being replicated to be sent to the Agrarian Regions and appear to be very appropriate to serve Project needs. However, these as well as Project bulletins and the technical manual should have been completed several months ago. Other radio programs have already been developed by Project technicians and aired in Junin, Cajamarca, Cusco and Puno.

D. Pilot Area Development:

1. Formulate a Conservation Plan for the pilot area in Cajamarca.

Status: The technician in the area prepared the plan and recently submitted it for review by DGASI. The concensus of Project personnel is that such plans at this point in time are excessively academic for most technicians and therefore have very limited utility.

2. Continue farm level extension efforts in the pilot area using audiovisual aids such as slides and through conservation practice demonstrations.

Status: All technicians in every Agrarian Region have developed slide shows and they are using them along with "home-made" drawings. The Project provided photos until they made their own visual aids. Some of the "home-made" visual aids are reportedly of poor technical quality which serves to point out the need for the rapid completion and distribution of the Projects technical manual.

3. Assist interested farmers in the execution of conservation practices and/or test sites through individual contacts as well as community based activities.

Status: 116 new test sites were established in the pilot area. even though none were originally planned for during the first six months of 1984 due to the high priority assigned to the collection of economic and social data from already established test plots.

4. Evaluate social, economic and technical data resulting from the test sites.

Status: First draft is complete as a part of the larger study of all test sites (See section V).

E. Technical Manuals and Bulletins:

1. Prepare, publish and distribute bulletins on conservation practices for program technicians and professionals in the Agrarian Regions.

Status: One bulletin regarding gully control was completed and distributed to farmers (2,000 copies). Seven others are being drafted covering the following: (1)pasture management, (2)Nivel En "A", (3)Terraces, (4)Infiltration Ditches, (5)Contour Rows, (6)Forestry, and (7)Mulching. Ideally, these would be available for distribution at the National Convention, but higher priority is rightly being given to preparation of the Project's technical manual. Time and the current MOA strike are the main limiting variables for the completion of this activity.

2. Prepare, publish and distribute a manual on the technical aspects of conservation practice design and construction as well as methods of extension and farmer motivation.

Status: A manual with 30 chapters has been designed and drafted. The text of 25 chapters has been approved which leaves 5 chapters that need final review and approval. Charts, photos and drawings for 24 chapters have been approved and are being printed. The manual, in draft form, looks to be of considerable utility to the Project's technicians and cooperating institutions. Substantial efforts are currently being devoted to completing and printing the manual for display and distribution during the National Convention.

F. Institutionalization of the National Program of Soil and Water Conservation:

1. Develop and propose a national soil and water conservation program to assure continuity in national level activities.

Status: A draft of the proposal exists and was reviewed at a high level interagency meeting on October 15 in preparation for the National Meeting. The October 15 meeting appears to have contributed significantly to the interinstitutional relations, however, much is still dependent upon the national convention and coordination efforts thereafter. The creation of a separate soil and water conservation service is going to be proposed due to the fact that DGASI does not have implementation authority, among other reasons.

2. Develop and elaborate the legal requirements to officially permit the establishment of the national system.

Status: This can't be performed until the exact nature of the program is identified, but the Project has produced a study delineating the specific and general legal provisions that currently affect land use and management as well as the conceptual legal needs of the proposed system.

G. Continuous Supervision and Evaluation:

1. Develop specific supervision and program evaluation procedures and actions to monitor the program from the technical and administrative points of view.

Status: A trimestral reporting system was instituted to serve this aspect of the program and appears to be satisfactory.

2. Conduct a trimestral evaluation of the program.

Status: The Program Office of DGASI has performed these after each 3 month report submission. These reports appear to have contributed directly to improving the Project's problem related to the rendition of accounts from the Agrarian Regions i.e. as a result of repeatedly slow liquidations the Program Director instituted field support activities through visits by administrative personnel from DGASI to the field offices to assist in this task.

3. Conduct a final evaluation of the program and prepare a program report by the end of the calendar year.

Status: The Project's social and economic analysis, along with this evaluation, in effect constitute the final evaluation. However, a report on the Program is planned to be prepared by Program personnel after the National Convention.

In summary, the Soil Conservation Project has met or surpassed it's extension and training goals, but has been less successful in the area of institutionalization. The following four sections of the evaluation examine, in more detail, the nature of the Project's efforts and problems, their impacts and finally their relevance to the originally planned goal and purpose of the Project.

V. Technical, Social and Economic Impacts:

A. Technical Considerations:

The Project has concentrated activities in the establishment of three principal on-farm conservation practices (terraces, contour rows and infiltration ditches) and three secondary practices (strip cropping native grass and forestry seedings, dikes for control of gullies and grassland management). See Annex 4 for a description of each practice. These practices were selected as the most appropriate for widespread application given both the nature of the conservation problems and the level of technology of the average Sierra farmer, i.e., the conservation practices are applicable with hand tools that are commonly owned and used throughout the Andean Region.

Participant farmers elected to use the practices of their choice after advice and exposure to an alternative set of practices via extension demonstrations and presentations (See Annex 5). General results indicate that the use of the practices significantly reduces erosion and increases water infiltration. Terraces, for example, being the most widely implemented practice (on 72% of the test areas) reduced erosion, on the average from a phenomenal 720 tons/hectare/year to less than 12.5 tons/hectare/year as indicated by spot checks of test sites with the terraces along the sides of

fields under traditional cultivation. All practices were carried out on the farmer's own lands and under their own normal cultivation practices. The only altered variables were land preparation methods i.e. conservation practices and thereby the degree of water infiltration. In a significant number of cases excessive puddling of water was observed by the practices on heavy textured soils. The only other major problem observed thus far is the improper or poor construction of conservation practices, mainly contour rows and some terraces, that were not established on the contour as recommended.

B. Social Considerations:

This section was derived predominantly from the Project's own, social and economic analysis. Qualitatively, the Projects' analysis was conceived and carried-out in a highly professional manner and all Project personnel deserve commendation for the study's execution. The study represents a substantial contribution to the Project's development. The one aspect of the study that appears to be possibly the weakest aspect, which is an inherent weakness of all field surveys, has to do with the actual execution of the survey, i.e., field surveys, in general, are subject to empirical problems related to the complexity of the social, physical and economic framework or environment of the subject population and they are also subject to problems related to the task of qualitative measurements. However, the general trends and results of the survey are sufficiently convincing to ameliorate this concern.

After two years of Project activity in the Sierra the survey indicates that the typical or representative farmer participant is basically representative of the national averages with respect to type of tenure, predominant economic activity and form of land conduction i.e. they are individual owners whose principle economic activity is agriculturally based and utilize their own labor to directly conduct production activities. Fifty percent of the participant farmers live at elevations between 3,000 and 4,000 meters with field slopes from 20% to 50% which are the areas most subject to erosion problems.

The representative Project participant varies somewhat from national averages with respect to farm size, use of oxen and migration. Survey results indicate that participants, on the average, are truly "Minifundistas" with holdings from 0.1 to 1 hectare in size while the national average is slightly larger. The majority use oxen for various cultivation and other farm tasks, while only 30% (1981 census) of farms nationwide have oxen. With respect to migration, Project participants tend to forgoe periodic migration in pursuit of other economic opportunities which correlates with the predominant economic activity variable. Additionally, Project participants (62%) tend to produce their principal products for autoconsumption (70% or more consumed directly). Thirty-six percent of the participants are commercially oriented and have close centers of population, i.e., cities as the primary final destinations of the majority of their products. The majority of Project participants (90%) produce potatos, corn and wheat as principal products and do not use credit, pesticides nor fertilizers (81%). Almost 70% of the participants had no prior knowledge of the Program (See Annex 6).

With the above characteristics in mind it may be stated that the Project has reached the poorest of the rural poor. This is a commendable achievement given (1) that AID's congressional mandate is directed towards assistance to such individuals; (2) given that soil and water conservation problems in Peru are of a serious magnitude due to the country's geography and current land use practices; (3) given that the collective impact of less favorable land use practices results in private and social costs well beyond the immediate real costs to individual farmers; and (4) given that government programs that do reach the rural poor in the Sierra, on a voluntary basis, serve as progressive actions both symbolically and practically which help to counter the spread of destructive influence from estranged elements of Peruvian society. An interesting aspect related to the above that also has come out of the field survey is the positive correlation between remoteness of farm/farmer location and receptiveness to what the Project has to offer, i.e., farmers further away from population centers are the most receptive. This point has important implications for any extension of this Project or any other conservation extension project and will be dealt with later in the recommendations section.

Lastly, the use of food incentives has emerged as a significant unforeseen variable. Many of the farmer test plots were established along with the gift of food via the National Office of Food Assistance (ONAA). Several of the Project technicians independently, from time to time, sought, acquired and distributed food from ONAA in order to facilitate farmer participation, for reasons believed to be predominately a function of the technicians' general lack of confidence in farmer acceptability without some form of incentives. Interestingly, the cost in hours, for the establishment of terraces in the Cusco area where food incentives were utilized along with mutual assistance was the highest (1181 Jornales) on a per hectare basis, of all terraces established in the 10 Departments that the Project has worked in. The minimum cost (336 Jornales/hectare) of establishment was recorded in the Abancay area where neither food assistance nor communal efforts were employed, i.e., individual farmers in Abancay accepted to participate based only on the rationale explained to them by the technician for using conservation practices and their intuitive estimation of the returns to their own efforts/investments in the practices.

From these observations and others associated with the Project's experiences thus far there has emerged a consensus that food assistance should not be utilized as direct inducements to accept conservation technologies except in special cases such as those associated with natural disasters and droughts. Project personnel feel that the "product" i.e. conservation practices can and should be "sold" on their own merits which tap the private interests of the individual farmers.

C. Economic Considerations:

The main findings from the survey data from the economic perspectives are very positive. Production increments above control plots average from 20% to 100% for the 20 principal crops reported which is far

above what can be expected from most technical interventions (See Annex 7). Given that the only factor varied during the on-farm experiments was the method of cultivation and land preparation associated with each conservation practice, then all increments above production yields on the control plots may be directly or indirectly attributed to the infiltration and availability of additional water. The same trend was observed no matter whether the farmer used fertilizers or not, although non-users realized larger proportional yields. This can be attributed to the fact that water is, in general, the main limiting factor on non-sandy soils such as the medium to heavy textured soils that constitute 83% of the test plots. In other words the yield increment on non-fertilized plots due to water is proportionally larger than the yield increment on fertilized plots due to the addition of water. This says nothing of the absolute yield difference between the two, but intuitively the addition of both water and fertilizer should yield increments greater than either factor alone.

Average labor requirements for the principal conservation practices were found to be more than traditional preparation requirements for terraces, gully control dikes, infiltration ditches and mulching. Contour rows, contour strip cropping and grassland management were found to not require additional labor beyond traditional practices, i.e., they require no additional labor investment, they simply reorient existing management practices to the advantage of soil and water conservation objectives. Terraces required the most noteworthy labor investment, far and above any other practice, averaging 742 Jornales/Hectare for establishment. This represents a significant upfront, real cost and it is yet to be established that; (1) massive replication can be achieved; (2) that the recurrent maintenance costs in real labor terms will be minimal; and (3) that the very impressive production gains attributed to the application of the practices will be maintained over the longer-term.

On the positive side of these issues is an estimated useful life for terraces of 20 years under "adequate maintenance" treatment. Additionally, the process of constructing terraces results in a phenomena of geometry which renders the average hectare, in the Project area, equal to approximately 1.27 hectares (See Annex 8). This is due to the increase in surface area, which is dependent upon slope and soil depth, that occurs as the banks and seedbeds of the terraces are completed.

With this in mind one must note that the above mentioned yield increments for terraces were obtained on less land, with lower operating costs i.e. real costs as measured by labor and seed inputs, (an average 33% less) and with complementary products, be they herbs, medicinal plants or simply forage crops that were produced on the terrace back-slopes. Lastly, with respect to the investment cost of establishing terraces, farmers are in general very practical in orientation and can intuitively judge through experience, whether or not the establishment and conduction of a given practice (investment of resources) yields, on-the-balance, a positive return or not. In summary the verdict is still out, awaiting additional follow-on data, as to the real returns to application of the conservation practices (given labor requirements, available labor and alternative opportunities), but especially with respect to terraces.

VI. Project Administration and Human Resources Management:

As the July, 1983 Project evaluation noted, the principal administrative deficiencies of the Project are due mainly to structural weaknesses of the present organization and operation of the Ministry of Agriculture and the Agrarian Regions. DGASI is administratively dependent upon the General Office of Administration (OGA) of the MOA and programatically interdependent with many other public sector agrarian institutions, which in effect creates a layering of bureaucratic relations that complicates Project administration unnecessarily.

The task of coordination to avoid unneeded duplication of activities is a difficult challenge in any country let alone one with built-in inefficiencies, complex and difficult logistical relations with field offices and a severe scarcity of public resources. In view of these fundamental limitations the Project has made significant progress. The 1984 Operational plan and the Project personnel added subsequent to the July, 1983 evaluation have, along with Project leadership, made substantial contributions to practical accomplishments with respect to conservation extension and institutional cooperation. However, cooperating institutions have not contributed as much as was expected in spite of financial resource transfers to them. The concept of "piggy-backing" conservation extension through other institutions is rational, but more rigorous mechanisms must be found.

Knowledge of conservation concepts and practices should be a basic element of all extension agency technicians, professionals and para-professionals. Project sponsored training of these human resources slowed during 1984 ostensibly due to the fact that most had already been trained. The real results of Project sponsored training are very difficult to ascertain, but given poor remuneration, a lack in general in the public sector of incentive systems for work well done, nor for goal establishment and follow-through, one should expect to confront a substantial challenge in motivating extension personnel. With respect to the specific field personnel of the Project, motivation problems have been observed and a review of all field personnel will be conducted.

With respect to Lima based support personnel there are serious problems due to generally low salaries and jealousies that some DGASI direct hire personnel hold for the Project's contract personnel. This is most vividly expressed by the current month-old strike by MOA employees. This situation creates even more formidable obstacles to Project progress (including the conduction of this evaluation) and fosters an environment of uncertainty and fear. Such impediments to Project progress are likely to continue occurring, periodically, in the future. As stated in an earlier section, Project professionals and contract personnel have continued activities in spite of this serious problem and have demonstrated professional determination to carry on. Related to this aspect is the substantial support to and interest in the Project on the part of the new Director of DGASI, although the timing of his current trip to the U.S.A. may not have worked out for the best of the Project given the seriousness of the present strike and the large number of tasks that are underway in preparation for the National Convention.

VII. Project Financial Flows:

With respect to USAID contributed funds, the last reporting period (March, 1984 to September, 1984) witnessed a 27% increase in accrued expenditures above the previous reporting period. This basically reflects the positive contribution made by the Project's newly hired administrator's efforts and administration management decisions made by the Program Director that have facilitated the processing of advances to the Agrarian Regions and their liquidation. The current structure and efforts for utilizing and monitoring these funds must be maintained due to the fact that Lima headquarters relations with the Agrarian Region offices as well as relations with Project technicians are, by nature problematical. Additionally, the Project Managers worked with the USAID controller's office to improve USAID funding flows. After many interviews and working sessions with officials of the General Administration Office of the Ministry of Agriculture, a separate bank account was created for the Project's grant funds. The aim of the independent bank account was to free the Project's payment activity from the GOP's time consuming procedures required by the MOA General Administration Office. The current system provides the necessary flexibility for efficient utilization of funds for project implementation and therefore it must be maintained. However, a final liquidation of prior advances channeled through the General Administration Office of MOA, under the previous system, is pending and should be pursued by Project Management.

With respect to GOP counterpart funds there is some lingering confusion as to the form this counterpart was to take. Several individuals both on the GOP and USG side are under the impression that the vast majority of the GOP counterpart was to be provided "in kind" by the MOA in the form of supplies, electricity, building space, and salaries of personnel already hired by the MOA. Furthermore, suggestions, by individuals like the present Director of Administration for DGASI that their entire salary be counted against the counterpart requirement should be taken as an extraordinarily liberal interpretation of any such understanding.

According to the terms of the original agreement and subsequent amendments, the Project was to be provided by the GOP with in-kind support and \$340,000 in counterpart funds of the following nature: (1) in-kind contributions, including the labor effort of current and new MOA professionals and technicians necessary for support of the Project; (2) cash contributions of US\$60,000 for local costs related to foreign technical assistance, US\$36,000 for local technical assistance, US\$203,000 for the development of the demonstration site and publications and US\$41,000 for commodities. The intended "cash" contribution alone equals the stipulated \$340,000 of the GOP counterpart contribution, therefore "in-kind" contributions were to be above and beyond this sum. The project managers and DGASI administrators have been tracking in-kind contributions and were unaware of the cash contribution interpretation of the counterpart as originally budgeted. Previous quarterly reports provided accounting estimates of the in-kind contribution and most likely include some of the cash contributions. Exactly how this situation developed is not known, but the issue should be clarified and an accurate accounting of all GOP contributions be made as soon as possible.

As of 1982 provisions began to be made for the Project to receive monetary counterpart from PL-480, Title I sales proceeds. The initial steps taken in 1982 resulted in an account being set-up for the counterpart, although no PL-480 counterpart funds were assigned to the Project for that year. In 1983, however, the Project was included in those to receive counterpart as part of the Title I agreement. The amount assigned was S/.180 million of which DGASI received S/.53 million, but the Project received only S/.40 million and that in the last months of the year (DGASI used approximately S/.13 million to print a report of a study from another project). The reasons for the late arrival and smaller amount were similar to those given for this year's problems and are discussed in more detail below. They can be summarized as: (1)insufficient understanding on the part of GOP (and some AID) project personnel as to the GOP's obligations in this regard (2)insufficient understanding of the process for securing counterpart and (3)organization problems within the MOA and especially in OGA, DGASI, and the Project which further confused the issue and contributed to breakdowns and a general lack of coordination. For 1983, as for the present year, it appears that we may never know all that went wrong or why, but the responsibility for the problems is widely shared. As an illustration of points (1) and (2) above, it should be noted that the Peruvian head of the Project stated that to his understanding the GOP's only real counterpart obligations were the in-kind contributions, and that the PL-480, Title I counterpart was something extra that had suddenly been made available. He also stated that some of the problems in securing the latter arose in his own initial misunderstanding that the funds had to be requested from AID as well as his failure to realize that an ampliación presupuestaria was required before it could be requested.

In 1984, the situation seems to have improved a little, at least to the extent that some of the major misunderstandings have been cleared up and some of the initial roadblocks removed. However, to date only S/.23 million for the month of September and S/.23 million for October have been approved (of the S/.275 million budgeted). These sums have only recently been delivered to the DGASI sub-account, which also was only recently opened. However, the situation is further complicated this year by the month long strike in the ministry which means that despite the difficult, but accomplished opening of a sub-account, the approval of the counterpart budget, and the approval of the amounts for these two months by both Presupuesto Público and Tesoro Público, the actual release of the funds has been further delayed by the absence of key personnel at OGA needed to do the last trámites. With any luck this should be accomplished in the next few days and the regions (also on strike) will get their first counterpart allocations for the year.

To facilitate resolution of this problem a recommendation for immediate action was undertaken whereby Juan Andres Rivero, a financial analyst from the Controller's office, will be working with the DGASI administrator as well as the Program Administrator in producing a flow chart type diagram defining all of the trámites required for budgeting and receiving the PL-480 counterpart funds. The intent of this exercise is to provide support to clearly define roles, responsibilities and all the steps necessary for a clear understanding and adequate management monitoring of PL-480 counterpart fund flows.

The above two amounts for September and October do not represent all that has been requested by the Project in 1984. Requests for June, July, and August were not approved and will have to be reprogrammed. The reasons for their not being approved arise from the remaining problems in counterpart management for this Project. Essentially the problem here is that Project counterpart is not managed by the Project but instead is controlled by offices within DGASI and OGA. This arrangement has its roots in MOA regulations, but is also a result of personal factors. The former may be beyond our power to change, but to the extent that the latter have muddied the waters some modifications should be possible.

Because the Project is located in DGASI, it is subject to the normal rules regarding counterpart requests and disbursements which require among other things that they be channeled through DGASI's "global budget" as well as through OGA before being sent to the MEFC. Furthermore, the sub-account for the project counterpart is held by OGA which therefore writes the checks on that account, based on budgets and requests prepared by Project personnel (Eng. Chang-Navarro, Mr. Namuche, etc.). This arrangement is apparently standard and not subject to change. The arrangement is one that in and of itself has occasioned problems in other sectors (notably Health) because the higher level offices (OGA and whatever directorate the Project falls within) do not take an active interest in the project, and occasionally let things fall through the cracks. In short despite the loss of counterpart funds, it is not worth their while to pursue them. This is not an insolvable problem, but its remedy generally takes someone in the project getting on top of the counterpart situation and pushing things along i.e. checking up on OGA and the "parent" Directorate.

Unfortunately, in the case of Conservación de Suelos, it is here that the individual factor has entered to make this solution less tenable. First, within the Project itself there has not been until early this year (with the arrival of the Project administrator, Mr. Namuche) anyone sufficiently conversant with the bureaucratic ins and outs and with the time or disposition to play that role effectively. From interviews with the Peruvian director of the Project, it appears that this is not an area that he has focussed much of his energy on, and that he hasn't understood. With the coming of the Project Administrator the situation might have improved considerably but for the other individuals in the picture, and especially DGASI's Administrator, who has effectively grabbed onto the counterpart budget and refuses to let it out of their control. Given the Peruvian Project Director's original lack of understanding this may have first been a matter of necessity, but the general feeling now seems to be that even with the appointment of an administrator for the Project, the DGASI Administrator is not going to let go. However, because this is only one of several projects, this individual is overseeing (although the only one with counterpart), it does not get full attention and as several people have noted, things move slowly and tend to get bogged down. In short, and as Yolanda Rocha of OGA suggested in a short interview on the subject, until and unless someone within the Project takes major responsibility either for managing the counterpart or monitoring the DGASI Administrator's management, things are not likely to improve much. It is unlikely that the

system whereby the DGASI Administrator or equivalent in DGASI as well as someone else in OGA have to approve counterpart requests and use can be changed, but a more active position on the part of the Project would go a long way toward improving the outcomes.

VIII. Major Project Accomplishments versus Original Goal, Purpose and End of Project Status:

A. Original Goal and Purpose:

According to the original Project Paper "the overall sectoral goal that the Project addresses is to improve the quality of life for the rural poor by increasing food production, employment, income and nutritional levels. The proposed Project will contribute to the overall goal by developing the soil conservation institutional infrastructure which will develop and disseminate conservation technology to the small farmer of Peru, easing production risks, increasing land use potential and most importantly maintaining a long lasting use of a basic natural resource."

Furthermore, as originally envisioned "the purpose of the Project is to consolidate, strengthen and institutionalize a GOP soil and water conservation system within the General Directorate of Water and Soils of the Ministry of Agriculture and Food (MinAg/F). The Project activities are directed to: (1) strengthening the capacity of the MinAg/F to implement on a national level a program of small farmer soil and water management; and, (2) soil erosion control and improvement of water use and conservation, through land protection and development and the use of appropriate technologies for water harvesting on steep sierra slopes. Field work emphasis in a test area will address the key soil erosion problem areas found in the sierra, thus supporting the Mission's CDSS goal of creating a dynamic agricultural based growth in the Sierra."

B. Original End of Project Status:

The above description as well as the description of the end of Project status (EOPS) have been conformed with through Project activities with some modifications as stated previously in the background section (Section II). This conformity has been maintained through the development and approval of annual operating plans. The modifications were rational adaptations that have strengthened the Project's impact and were fully documented via amendments to both the original authorizations and agreement. Project implementation letters have been used prudently while general management and technical assistance have been seriously and commendably focused on implementation for practical results. The only significant problem and possibly the hardest that is yet to be resolved is the counterpart contribution issue.

The Project will now be viewed in light of the original, specific, EOPS description. References for details will be noted as appropriate. "At the end of the three year Project, the following results will be attained".

1. Institutional Strengthening Activities:

a. "Soil and water conservation offices will be operative at national, regional and zonal levels and will be applying soil and water conservation methodologies which have been field tested for their effectiveness and approved by the GOP".

Status: Approved soil and water conservation practices are being applied, through existing MOA Agrarian Region offices in the Sierra only. Very limited activities have been conducted in the Costa and High Jungie.

b. "A quantitative assessment of the results achieved through field testing during the life of the Project and a recommendation for the development of an incentive type conservation cost-sharing program for soil and water conservation for small farmers of Peru".

Status: A quantitative assessment has been realized from test site data (See Section V. B. and C.). A recommendation for the development of an incentive type conservation cost-sharing program has not emerged from Project experience thus far. However, it is the judgement of this evaluation that such a recommendation should not have necessarily resulted due to the fact that the statement and its intent were made previous to Project experience and reflect the U.S. system without adaptation to Peruvian conditions.

2. Soil Conservation Activities:

a. "A pilot area of approximately 400 Has, in the water district of Cajamarca will be implemented with soil and water practices such as soil erosion control, water harvestry, water control and land development techniques. The pilot area will have served as an experimental site for the preparation of appropriate soil and water practices and as a demonstration site for the training of GOP technicians and farmer members of Sierra water districts."

Status: The Project agreement and authorization were amended to allow expansion of pilot area type activities throughout the country (See Section II). This change allowed Project influence and benefits to be realized more quickly and over a much larger area. The change was especially appropriate for training purposes in that the trainers went to the GOP technicians and farmers and trained them under local social and farming conditions.

b. "A specific soil and water conservation technical guide for GOP personnel shall be developed that will include practice standards and specifications for grassed waterways, level terraces and diversions, graded terraces and diversions, conservation cropping systems, pasture corrugations or furrows, rangeland seeding, water storage structures, grade stabilization structures, natural spring development, pasture and rangeland management systems, and grass seeding, among others".

Status: The preparation of a technical manual was dealt with earlier (See Section IV, E.2.), however it should be noted that the specific content of the manual varies, to some extent from the content described above. The spirit of the above EOPS statement has certainly been maintained. The

variation that is observed is due to Project experience and determinations of the practices considered most appropriate. Again, the Project Paper demonstrated an "a priori" determination which is also incongruous with the GOP approval statement made in 1.a. above.

c. "A set of technical manuals, bulletins, and other publications covering criteria and standards for planning resources, study, design and implementation of soil and water conservation practices. Such technical manuals will also include unit cost and benefit data and economic evaluation methods for use in determining the applicability of a particular soil and water conservation practice for the small farmer".

Status: Nine separate bulletins have been prepared in addition to the above mentioned technical manual (Also See Section IV. E.1.). A separate analysis and publication will include unit cost and benefit data as well as evaluation methods (See Section V.B.).

d. "The following training activities will take place:"

(1) "Two two-week formal short courses in soil and water conservation for GOP personnel (75 people)."

(2) "Informal on-the-job training for approximately 20 Lima based and approximately 100 field based personnel."

(3) "One person will receive overseas short term on-the-job training in aspects of conservation management".

Status: Project training methods were revised to include both formal and informal on-the-job training for all targeted trainees as the result of an internal evaluation that was conducted after the first formal course. Training objectives have remained unchanged. Training objectives for d. (1) and (2) above have been surpassed (See Section IV.B.). The overseas short term on-the-job training objective is currently being accomplished with the visit of the DGASI Director to the U.S.A. (See Section IV. B.4.).

C. Project Evaluation Summary:

After three years of Project operation in the Sierra substantial gains toward achievement of the Project purpose have been made through training, establishing and extending practical soil and water conservation methods and through institutional coordination to develop a national soil and water conservation system. Through this initial effort much experience has been gained, information collected and analysis performed of the information which will in turn affect future efforts. The Project has most recently begun to conduct limited activities in the Costa which is a step further towards a national system. The upcoming National Convention looks to be an exciting achievement of the Project as it represents the focal point and climax of all previous efforts to coordinate among institutions in the agriculture sector in order to develop, define and present a workable proposal from which a more rigorous national program and system will hopefully emerge. Working relationships now exist, but Program definition needs further refining. Coordination across institutions is a very difficult task and much remains to be done, but a firm base has been established in the face of substantial geographic, political, logistical and institutional difficulties.

In summary with respect to the Project's overall sectoral goal and purpose the following achievements may be noted:

- Extension training of 4,504 farmers.
- Establishment of 2,529 test plots.
- Conservation training of 802 professionals and paraprofessionals.
- Extensive coordination across public sector agricultural institutions and a greater understanding of conservation problems by those institutions.
- Social and Economic data collection and analysis which have demonstrated very positive results implying: increased incomes; an easing of production risks; conversion of class IV land to what may effectively be considered class II or III land and fundamentally, achievement of some conservation of the nations scarce soil and water resources.

There remains much to be accomplished in the area of institutionalization and the establishment of a national system, but to once again quote the July 1983 evaluation; "for the first time in Peru, soil and water conservation is focused as a program oriented to the establishment of a National System".

IX. Recommendations:

A. General Recommendations:

As a result of this evaluation the following general recommendations are made: (1) Complete the ongoing and planned activities that are necessary for the establishment of a national system of soil and water conservation, as originally envisioned in the Project Paper; (2) Conduct additional extension, experimentation and analysis of pasture-land/range-management and reforestation in arid zones and, (3) Maintain and improve the Project's current data collection and analysis efforts to adequately monitor longer-term results from conservation practice application.

This evaluation has determined that a PACD extension of 18 months is required to implement the above recommendations (all of which are described in greater detail in the following section). An initial draft Operational Plan for this time period has been prepared and is now being reviewed by USAID. It is recommended that the Project incorporate into the Operational Plan, in greater detail, all of the recommendations of this evaluation before final submission to USAID for approval.

Additionally, the evaluation is in accordance with current Project personnel thinking with respect to redesign considerations that will test community based extension through "farmer technicians" whom the current Project technicians will supervise. This approach appears to be the most rapid, cost effective and conceptually solid approach for achieving conservation objectives (See Section IV. C.5.) and directly benefiting the lives of many of Peru's rural poor (See Section V.B. Paragraph 4).

B. Specific Recommendations:

1. Institution Building Recommendations:

The establishment of a national system of soil and water conservation will require that the following steps be carried-out:

1. Propose the National System as currently designed (This is planned for the week of November 26-November 30 during the first National Convention of the institutions that the Project is working with to promote rural development with conservation objectives).

2. "Test" the proposed system along with any modifications that result from the National Convention through application of the system in selected areas. Parallel to this step, the Project should coordinate among institutions to solidify their acceptance of, and support for, the national system in order to gain a more active application of conservation extension by these institutions. Any future institutional agreements should have much more rigorous structuring and monitoring to assure that the Project is getting adequate returns to such investments.

3. Identify and initiate, with the intent of completing, the legal requirements necessary for the national system to be legally constituted.

4. Gain approval and legal establishment of the national system.

Numbers three and four above, being judicial processes, are to a large degree, out of the control of the Project, but are essential for completion of Project objectives. The center piece of the national system, as currently proposed, is a national soil and water conservation service. The coming national convention will see discussed this proposal. It is recommended that the alternative of gaining enabling legislation to allow DGASI to implement such a service be considered in addition to the current separate service proposal (See Section IV. F.1.). DGASI semi-autonomy from the MOA or special project status should also be considered.

2. Soil Conservation Recommendations:

More emphasis needs to be made, through the application of Project resources and efforts, on native pasture/rangeland management and improvement. To date this area has not received sufficient emphasis from both the extension and analysis perspectives given that the overwhelming majority of agricultural lands in the Sierra are in native pastures. Many of these areas have existing gullies which represent extreme cases of erosion and overuse of the land. Current Project plans to encourage pasture-management and dike construction in order control these areas and to allow natural reseeding to occur should be accompanied with practical training in

tree/shrubbery planting and encouragement of the farmers to solicit seedlings and assistance services from the CINFORs. Such training and encouragement should, in the longer-term, lead to farmer interest and motivation to meet their own fuel and construction timber needs from a longer-term perspective while serving conservation objectives by "plugging" gullies. Natural reseeding is an appropriate but slow process. Artificial planting speeds up the process of erosion control and Project encouragement of reforestation will help create a demand pull led rural development by increasing farm level solicitation of services from existing rural development agencies.

Continue to focus field extension efforts on the Sierra, but also encourage and assist other agencies in identifying high priority watersheds in the Selva and Costa (ONERN should be solicited for assistance in this area) and in beginning operations in these areas thereby expanding Project influence and coverage. It is recommended that extension efforts in the Sierra continue to reach new farmers especially in selected areas of concentration, but that socio-economic data collection and analysis from all new test/demonstration plots is not necessary and shouldn't be done. Therefore, it is recommended that Project personnel collect and analyze second year harvest data from approximately 300 farms for monitoring longer-term results. However, it is also advisable that some sort of field spot check be made of this years participants to simply see if they are continuing and/or expanding use of the conservation practices. Already established mechanisms of supervision and follow-through of farmer participants should be used to support this activity. If these spot checks indicate a trend away from maintenance of the new practices, then a more in-depth analysis should be conducted, sufficient to determine causality and remedial actions to be taken.

The 1984 Operation Plan called for a final evaluation and report of the Project to be conducted by the end of 1984 for final submission to AID. This final evaluation/report will not be necessary until the end of the Project extension. However, the evaluation Committee strongly supports current plans to evaluate all project personnel and specifically field technicians to make individual changes if necessary and to provide feedback, to those that are retained, for improving their performances. The planned manual of job performance criteria should be used as the basis for these evaluations. Technicians who continue, contrary to Project leadership, to solicit and then offer food incentives to participants should be evaluated especially closely.

Training of Project professionals and technicians should now be oriented more towards reforestation and rangeland/pasture management, as well as towards more sophisticated training and refresher training with respect to current Project emphases. It is also recommended that Project Technicians be introduced to "farm plan" concepts for application on larger farms and in communities that organize and jointly carry-out their agriculture activities.

All Project developed training materials and publications, especially the technical manual and bulletins, should be available in large quantities for distribution to all public and private groups working in rural agricultural development. Hopefully, all publications will be available for distribution at the National Convention, but they should also be distributed to each CORDE, Agrarian University and to Disaster Relief and Rehabilitation Project sub-projects and others that are conducting rural development efforts.

The Project produced media materials (radio and television spots and posters) are commendable. The Project should now focus on the mass dissemination of these materials while developing additional ones. The evaluation committee is also in concurrence with Project thinking to establish, through the Agrarian Regions and institutional arrangements, demonstration areas in full view of a given valley, if it is determined that such efforts would aid Project efforts at the farmer level for rapid diffusion. However, this type of activity is not perceived of as having very high priority. Lastly, if conducted such efforts should, to the maximum extent possible, utilize local interest and farmer participation.

It is recommended that the Projects' Agricultural Economist undertake, when appropriate, in addition to continued field level socio-economic data analysis, a survey of selected market towns within given watersheds where the Project has been especially successful to ascertain what market and income effects, if any, have occurred as a result of Project influence. Estimation of price elasticities of supply might be one appropriate and possible exercise to achieve this end. This type of analysis and/or others are recommended and should serve two functions; (1) the data should give some indication of potential national level effects and (2) such data provides feedback and insights for validation and interpretation of farm level primary survey information results.

Additionally, the Project's Agricultural Economist should conduct an analysis of; (a) the total estimated system cost to date of delivering soil conservation extension to the farm level; (b) cost/beneficiary ratios and (c) the cost effectiveness of the alternative extension mechanisms currently being used.

3. Project Financial Flows Recommendations:

The recently instituted structure and efforts for utilizing and monitoring USAID grant funds must be maintained. An outstanding advance that was channeled through OGA under the previous system of USAID grant funds administration should be liquidated as soon as possible. (See Section VII).

With respect to PL-480 counterpart funds, all Lima personnel, should fully understand in detail the following aspects of counterpart funding: (1) The Programming and Budgeting request and approval processes. (2) Supervisory requirements for monitoring receipt, by the Project of the counterpart funds. (3) the Bureaucratic Processing steps required to disburse these funds currently and, (4) The processing steps required to liquidate advances and expenditures. This should be the responsibility of the Director of DGASI along with the Project Director and the USAID Project Manager and Technical Advisor. These same individuals should also establish clear lines of authority and responsibility for budgeting, requesting, monitoring and making certain that the PL-480 counterpart funds are received and liquidated. Within the Project, one individual, probably administrator Namuche, should be charged with keeping track of counterpart and pressing offices and individuals all the way up the line to do their parts. Whoever is designated, this individual should report directly to the Director of DGASI on counterpart contributions on a regular basis, probably monthly, and on an as needed basis to solicit the Director's assistance for solving special problems.

Project management must stay abreast of the counterpart situation and be prepared to deal with problems as they arise. It is in the Projects interest to see that the funds are acquired and used to support activities at all levels. Such support would be especially helpful for procuring appropriate vehicles that would facilitate extension efforts to reach farmers in remote locations.

Related to the PL-480 counterpart issue is the general issue of total GOP counterpart support to the Project. Given past misunderstandings, an accurate accounting of all GOP contributions should be documented and submitted to USAID with a precise calculation of any remaining counterpart that is due. Support for this activity as well as the precise determination of responsibilities and the steps necessary for acquiring and liquidating PL-480 counterpart funds could be provided by the USAID Program and Controller Offices (See Section VII. Paragraph 5).

ANNEXES

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ANNEX 1

EVALUATION COMMITTEE

Mr. David Faulkner:	OARD/APAD
Mr. David D. Bathrick:	OARD
Mr. David Flood:	OARD/ACR
Mr. David Himelfarb:	DR/CD
Mr. Robert Maushammer:	PROG
Ms. Louanne Douris:	PROG
Ms. Lynn Hambergren:	PROG
Mr. Richard Whelden:	DR
Dr. Fred Mann:	OARD/APAD
Dr. Jaime Málaga:	OARD/APAD
Mr. Douglas Arnold:	CONT
Mr. Aurelio Tasso:	CONT

ANNEX 2

INDIVIDUALS INTERVIEWED

OFFICE

Mrs. Isabel Cornejo	:	Chief, Admin. Unit/DGASI
Mr. Héctor Namuche	:	Administrator of the Program
Mr. Julio C. Hernández L.	:	Director/DGASI
Mr. Jorge Rojas	:	Program Officer/DGASI
Mrs. Yolanda Rocha	:	Budget Director of OGA
Mr. Francisco Espinoza	:	USAID, Project Manager
Mr. Jerome Arledge	:	USDA, SCS, PASA
Mr. Hermes Cruz	:	Director of Soils & Watersheds Management Division
Mr. Douglas Arnold	:	USAID, Controller's Office
Mr. Juan A. Rivero	:	USAID, Controller's Office
Mr. Alberto Huby Basombrío	:	General Director of OGA
Mr. Lorenzo Chang-Navarro	:	Director of the National Program of Soil and Water Conservation in Hydrological Watersheds
Mrs. Martha Yayha	:	Program Agr. Economist
Mr. Julio Alfaro Moreno	:	Program Rural Sociologist
Mr. Julio González	:	Program Media Specialist

ANNEX 3

SUMMARY PROJECT HISTORY

<u>Document</u>	<u>Action Taken</u>	<u>Execution Date</u>	<u>Funding Level Increase</u>	<u>Change in PACD</u>
1. Project Agreement	Formal Start of Project	9-30-80	0+\$200,000	Original PACD 12-31-83
2. PIL No. One	Terms of PROAG	12-11-80	_____	_____
3. Amendment No. One	Incremental Funding and PACD Extension	3-05-81	\$200,000+\$500,000	6-30-84
4. PIL No. Two	LOP Operating Plan Approved	11-09-81	_____	_____
5. PIL No. Three	Disbursement Procedures and Standard Provisions	12-11-81	_____	_____
6. Amendment No. Two	Incremental Funding Completes Obligation of Original \$1,000,000 Grant	4-12-82	\$700,000+\$300,000	_____
7. PIL No. Four	Approval of 1983 Operating Plan	4-05-83	_____	_____
8. PIL No. Five	Approval of Hernández Appointment	4-18-83	_____	_____
9. Amendment No. Three	Broadening of Project Scope Beyond Pilot Area	8-19-83	_____	_____
10. PIL No. Six	Approval of 1984 Operating Plan and PACD Extension	1-03-84	_____	12-31-84
11. PIL No. Seven	Transfer of \$77,000 to Soles Under 1982 Budget	10-11-84	_____	_____
12. PIL No. Eight	Approval of Change in 1984 Operating Plan to Allow Hernandez Trip	10-11-84	_____	_____

ANNEX 4

DESCRIPTION OF THE PRINCIPAL CONSERVATION PRACTICES

1. Absorption Terraces

The absorption terraces had the following characteristics:

- Internal border at level.
- External border at level.
- Inside reverse grade.
- Back-slope protected with pasture or other type of vegetation.
- The absorption terrace banks were given a gradient in towards the slope of the land in order to collect rainfall.

Some terraces were constructed with stone walls, and others with vegetative buffers as appropriate.

Some necessitated interception ditches be constructed in the upper part of the treated areas for protection of the absorption terraces against excessive rainfall collection in upper levels. This practice is recommended for the installation of terraces on hills with 60% gradient or more.

2. Contour Rows:

This conservation practice simply altered planting practices so as to conform to the natural contour of the land. For the cases where excessive moisture was encountered or expected the rows were constructed with very slight variation from the contour not to exceed 1 to 3 percent for every thousand feet of a field.

3. Infiltration Ditches:

These were constructed in crop areas pastures and forests. Distance among them varied; different distances or spacings were tested in order to determine the most appropriate for local conditions, the ground gradient, type of soil and annual rainfall.

Along all infiltration ditches, approximately every 3 to 5 m, small earth partitions were constructed to uniformly distribute the rainfall collected. The infiltration ditches were recommended to have the following dimensions; width for upper border from 40-50 cm., width of the base of ditch from 30-40 cm. and 30-40 cm. of depth.

Annex 4(continued)

4. Strip Cropping:

Native grasses were interseeded with tree seedlings for greater erosion control and wood production.

5. Gully Control Dikes:

The material used to build dikes were stones, poles, and logs with vegetative buffer zones. Spacing among the dikes varied with gully conditions. To assure longer life and stability, sufficient numbers were installed in a given gully with heights no greater than 100 cm (average height was between 50 and 100 cm).

6. Grassland Management:

Rotational grazing principles were applied for this practice along with natural reseeding.

ANNEX 5

CONSERVATION PRACTICE DISTRIBUTION

(Number of Test Plots by type of Practice)

	Terraces	Contour Rows	Infiltra- tion Ditches	Native Grass and For- rest Strips	Dikes	Pasture Manage- ment	Other	Total
Constructed	—	—	—	—	12	17	—	29
Destroyed	30	1	1	—	—	—	—	32
To be planted	416	123	101	6	—	—	3	649
Planted but lost	28	3	—	—	—	—	—	31
Planted	63	6	8	—	—	—	—	77
To be harvested	208	19	8	—	—	—	—	235
Harvested	665	147	13	4	—	—	1	830
	1,410	229	131	10	12	17	4	1,883

ANNEX 6
PARTICIPANT PROFILE

Characteristics	Percent of Farmers Surveyed (1164)	Percent of National Rural (Economically Active) Population
1. Type of Property		
-Individual	92	95
2. Land Management		
-Direct	95.5	60
3. Size of Property		
-Small Tenancy (from 0.1 to 1 hectare)	55	33 *(1)
4. Economic Activity		
-Agriculture	78	50 *(2)
5. Migration or Residence		
-Non migrants	78	45
6. Technology		
-Utilize oxen	78	30
7. Previous Knowledge of the Conservation Program		
-No knowledge	69.5	Not available
8. Destination of production		
-More than 70% of production for self-consumption	62	Not available
9. Production		
-Mixed, major products: potatoes, corn, wheat	90	Not available

*(1) The second most important Project group are those with 1 to 10 hectares.

*(2) The remaining 50% is formed by agriculture workers, merchants, and service laborers.

ANNEX 7

AVERAGE PRODUCTION INCREASES (%) DUE TO CONSERVATION PRACTICES
ABOVE YIELDS IN THE CONTROL AREAS

Product	Terraces	No. Cases	Contour Rows	No. Cases	Strip Crop- ping	No. Cases	Infiltration Ditches	No. Cases
Papa								
*Fert.	42.8	71	22.5	99	17.9	1		
**No Fert.	142.1	41	39.5	15				
Maiz								
*	65.0	18	40.7	2				
**	13.4	2	24.9	11				
Trigo								
*	47.5	8	125.0	1				
**	53.9	25			0.7	2		
Frejol								
*			10.0	1				
**	127.3	1						
Arverja								
*	18.3	1						
**	54.8	1	22.2	1	0.0	1		
Maiz Choclo								
*	86.7	5	23.6	3				
**								
Olluco								
*	16.9	4	42.3	4				
**	85.2	1	251.4	1				
Quirua								
*								
**	20.5	1	125.0	1				
Tartui								
*								
**	33.2	2	49.7	2				
Alfalfa								
*	103.8	8					66.7	2
**	1019.0	2			0.0	1	15.5	3
Native Pasture								
*	—	0						
**	200.8	3					188.9	1

ANNEX 8

GEOMETRIC PHENOMINA OF TERRACE CONSTRUCTION

Initial Area	10,000 m ² (1 Hectare)
Average Bank Area after Construction	6,500 m ²
Average Back-Slope Area after Construction	6,180 m ²
Average Total Area after Terrace Construction	12,680 m ²

Therefore the total average increase in the potential cropping area is 26.80%.

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