

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER

RESOURCE CONSERVATION AND UTILIZATION

PROJECT

Project Number 367-0132

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET		1. TRANSACTION CODE		PP 2. DOCUMENT CODE 3
		<input type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> D	A ADD C CHANGE D DELETE	
3. COUNTRY/ENTITY Nepal		4. DOCUMENT REVISION NUMBER <input type="checkbox"/>		
5. PROJECT NUMBER (7 digits) <input type="checkbox"/> 367-0132 <input type="checkbox"/>	6. BUREAU/OFFICE		7. PROJECT TITLE (Maximum 40 characters) <input type="checkbox"/> Resource Conservation and Utilization <input type="checkbox"/>	
		A. SYMBOL ASIA/PD	B. CODE <input type="checkbox"/> 04 <input type="checkbox"/>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <input type="checkbox"/> 8 <input type="checkbox"/> 5 <input type="checkbox"/>		9. ESTIMATED DATE OF OBLIGATION		
		A. INITIAL FY <input type="checkbox"/> 8 <input type="checkbox"/> 0 <input type="checkbox"/>	B. QUARTER <input type="checkbox"/> 3 <input type="checkbox"/>	
		C. FINAL FY <input type="checkbox"/> 8 <input type="checkbox"/> 5 <input type="checkbox"/>		

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) - 11.9 Rupees

A. FUNDING SOURCE	FIRST FY 80			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	554.6	453.7	1008.3	15002.6	12495.6	27498.2
(GRANT)	554.6	453.7	1008.3	15002.6	12495.6	27498.2
(LOAN)						
OTHER U.S.	1.					
	2.					
HOST COUNTRY		101.2	101.2	70.8	4989.7	5060.5
OTHER DONOR(S)						
TOTALS	554.6	554.9	1109.5	15073.4	17485.3	32558.7

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 80		H. 2ND FY 81		K. 3RD FY 82	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	100B	060		1008.3		4861.6		6467.5	
(2)									
(3)									
(4)									
TOTALS				1008.3		4861.6		6467.5	

A. APPROPRIATION	N. 4TH FY 83		O. 5TH FY 84		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULE				
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN					
(1)	6049.2		5000.8		27498.2		<table border="1"> <tr> <td>MM</td> <td>YY</td> </tr> <tr> <td>0 6</td> <td>8 3</td> </tr> </table>	MM	YY	0 6	8 3
MM	YY										
0 6	8 3										
(2)											
(3)											
(4)											
TOTALS	6049.2		5000.8		27498.2						

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

No 1 = NO
2 = YES

14. ORIGINATING OFFICE CLEARANCE		15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION							
SIGNATURE <i>Samuel A. Butterfield</i>	DATE SIGNED		<table border="1"> <tr> <td>MM</td> <td>DD</td> <td>YY</td> </tr> <tr> <td>0 6</td> <td>0 3</td> <td>8 0</td> </tr> </table>	MM	DD	YY	0 6	0 3	8 0
MM	DD	YY							
0 6	0 3	8 0							
TITLE									

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT IDENTIFICATION DOCUMENT FACESHEET

To Be Completed By Originating Office

1. TRANSACTION CODE

A Add
 B Change
 C Delete

PID

2. DOCUMENT CODE

1

3. COUNTRY/ENTITY Nepal 4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits) [367-0132] 6. BUREAU/OFFICE
A. Symbol ASIA B. Code [04] 7. PROJECT TITLE (maximum 40 characters)
Resource Conservation and Utilization

8. PROPOSED NEXT DOCUMENT
A. 2 PH 3 PP B. DATE MM YY 015 718

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
a. INITIAL FY 719 b. FINAL FY 719

10. ESTIMATED COSTS
15000 or equivalent, \$1

FUNDING SOURCE		Life of Project
a. AID Appropriated		<u>12,000</u>
b. OTHER	1. <u>-</u>	
US	2. <u>-</u>	
c. Host Country		<u>3,000</u>
d. Other Donors		<u>3,000</u>
TOTAL		<u>18,000</u>

II. PROPOSED BUDGET AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH CODE		E. FISCAL FY 1979		LIFE OF PROJECT	
		C. Grant	D. Loan	F. Grant	G. Loan	H. Grant	I. Loan
(1) <u>FN</u>	<u>100B</u>	<u>060</u>		<u>12,000</u>		<u>12,000</u>	
(2)							
(3)							
(4)							
TOTAL				<u>12,000</u>		<u>12,000</u>	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)
090 | 070 | 010 | 053 | 020 | 030

13. SPECIAL CONCERNS CODES (maximum six codes of four positions each)
BRW | BSW | RGEN | COOP | ENV | TECH

14. SECONDARY PURPOSE CODE
200

15. PROJECT GOAL (maximum 240 characters)
To conserve land by promoting appropriate land-use practices and control soil erosion through effective watershed management and use.

16. PROJECT PURPOSE (maximum 480 characters)
To identify, develop, and apply conservation techniques in selected mountainous areas of Nepal.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds) Six consultants will be required in October 1977 to develop the PPP. Estimated cost is \$300,000 from FY 78 PD and S funds. An additional \$40,000 will be required to cover the cost of five pre-project training programs.

18. ORIGINATING OFFICE CLEARANCE
Signature Saman H. Butterfield
Title Director, USAID/Nepal
Date Signed MM DD YY 05 26 77

19. Date Document Received in AID/W, or for AID/W Documents, Date of Distribution
MM DD YY

AID 1330-2 (3-76)

REVISED RCUP FINANCIAL PLAN

I. INTRODUCTION

The Asia Bureau reviewed the Resource Conservation and Utilization project (RCUP) in March 1980. After several meetings and considerable deliberation, the Bureau concluded that the project's concept was technically feasible, and if properly implemented, should address the major environmental problems in Nepal. The Bureau was, however, concerned with the apparent managerial complexity of coordinating and implementing, simultaneously, several project inputs such as forest management, energy components, irrigation systems, horticulture sub-projects, watershed management, livestock activities and range and pasture management practices. Therefore, the Bureau recommended employing the multifaceted project approach in only two catchment areas. The other two catchments will be deferred until the end of the third year, at which time USAID/Nepal and HMG/Nepal will conduct an evaluation of the project to determine if sufficient objectives have been accomplished to warrant an extension of project activities. The Bureau made this decision to ease the contractor's and HMG/Nepal's managerial burden of implementing the project and also to increase the probability of successfully realizing project objectives within five years.

As a result of the Asia Bureau's decision, HMG/Nepal selected Gorkha and Mustang/Myagdi catchment areas to initiate the RCU project. Based on the outcome of the three-year evaluation to extend the project into Kulekhani and Jumla catchments, a determination will be made on the feasibility and appropriateness of extending the project into Kulekhani and Jumla catchments.

Project activities for Gorkha and Mustang/Myagdi will follow the plan explained in the technical analysis section of the project paper with the exception of the micro-hydro plants and the multi-purpose impoundment construction. Financing will be available for conducting feasibility studies and engineering design of these two components, but funds for constructing these items will be provided in Phase II, after review and approval of the final design plans and cost estimates.

The following table illustrates the changes that have been made to the original project proposal.

Summary of Project Revisions for RCU Project

Program Category	Project Revisions
(1) Inventory and Monitoring	(1) Increase FY 80 budget by \$50,000 and FY 81 by \$200,000 to cover start-up costs and allow preparation of detailed sub-project implementation plans. (2) Eliminate Inventory and Monitoring in Kulekhani area.
(2) Watershed Management	(1) Eliminate Kulekhani area.
(3) Forest Management	(1) Eliminate Kulekhani area. (2) Added provision to test/demonstrate aerial seeding starting in FY 81.
(4) Energy	(1) Eliminate Kulekhani area. (2) Eliminate construction of 4 micro-hydro installations. (3) Eliminate construction of multi-purpose impoundment in Gorkha.
(5) Irrigation	(1) Eliminate Kulekhani area.
(6) Drinking Water	(1) Eliminate Kulekhani area.
(7) (a) Community Livestock	(1) Eliminate Kulekhani area.
(b) Range-Pasture Management	(1) Eliminate Kulekhani area.
(8) Agronomy, Extension, Research	(1) Eliminate Kulekhani area.
(9) Horticulture	(1) Eliminate Kulekhani area.
(10) Fisheries Development	(1) Eliminate fisheries development in Kulekhani reservoir. (2) Eliminate fisheries development of Gorkha multi-purpose reservoir
(11) Technical Assistance	(1) Reduce long-term advisors from 542 person months to 408 person months, and short-term consultants from 133 person months to 90 person months. (2) Revise salary schedule estimate.
(12) Participant Training	(1) Reduce long-term participants from 70 to 49.
(13) Local Consultants	(1) Reduce program commensurate with eliminating Kulekhani area requirements.
(14) Local Coordination Fund	(1) Eliminate Fishery management category, and reduce credit/financing commensurate with eliminating Kulekhani credit requirements.

II. REVISED FINANCIAL ANALYSIS AND PLAN

RCUP inputs will be directed to both production oriented and supporting inputs within the Gorkha and Mustang/Myagdi catchments over a five-year period, totaling an estimated \$32,558,700. AID and HMG/N will jointly finance these activities with contributions of \$27,498,200 (84.5 percent) and \$5,060,500 (15.5 percent) respectively. Revised Table I presents a summary of costs and a financial plan. This is followed by a description of AID's and HMG/N's inputs and supported by AID's and HMG/N's projected expenditures (revised tables II and III) for each fiscal year of the five-year project. Revised Annexes F through O present detailed annual financial expenditures for the major project categories. These estimated cost figures were derived from studies conducted by the Title XII team and HMG/N consultants.

Technical Assistance

The project will require 408 person months of long-term advisors (\$4,080,000) and 90 person months of short-term consultants (\$936,000). Additional funds are provided for contractor's home office support (\$420,000). Included in this support item are funds for the contractor to develop a five-week orientation course for three to six Peace Corps Volunteers who will be assigned to the Project. A budget for local staff support is provided (\$117,700). HMG/N will complement AID's contribution by supplying local professional and staff support to the project valued at \$1,833,400. This includes funds for partial air fares and salary of participants during their training.

Participant Training

AID's input will finance 49 long-term participants and 99 person months of short-term training (estimated at 63 participants) for a total of \$2,101,500. HMG/N's contribution for airfare and salary are included in its professional and staff support budget. Use will be made of the PL 480 fund in India to the degree possible; however, no funds are included in this project of this nature.

Local Consultants

Financing (\$619,000) by AID will include services of architects and engineers, natural resource scientists, impact and monitoring specialist, and economists to assist in the preparation of detailed feasibility/design plans of subprojects, monitoring evaluation and special studies.

(Revised) -TABLE I

Summary Cost Estimate And Financial Plan
(\$ 000)

Use of Funds	Source of Funds				Sub Total		Total
	AID		HMG/N		FX	LC	
	FX	LC	FX	LC			
(1) <u>Technical Assistance</u>							
(a) Project Advisors	3672.0	408.0	-	-	3672.0	408.0	4080.0
(b) Short term Consultants	842.4	93.6	-	-	842.4	93.6	936.0
(c) Contractors Support & Budget	399.0	21.0	-	-	399.0	21.0	420.0
(d) Local Staff Support	-	117.7	-	-	-	117.7	117.7
(e) Professional & Staff Support	-	-	-	1833.4	-	1833.4	1833.4
(2) <u>Participant Training</u>	2101.5	-	-	-	2101.5	-	2101.5
(3) <u>Local Consultants</u>	-	619.0	-	-	-	619.0	619.0
(4) <u>Commodities</u>	2726.3	2302.5	45.7	695.8	2772.0	2998.3	5770.3
(5) <u>Project Allowances</u>	-	810.9	-	-	-	810.9	810.9
(6) <u>Project Credit Fund</u>	-	529.0	-	135.0	-	664.0	664.0
(7) <u>Other Costs</u>	390.3	3532.3	-	565.2	390.3	4097.5	4487.8
Sub-Total	10131.5	8434.0	45.7	3229.4	10177.2	11663.4	21840.6
Inflation, 12% per year	3560.4	2964.1	18.7	1315.8	3579.1	4279.9	7859.0
Sub-Total	13691.9	11398.1	64.4	4545.2	13756.3	15943.3	29699.6
Contingency, 10% per year	1310.7	1097.5	6.4	444.5	1317.1	1542.0	2859.1
TOTAL	15002.6	12495.6	70.8	4989.7	15073.4	17485.3	32558.7
	55%	45%	1%	99%	46%	54%	

TABLE II (Revised)

AID's Projected Expenditures by Fiscal Year
(\$ 000)

	Fiscal Year						Total
	1980	1981	1982	1983	1984	1985	
<u>USE OF FUNDS</u>							
1. <u>Technical Assistance</u>							
Advisors	160.0	1050.0	1510.0	1060.0	210.0	90.0	4080
Short Term Consultants	156.0	260.0	208.0	156.0	104.0	52.0	936
Contractor's Support Budget	21.0	84.0	84.0	84.0	84.0	63.0	420
Local Staff Support	4.5	20.8	23.0	25.0	27.0	17.4	117
2. <u>Participant Training</u>	219.9	473.9	496.4	468.4	442.9	-	2101
3. <u>Local Consultants</u>	32.9	187.8	156.2	134.3	88.4	19.4	619
4. <u>Commodities</u>	302.9	908.5	1231.3	931.6	835.7	818.8	5028
5. <u>Project Allowances</u>	21.8	114.1	138.5	166.5	210.2	159.8	810
6. <u>Local Resource Conservation Coordination Fund</u>	-	69.5	99.4	103.5	113.2	143.4	529
7. <u>Other Costs</u>	89.3	777.5	740.3	785.0	773.8	756.7	3922
Sub-Total	1008.3	3946.1	4687.1	3914.3	2889.2	2120.5	18565
Inflation, 12% per year	-	473.5	1192.4	1585.0	1657.0	1616.6	6524
Sub-Total	1008.3	4419.6	5879.5	5499.3	4546.2	3737.1	25090
Contingency, 10% per year	-	442.0	588.0	549.9	454.6	373.7	2408
Total	1008.3	4861.6	6467.5	6049.2	5000.8	4110.8	27498

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TABLE III (Revised)

HMG/N's Projected Expenditures by Fiscal Year
 (11.90 N. Rupees equal One U. S. \$)
 (\$ 000)

Use of Funds	Fiscal Year						Total
	1980	1981	1982	1983	1984	1985	
(1) <u>Technical Assistance</u>							
Professional and Staff Support	41.1	260.7	362.0	464.6	530.7	174.3	1833.4
(2) <u>Commodities</u>							
Rental of building, Costs of Land and Supplies	25.6	158.7	154.1	158.1	156.1	88.9	741.5
(3) <u>Credit</u>	-	9.5	21.9	25.5	34.7	43.4	135.0
(4) <u>Other Costs</u>							
Per diem plus travel expenses in Nepal	34.5	72.5	93.6	130.6	147.0	87.0	565.2
Sub Total	101.2	501.4	631.6	778.8	868.5	393.6	3275.1
Inflation, 12% per year	-	60.2	160.7	315.4	498.1	300.1	1334.5
Sub Total	101.2	561.6	792.3	1094.2	1366.6	693.7	4609.6
Contingency, 10% per year	-	56.2	79.2	109.4	136.7	69.4	450.9
TOTAL	101.2	617.8	871.5	1203.6	1503.3	763.1	5060.5

Commodities

AID's contribution will be \$5,028,800 and HMG/N's will amount to \$741,500 totaling \$5,770,300 over five years. These funds are for the purchase of equipment and supplies for each support activity and subproject intervention. Revised Annex I(1) summarizes the commodity costs by the selected catchments and the central unit. The detailed list of commodities includes such items as transits, levels, vehicles, water and soil monitoring equipment, camping gear, construction materials, veterinary supplies, teaching equipment, and office and field materials required to support the project. Over 75 percent of the commodities are scheduled to be channeled to the field project areas. Included in this component is the estimated cost necessary to carry out the procurement of the commodities.

Project Allowances

\$810,900 will be provided by AID to support HMG/N's project associated personnel assigned to carry out work on rural project sites. Project allowances are a form of incentives provided to field staff who are working and living in isolated locations. These allowances will decline as the project develops and infrastructure is improved in these isolated areas. Also included in this category are stipend allowances for students to attend the IRNR as recommended in the joint ODA/USAID report on training and to pay for field demonstration trips by local farmers. HMG/N will provide a plan which will outline eligible uses for such allowances, the criteria for participation in and receipt of such allowances and the procedures by which such allowances will be administered.

Local Resource Conservation Coordination Fund

A credit fund will be established to encourage and stimulate farmer interest in converting degraded land to environmentally compatible land use programs. AID will contribute \$529,000 and HMG/N \$135,000. These funds will serve as seed money for distribution in the RCUP areas following established credit procedures and policies of the already established Agricultural Development Bank and Agricultural Inputs Corporation. This support will be for agriculture, livestock, forestry and watershed management activities. HMG/N will provide a plan which will set out the eligible uses for this fund, including interest rates, terms of repayment and the procedures of each institution for administering these funds.

Other Costs

AID's input to this program category is \$3,922,600 and will finance items such as labor for building construction in the two catchments, operation and maintenance of vehicles, and maintenance of capital inputs during initial project years. Annex K(1) summarizes

the other costs apportioned to the two catchments and the central unit by program category. HMG/N's input will be \$565,200 and includes costs of office maintenance, rental of buildings, and other operating expenses.

A 12 percent per year inflation factor has been included for both AID's and HMG/N's projected expenditures and a 10 percent contingency factor per year to lessen the probability of physical and financial uncertainties adversely affecting normal implementation of the project. Both rates are consistent with and reflect economic conditions existing in the United States and Nepal, the main countries that will supply goods and services to RCUP.

HMG/N's contribution towards this project is \$5,060,500 or 15.5 percent of the total project costs. Consequently, HMG/N does not meet the 25 percent contribution normally required under FAA, Section 110(a), for AID-financed projects. The Mission requests a waiver to Section 110(a) because (1) HMG/N is making a firm commitment to the project by contributing scarce financial and personnel resources and, (2) Nepal is one of poorest of the Relatively Least Developed Countries (RLDC). The IBRD has encouraged donors to provide substantial portions of total project cost, particularly, local costs in order to assist HMG/N's development efforts. Historically, HMG/N has provided less than 15 percent of total project cost for projects financed by IBRD and Asian Development Bank. Provisions for this waiver are provided in Section 307 of the International Development and Food Assistance Act of 1975, which allows a waiver of the 25 percent contribution to AID-financed projects for RLDC.

After the completion of the five-year project (Second Quarter FY 1985), recurring costs are estimated at \$1,500,000 annually. HMG/N will allocate sufficient funds to adequately support the project. It is also anticipated that in FY 1983 AID will evaluate the management/implementation performance of the project prior to financing energy construction inputs. This analysis will also estimate the financial requirements for developing additional catchments, if appropriate. Furthermore, this proposed evaluation will identify the inputs needed for the possible second five-year phase of the project.

The above financial analysis and plan reflect preliminary project planning and current cost estimates for RCUP's inputs. USAID/N has determined that the project concept is feasible and the project cost estimates are reasonably firm for the project elements. Thus, the requirements of FAA, Section 611(a)(1) has been satisfied. Detailed design plans and final cost estimates will be developed by local architects and engineers for each construction component of the project. These contracting documents will be reviewed by USAID to ensure that the design is complete and final cost estimates reflect local economic conditions for each construction activity before USAID approves construction contracts.

III. REVISED ECONOMIC ANALYSIS

The Project Paper notes (p. 40) that the RCUPs originally designed would yield an economic internal rate of return of 21.5 percent. The reduction from four to two catchment areas (i.e., the elimination of Kulekhani and Jumla) should not adversely affect this originally estimated rate of economic return. One major reason is that all of the net economic benefits from improved management of existing forests will remain intact, since none of the existing forests assigned to RCUP management are located in the Kulekhani or Jumla catchment areas. It is these improved forest management activities which promise to generate the largest single component of net economic benefits during the initial implementation period. Another important reason is that all of the RCUP activities which were in the category of jointly incurred costs of overall project management and institution building inventory and monitoring, technical assistance, training, and the Local Coordination Fund have been reduced to reflect providing inputs for two instead of four catchments. Finally, the net benefits predicted from the Kulekhani and Jumla catchment areas for other RCUP components were not expected to have generated greater net benefits than those associated with the two catchment areas selected for the first phase of the project.

IV. PROJECT IMPLEMENTATION

The prime contractor for supplying technical assistance inputs will be SECID, through a direct contract with AID. The contractor will be supervised by HMG/N, Ministry of Forests, Department of Soil and Water Conservation. The management of the project inputs will be achieved through subcontracts with three co-lead institutions, each of which will be responsible for specific aspects of the RCUP implementation. Duke University will have responsibility for long-term participant training and the identification of short-term technical assistance for the Ministry of Forest Training Wing. Virginia Polytechnic Institute and State University will provide leadership in the establishment of the new Pokhara campus of IRNR. Western Carolina University will administer the observation/study tours (short-term training). Other SECID member institutions will contribute various technical assistance and training inputs under the technical direction of these three co-lead institutions. The SECID administrative office will provide administrative and logistical support through its Office of Training Programs (for the administration of participant programs) and Office of Procurement services (for the purchase of commodities) as well as overall coordination from its headquarters staff.

A Management Council will be established for supervising the provision of SECID inputs. Membership on the Council will include not only a representative from each co-lead institution and SECID headquarters, but also the SECID and HMG/N Co-Managers and the USAID/Kathmandu Project Manager. The Council will be responsible for specifying

the management policies and procedures that will regulate the provision of all SECID inputs, will meet at least annually to review progress and issues in implementing RCUP and to recommend corrective action on problems which arise. The SECID Co-Manager will be responsible for coordinating all SECID inputs in Nepal and for carrying out recommendations of the Management Council.

Priorities for implementation during the initial year of the project will focus on five items. First, the RCUP offices must be established so that, from the beginning, a collaborative effort by HMG/N and SECID technicians is realized. Second, a detailed Management/Implementation Plan will be prepared in accordance with the Conditions Precedent to the release of funds for implementation activities at RCUP sites. Special emphasis will be given to evaluating the technical and economic feasibility of improvements in stoves, agricultural practices, management of existing forests, and similar interventions which promise a fast return to RCUP inputs during the initial five-year period. Third, the identification and placement of the first group of participants must be done rapidly in order for training to begin in the fall of 1980. Fourth, the survey instruments for monitoring the social and economic impact of the various RCUP activities must be designed and pre-tested. Further, the RCUP Central Staff must determine how the data generated by the baseline and follow-up surveys will be used to measure such impact. Fifth, the mechanisms must be designed whereby residents of the RCUP sites in Gorkha and Mustang/Myadgi will participate in deciding which types of RCUP activities will be implemented in their communities. The detailed Management/Implementation Plan will be completed by November and will reflect community participation. Five or six person team and HMG/N officials will assemble this plan.

Annex F (Revised)

Estimated Costs for Long-Term Advisor and Short-Term Consultants by U.S. FY USAID

U.S. FY	Number		Person-Months		Total Annual Cost in U.S.\$ of 1980			Total, All Costs
	Advisors	Consultants	Advisors	Consultants	Advisor <u>1/</u>	Consultants' Salaries <u>2/</u>	Consultants' Travel <u>3/</u>	
1980	6	6	16	15	160,000	135,000	21,000	316,000
1981	13	10	105	25	1,050,000	225,000	35,000	1,310,000
1982	13	8	151	20	1,510,000	180,000	28,000	1,718,000
1983	11	6	106	15	1,060,000	135,000	21,000	1,216,000
1984	4	4	21	10	210,000	90,000	14,000	314,000
1985	1	2	9	5	90,000	45,000	7,000	142,000
Total			408	90	4,080,000	810,000	126,000	5,016,000

1/ Equals advisor person-months times \$10,000/person-month as estimated below: 2/ Equals consultant person-months times \$9,000/person-month as estimated below:

Basic Salary	\$40,000		Salary @ \$160/day	
Differential Pay, 15% of Salary	6,000		22 work days/month	\$3,520
Insurance 8%	<u>3,680</u>	\$ 49,680	Insurance @ 8%	280
Contractors overhead, 75%		34,500	Contractors overhead rate	3,780
School Allowance (2)		10,000	Per Diem in Nepal for 30 days	1,200
One way air fare and travel allowance (4)		6,000	Miscellaneous Expenses	<u>220</u>
Shipment and storage of household effects and car		6,000		<u>\$9,000</u>
Local Rent and Utilities		6,500		
R & R travel (4)		<u>4,800</u>		
	Sub-Total	\$117,480		
2 percent contingency		<u>2,520</u>		
	Total Annual Costs	\$120,000		

3/ Equals number of consultants times \$3,500/round-trip for the sum of domestic and international air fare plus other travel expenses en route.

ESTIMATED TIME OF ARRIVAL AND DURATION OF ADVISORS AND CONSULTANTS

Title	Advisors							Total	Consultants		
	Person Months Per Fiscal Year								Person Months	Approximate Current Year Timing	
	1980	1981	1982	1983	1984	1985					
A. Project Coordinator	3	12	12	12	12	9	60	1. Institute of Renewable Natural Resources 1/	20	80, 81, 82, 83	
B. Ministry of Forest Training Wing								2. Horticulturist	5	81, 82, 83	
1. In-service training specialist	3	12	12	9	0	0	36	3. Watershed Economist	8	81, 82, 83	
C. Inst. of Renewable Natural Resources								4. High altitude nursery management specialist	5	80, 81	
1. Asst. to Dean/Curriculum Development	3	12	12	9	0	0	36	5. Sampling statistician	7	80, 81, 82, 83	
2. Soil Engineer/Hydraulics	0	3	12	9	0	0	24	6. Adaptive Research specialist	5	83, 84	
3. Soil/Water Conservation specialist	0	9	12	3	0	0	24	7. Energy specialist	13	80, 81, 82, 83	
4. Silviculturist/Forest Management	0	3	12	12	3	0	30	8. Other	27	80, 81, 82, 83	
5. Economist	0	3	12	12	3	0	30	Total	90		
D. Central Staff, DSWC											
1. Land use planner	0	3	12	9	0	0	24				
2. Soil Scientist	3	12	9	0	0	0	24				
3. Hydrologist	0	9	12	9	0	0	30				
4. Range/Pasture/Mngt.	1	12	12	11	0	0	36				
5. Agriculture/Civil Engineer	0	3	12	12	3	0	30				
6. Forest Management	1	12	11	0	0	0	24				
Total	14	105	152	107	21	9	408				

1/ Position and duration according to Joint ODA/USAID report on training.

Estimated Costs of Participant Training 4/ 6/

	Number		Training Costs	3/ Air Fare	Total
	No.	Months			
			<u>FY 1980</u>		
Long Term <u>1/</u>	10		\$160,000	\$35,000	\$195,000
Short Term <u>2/</u>		4	10,000	10,500	20,500
Sub-Total			170,000	45,500	215,500
			<u>FY 1981</u>		
Long Term	21		336,000	38,500	374,500
Short Term		17	42,500	52,500	95,000
Sub-Total			378,500	91,000	469,500
			<u>FY 1982</u>		
Long Term	21		336,000	35,000	371,000
Short Term		26	65,000	56,000	121,000
Sub-Total			401,000	91,000	492,000
			<u>FY 1983</u>		
Long Term	20		320,000	35,000	355,000
Short Term		24	60,000	49,000	109,000
Sub-Total			380,000	84,000	464,000
			<u>FY 1984</u>		
Long Term	18		288,000	28,000	316,000
Short Term		28	70,000	52,500	122,500
Sub-Total			358,000	80,500	438,500
Total	49	99			
Sub-Total			1,687,500		2,079,500
Language Instruction <u>5/</u>			22,000		22,000
Total			\$1,709,500	\$392,000	\$2,101,500

1/ Long term participant training averages \$16,000 per year and programmed for 24 months per participant, except the 15 new starts in FY 84 will be on a 12 month program.

2/ Short term participant training averages \$2,500 per month.

3/ Round trip international and domestic air fare plus travel per diem totals about \$3,500 for each participant.

4/ No costs are projected in FY 1985.

5/ Includes language instruction plus TOEFL Exam.

6/ See table G (1) for participant distribution by HMG/N Agency.

Estimated Distribution of Long and Short-Term ParticipantTraining by HMG Line Agencies

Agency	Time and Place	Project Years					Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	
1. Institute of Renewable Natural Resources	Long Term (US)	6	2	3	2	3	16
	Long Term (India) 1/	0	5	5	0	0	10
	Short Term (US)	2	4	4	4	4	18
2. Department of Soil and Water Conservation	Long Term (US)	2	2	2	2	2	10
	Long Term (India)	4	14	6	4	0	28
	Short Term (US)	1	3	3	3	3	13
3. Department of Forest	Long Term (US)	0	1	2	1	1	5
	Long Term (India)	4	4	4	4	0	16
	Short Term (US)	0	1	1	1	1	4
4. Department of Agriculture	Long Term (US)	0	1	1	1	1	4
	Long Term (India)	7	7	5	5	5	29
	Short Term (US)	0	1	1	1	0	3
5. Department of Local Development	Long Term (US)	0	1	1	1	0	3
	Long Term (India)	3	1	2	2	2	10
	Short Term (US)	0	1	1	1	1	4
6. Department of Livestock Development & Animal Health	Long Term (US)	1	1	1	1	1	5
	Long Term (India)	0	2	4	1	0	7
	Short Term (US)	0	1	1	1	1	4
7. Department of Irrigation, Hydrology & Meteorology	Long Term (US)	0	1	0	1	0	2
	Long Term (India)	3	3	1	1	1	9
	Short Term (US)	0	0	1	0	1	2
8. Department of Water Supply and Sewerage	Long Term (US)	0	1	0	0	0	1
	Long Term (India)	2	3	1	1	1	8
	Short Term (US)	0	1	1	0	1	3
9. Ministry of Forest Training Wing	Long Term (US)	0	1	0	0	0	1
	Long Term (India)	0	0	0	0	0	0
	Short Term (US)	0	1	1	1	1	4
10. Other Agencies	Long Term (US)	1	0	0	1	0	2
	Long Term (India)	0	0	0	0	0	0
	Short Term (US)	0	2	2	2	2	8
Total	Long Term (US)	10	11	10	10	8	49
	Long Term (India)	23	39	28	18	9	117
	Short Term (US)	3	15	16	14	15	63

1/ India training will be carried out under PL-480.

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Local Consultants, USAID Inputs
(\$ 000)

Project Component	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Inventory and Monitoring	4.0	14.3	15.7	17.3	19.0	3.3	73.6
2. Watershed Management	6.2	10.6	10.6	8.3	8.3	2.1	46.1
3. Forest Management	0.8	4.9	7.5	5.9	5.0	-	24.1
4. Energy	3.0	8.4	8.4	9.0	9.0	-	37.8
5. Irrigation	4.5	50.0	40.5	30.0	22.5	-	147.5
6. Drinking Water	4.3	26.0	24.0	20.0	-	-	74.3
7. Community Livestock Range-Pasture Management	-	8.2	7.5	4.1	-	-	19.8
8. Agronomy, Extension, Research	2.8	19.9	13.4	10.9	-	-	47.0
9. Horticulture	1.3	1.5	1.9	2.1	0.4	-	7.2
10. Fisheries Development	-	2.0	2.5	2.5	-	-	7.0
11. Training	6.0	42.0	24.2	24.2	24.2	14.0	134.6
Total	32.9	187.8	156.2	134.3	88.4	19.4	619.0

Local Resource Conservation Coordination Fund USAID Inputs (\$ 000)

Category	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Agriculture	-	9.5	18.1	19.0	23.9	32.6	103.1
2. Livestock	-	-	3.8	6.5	10.8	10.8	31.9
3. Forestry	-	50.0	60.0	60.0	60.0	80.0	310.0
4. Watershed Management	-	10.0	17.5	18.0	18.5	20.0	84.0
Total	-	69.5	99.4	103.5	113.2	143.4	529.0

RCUP - Summary of Costs - USAID Inputs
(\$ 000)

Commodities

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	3.8	83.5	4.5	119.7	4.4	102.0	6.3	81.6	6.3	43.0	3.8	41.9	500.8
2.	Watershed Management	5.5	80.5	68.2	68.5	85.7	23.9	81.6	27.9	67.5	30.8	47.7	16.9	604.7
3.	Forest Management	8.2	16.4	51.2	18.7	116.8	81.8	169.4	61.8	150.1	81.4	147.6	87.8	991.2
4.	Energy	-	-	2.4	-	4.1	-	9.0	-	16.7	-	6.1	-	38.3
5.	Irrigation	7.6	30.2	54.6	127.6	59.4	138.7	44.1	103.1	21.4	50.0	22.7	90.7	750.1
6.	Drinking Water	0.6	6.9	13.3	52.8	46.6	22.1	46.6	20.9	46.6	20.9	46.4	50.6	374.3
7.	a) Community Livestock	0.4	11.3	48.7	33.1	99.4	32.9	38.2	27.6	40.1	37.9	48.3	49.8	467.7
	b) Range-Pasture Management	0.1	0.1	3.7	2.0	4.1	5.5	1.6	11.5	2.7	23.8	4.4	41.5	101.0
8.	Agronomy, Extension, Research	2.3	13.0	70.3	25.2	52.5	15.1	54.2	6.2	78.3	12.0	40.7	6.3	376.1
9.	Horticulture	-	-	30.3	1.8	38.8	4.9	30.4	8.1	42.0	6.0	24.9	3.2	190.4
10.	Fisheries Development	0.1	4.8	0.3	3.3	0.3	1.2	0.5	1.6	0.5	2.6	0.5	0.6	16.3
11.	Training	2.7	24.9	12.6	95.7	17.3	273.8	15.4	84.0	11.1	44.0	8.0	28.4	617.9
	Sub-Total	31.3	271.6	360.1	548.4	529.4	701.9	497.3	434.3	483.3	352.4	401.1	417.7	
	Total	302.9		908.5		1231.3		931.6		835.7		818.8		5028.8

RCUP - Summary of Commodity Costs by Catchment and Central Unit

(\$ 000) USAID

Annex I.1 (Contd.) (Revised)

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CENTRAL UNIT 1/

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	3.8	83.5	4.5	119.7	4.4	102.0	6.3	81.6	6.3	43.0	3.8	41.9	500.8
2.	Watershed Management	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Forest Management	-	-	10.0	5.0	10.0	15.0	10.0	15.0	-	-	-	-	65.0
4.	Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Irrigation	-	-	-	-	-	-	-	-	-	-	-	-	-
6.	Drinking Water	0.2	3.4	0.2	28.6	0.2	0.7	0.2	0.3	0.2	0.3	0.2	0.3	34.8
7.	a) Community Livestock	-	-	-	-	-	-	-	-	-	-	-	-	-
	b) Range-Pasture Management	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Agronomy, Extension, Research	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	Horticulture	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Fisheries Development	0.1	4.8	0.1	3.3	0.1	1.2	0.1	1.6	0.1	2.6	0.1	0.6	14.7
11.	Training	1.9	21.7	10.4	84.0	14.7	267.9	13.1	81.1	8.7	42.5	5.7	27.6	579.3
	Sub-Total	6.0	113.4	25.2	240.6	29.4	386.8	29.7	179.6	15.3	88.4	9.8	70.4	
	Total	119.4		265.8		416.2		209.3		103.7		80.2		1194.6
	Grand-Total	302.9		908.5		1231.3		931.6		835.7		818.8		5028.8

1/ Includes MFTW and IRNR. See Work sheets for separate breakdown.

RCUP - Summary of Commodity Costs by Catchment and Central Unit
(\$ 000) USAID

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GORKHA

Category	Fiscal Year												Total	
	1980		1981		1982		1983		1984		1985			
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX		
1. Inventory and Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Watershed Management	3.3	53.5	35.5	11.4	34.0	14.2	37.8	5.7	26.1	19.0	29.3	12.9	282.7	
3. Forest Management	2.7	14.1	14.8	3.8	72.0	18.9	58.2	1.6	71.3	1.4	78.1	1.2	338.1	
4. Energy	-	-	0.1	-	0.2	-	1.1	-	1.9	-	5.4	-	8.7	
5. Irrigation	2.9	11.5	20.7	48.5	22.6	52.6	16.8	39.2	8.1	19.0	8.6	34.5	285.0	
6. Drinking Water	0.2	1.3	12.1	10.1	23.2	10.7	23.2	10.6	23.2	10.6	23.0	25.0	173.2	
7. a) Community Livestock	0.4	11.3	37.8	15.0	15.6	7.3	16.1	14.4	19.3	21.9	16.9	30.7	206.7	
b) Range-Pasture Management	0.1	0.1	3.6	1.6	0.5	1.7	0.6	3.3	1.5	7.9	3.0	13.9	37.8	
8. Agronomy, Extension, Research	1.1	12.7	28.9	6.6	22.0	8.1	22.5	0.2	19.8	8.2	11.1	2.6	143.8	
9. Horticulture	-	-	18.0	0.9	25.2	3.6	14.2	6.4	22.0	2.4	12.7	1.6	107.0	
10. Fisheries Development	-	-	0.2	-	0.2	-	0.4	-	0.4	-	0.4	-	1.6	
11. Training	0.4	1.6	1.0	2.7	1.0	2.7	1.0	1.8	0.9	0.6	0.9	0.4	15.0	
Sub-Total	11.1	106.1	172.7	100.6	216.5	119.8	191.9	83.2	194.5	91.0	189.4	122.8		
Total	117.2		273.3		336.3		275.1		285.5		312.2		1599.6	

RCUP - Summary of Commodity Costs by Catchment and Central Unit
(\$ 000) USAID

Annex I.1 (Contd.) (Revised)
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MUSTANG/MYAGDI

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Watershed Management	2.2	27.0	32.7	57.1	51.7	9.7	43.8	22.2	41.4	11.8	18.4	4.0	322.0
3.	Forest Management	5.5	2.3	26.4	9.9	34.8	47.9	101.2	45.2	78.8	80.0	69.5	86.6	588.1
4.	Energy	-	-	2.3	-	3.9	-	7.9	-	14.8	-	0.7	-	29.6
5.	Irrigation	4.7	18.7	33.9	79.1	36.8	86.1	27.3	63.9	13.3	31.0	14.1	56.2	465.1
6.	Drinking Water	0.2	2.2	1.0	14.1	23.2	10.7	23.2	10.0	23.2	10.0	23.2	25.3	166.3
7.	a) Community Livestock	-	-	10.9	18.1	83.8	25.6	22.1	13.2	20.8	16.0	31.4	19.1	261.0
	b) Range-Pasture Management	-	-	0.1	0.4	3.6	3.8	1.0	8.2	1.2	15.9	1.4	27.6	63.2
8.	Agronomy, Extension, Research	1.2	0.3	41.4	18.6	30.5	7.0	31.7	6.0	58.5	3.8	29.6	3.7	232.3
9.	Horticulture	-	-	12.3	0.9	13.6	1.3	16.2	1.7	20.0	3.6	12.2	1.6	83.4
10.	Fisheries Development	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Training	0.4	1.6	1.2	9.0	1.6	3.2	1.3	1.1	1.5	0.9	1.4	0.4	23.6
	Sub-Total	14.2	52.1	162.2	207.2	283.5	195.3	275.7	171.5	273.5	173.0	201.9	224.5	
	Total	66.3		369.4		478.8		447.2		446.5		426.4		2234.6

Project Allowances - USAID Inputs
(\$ 000)

Project Component	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Inventory and Monitoring	1.1	5.4	6.3	7.0	7.2	3.2	30.2
2. Watershed Management <u>1/</u>	1.3	5.3	7.5	10.1	12.5	5.5	42.2
3. Forest Management	3.1	14.5	15.8	18.6	19.2	9.4	80.6
4. Energy	-	-	-	-	-	-	-
5. Irrigation	-	3.4	3.7	2.8	1.0	0.3	11.2
6. Drinking Water	-	2.7	3.6	2.6	2.4	0.4	11.7
7. a) Community Livestock	1.5	6.1	16.2	17.6	38.1	58.0	137.5
b) Range-Pasture Management	-	2.8	2.8	2.8	2.8	2.0	13.2
8. Agronomy, Extension, Research	3.7	25.1	27.6	35.1	41.7	11.2	144.4
9. Horticulture	1.9	3.0	4.9	5.0	6.3	6.6	27.7
10. Fisheries Development	-	0.4	0.4	0.9	0.9	0.2	2.8
11. Training <u>2/</u>	9.2	45.4	49.7	64.0	78.1	63.0	309.4
Total	21.8	114.1	138.5	166.5	210.2	159.8	810.9

1/ Energy allowances are included in watershed management.

2/ Includes stipend for training as per ODA/USAID report.

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RCUP - Summary of Other Costs - USAID Inputs
(\$ 000)

Category	Fiscal Year												Total
	1980		1981		1982		1983		1984		1985		
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1. Inventory and Monitoring	40.7	25.2	178.3	100.2	83.8	4.1	83.8	4.1	73.2	5.4	60.4	3.2	662.4
2. Watershed Management	4.7	2.3	107.8	8.0	146.0	8.4	142.6	8.3	129.5	8.8	97.5	8.8	672.7
3. Forest Management	0.9	-	75.3	41.0	146.4	2.1	223.4	3.2	208.3	1.2	248.4	2.3	952.5
4. Energy	-	-	2.4	-	6.8	-	9.1	-	13.0	-	5.1	-	36.4
5. Irrigation	2.3	-	48.8	4.6	53.0	5.5	33.9	4.0	20.5	2.0	-	-	174.6
6. Drinking Water	0.2	0.1	5.8	1.3	38.2	3.2	37.6	3.7	37.6	3.7	37.6	3.7	172.7
7. a) Community Livestock	4.5	-	41.0	0.4	100.5	0.5	59.6	0.2	80.5	0.5	119.0	0.4	407.1
b) Range-Pasture Management	-	-	8.0	0.3	11.7	0.6	14.9	0.3	31.9	0.3	51.3	0.3	119.6
8. Agronomy, Extension Research	2.1	0.2	64.8	0.8	44.1	3.1	43.8	1.7	64.6	1.2	24.2	1.8	252.4
9. Horticulture	0.2	0.2	18.6	0.3	26.8	0.3	20.7	0.7	21.5	0.7	6.0	0.5	96.5
10. Fisheries Development	-	-	3.0	0.2	3.0	0.2	3.0	0.2	3.0	0.2	3.0	0.2	16.0
11. Training	4.1	1.6	38.5	28.1	46.1	5.9	55.2	31.0	60.2	6.0	50.0	33.0	359.7
Sub-Total	59.7	29.6	592.3	185.2	706.4	33.9	727.6	57.4	743.8	30.0	702.5	54.2	
Total	89.3		777.5		740.3		785.0		773.8		756.7		3922.6

RCUP - Summary of Other Cost by Catchments and Central Unit
(\$ 000)

Annex K.1 (Contd.) (Revised)

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CENTRAL UNIT 1/

Category	Fiscal Year												Total
	1980		1981		1982		1983		1984		1985		
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1. Inventory and Monitoring	40.7	25.2	178.3	100.2	83.8	4.1	83.8	4.1	73.2	5.4	60.4	3.2	662.4
2. Watershed Management	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Forest Management	-	-	5.0	1.0	5.0	1.0	5.0	1.0	-	-	-	-	18.0
4. Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Irrigation	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Drinking Water	0.2	0.1	2.7	1.1	5.2	1.1	5.2	1.1	5.2	1.1	5.2	1.1	29.3
7. a) Community Livestock	-	-	-	-	-	-	-	-	-	-	-	-	-
b) Range-Pasture Management	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Agronomy, Extension, Research	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Horticulture	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Fisheries Development	-	-	3.0	0.2	3.0	0.2	3.0	0.2	3.0	0.2	3.0	0.2	16.0
11. Training	4.0	1.4	38.3	27.8	45.9	5.6	55.0	30.7	60.0	5.7	49.8	32.7	356.9
Sub-Total	44.9	26.7	227.3	130.3	142.9	12.0	152.0	37.1	141.4	12.4	118.4	37.2	
Total	71.6		357.6		154.9		189.1		153.8		155.6		1082.6
Grand-Total	89.3		777.5		740.3		785.0		773.8		756.7		3922.6

1/ Includes MFTW and IRNR

RCUP - Summary of Other Cost by Catchments and Central Unit
(\$ 000)

GORKHA

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Watershed Management	3.2	0.9	42.3	1.4	56.0	1.8	54.5	1.7	51.0	1.2	48.1	1.2	263.3
3.	Forest Management	0.2	-	23.0	0.1	100.4	0.1	84.5	0.1	90.8	0.1	110.4	0.1	409.8
4.	Energy	-	-	0.5	-	1.0	-	1.4	-	1.3	-	2.2	-	6.4
5.	Irrigation	0.9	-	18.5	1.7	20.1	2.1	12.9	1.5	7.8	0.8	-	-	66.3
6.	Drinking Water	-	-	2.7	0.1	18.9	1.0	18.3	1.5	18.3	1.5	18.3	1.5	82.1
7.	a) Community Livestock	1.5	-	35.5	0.4	13.2	0.5	26.8	0.2	44.1	0.5	62.2	0.4	185.3
	b) Range-Pasture Management	-	-	8.0	0.3	4.0	0.3	6.3	0.3	12.8	0.3	19.9	0.3	52.5
8.	Agronomy, Extension, Research	0.3	0.1	25.8	0.5	18.1	2.9	17.8	1.4	13.8	1.1	3.7	1.6	87.1
9.	Horticulture	0.1	0.1	8.0	0.1	7.3	0.1	7.5	0.5	10.3	0.4	2.2	0.3	36.9
10.	Fisheries Development	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Training	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0
	Sub-Total	6.2	1.1	164.4	4.7	239.1	8.9	230.1	7.3	250.3	6.0	267.1	5.5	
	Total	7.3		169.1		248.0		237.4		256.3		272.6		1190.7

RCUP - Summary of Other Cost by Catchments and Central Unit

(\$ 000)

Annex K.1 (Contd.) (Revised)

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MUSTANG/MYAGDI

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Watershed Management	1.5	1.4	65.5	6.6	90.0	6.6	88.1	6.6	78.5	7.6	49.4	7.6	409.4
3.	Forest Management	0.7	-	47.3	39.9	41.0	1.0	134.9	1.1	117.5	1.1	138.0	2.2	524.7
4.	Energy	-	-	1.9	-	5.8	-	7.7	-	11.7	-	2.9	-	30.0
5.	Irrigation	1.4	-	30.3	2.9	32.9	3.4	21.0	2.5	12.7	1.2	-	-	108.3
6.	Drinking Water	-	-	0.4	0.1	14.1	1.1	14.1	1.1	14.1	1.1	14.1	1.1	61.3
7.	a) Community Livestock	4.0	-	5.5	-	87.3	-	32.8	-	36.4	-	56.8	-	222.8
	b) Range-Pasture Management	-	-	-	-	7.7	0.3	8.6	-	19.1	-	31.4	-	67.1
8.	Agronomy, Extension, Research	0.8	0.1	39.0	0.3	26.0	0.2	26.0	0.3	50.8	0.1	20.5	0.2	164.3
9.	Horticulture	0.1	0.1	10.6	0.2	19.5	0.2	13.2	0.2	11.2	0.3	3.8	0.2	59.6
10.	Fisheries Development	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Training	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	1.8
	Sub-Total	8.6	1.8	200.6	50.2	324.4	13.0	346.5	12.0	352.1	11.6	317.0	11.5	
	Total	10.4		250.8		337.4		358.5		363.7		328.5		1649.3

Professional and Staff Support - HMG/N Inputs^{1/} 25 of 28
(\$ 000)

	Category	Fiscal Year						Total
		1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1.	Inventory and Monitoring	2.7	15.2	17.6	19.5	20.0	8.5	83.5
2.	Watershed Management	5.8	33.7	46.4	57.7	64.2	17.3	225.1
3.	Forest Management	16.7	77.1	84.3	99.2	101.8	50.0	429.1
4.	Energy ^{2/}	-	-	-	-	-	-	-
5.	Irrigation	-	11.1	12.0	8.9	4.3	-	36.3
6.	Drinking Water	-	6.8	9.0	6.6	7.0	-	29.4
7.	Community Livestock Range & Pasture Management	4.2	43.3	65.7	91.1	111.8	12.6	328.7
8.	Agronomy, Extension and Research	6.9	50.4	71.5	95.2	118.1	20.7	362.8
9.	Horticulture	1.5	9.9	12.7	16.5	16.7	4.5	61.8
10.	Fisheries Development	-	3.2	3.3	7.4	8.3	-	22.2
11.	Training	3.3	10.0	39.5	62.5	78.5	60.7	254.5
	Total	41.1	260.7	362.0	464.6	530.7	174.3	1833.4

^{1/} Also includes participant training inputs (Air Fare and Salary)

^{2/} Included in the watershed management cost.

Credit - HMG/N Inputs
(\$ 000)

	Category	Fiscal Years - Local Cost						Total
		1980	1981	1982	1983	1984	1985	
1.	Agriculture	-	9.5	18.1	19.0	23.9	32.6	103.1
2.	Livestock	-	-	3.8	6.5	10.8	10.8	31.9
	Total	-	9.5	21.9	25.5	34.7	43.4	135.0

RCUP Summary of Costs - HMG Inputs
(\$ 000)

Commodities

Category	Fiscal Year												Total
	1980		1981		1982		1983		1984		1985		
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1. Inventory and Monitoring	3.4	-	6.2	0.8	6.2	0.8	6.3	1.0	6.3	1.0	6.0	0.9	38.9
2. Watershed Management	5.7	0.7	28.2	1.7	28.6	1.7	28.6	1.7	21.8	1.7	17.3	1.0	138.7
3. Forest Management	5.1	-	15.4	2.1	12.2	1.7	9.0	1.2	9.0	1.2	9.0	1.2	67.1
4. Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Irrigation	-	-	5.8	5.9	6.3	6.3	4.7	4.8	2.2	2.3	-	-	38.3
6. Drinking Water	-	-	4.0	1.2	4.0	1.2	4.0	1.2	4.0	1.2	4.0	1.2	26.0
7. a) Community Livestock	2.5	-	2.6	-	2.6	-	2.7	-	3.3	-	1.0	-	14.7
b) Range and Pasture Management	-	-	11.0	-	1.2	-	1.2	-	1.2	-	1.2	-	15.8
8. Agronomy, Extension and Research	2.1	-	7.8	-	10.5	-	10.0	-	7.0	-	6.0	-	43.4
9. Horticulture	1.3	-	13.8	-	11.4	-	6.4	-	8.4	-	4.6	-	45.9
10. Fisheries Development	0.1	-	0.5	-	0.5	-	0.5	-	0.5	-	0.4	-	2.5
11. Training	4.7	-	51.7	-	58.9	-	74.8	-	85.0	-	35.1	-	310.2
Sub-Total	24.9	0.7	147.0	11.7	142.4	11.7	148.2	9.9	148.7	7.4	84.6	4.3	
Total	25.6		158.7		154.1		158.1		156.1		88.9		741.5

Other Costs - HMG/N Inputs
(\$ 000)

Category	Fiscal Year												Total
	1980		1981		1982		1983		1984		1985		
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1. Inventory and Monitoring	4.4	-	17.6	-	17.6	-	17.6	-	17.6	-	13.2	-	88.0
2. Watershed Management	15.8	-	7.2	-	8.6	-	8.6	-	8.6	-	8.6	-	57.4
3. Forest Management	1.9	-	6.7	-	6.5	-	5.7	-	3.2	-	3.2	-	27.2
4. Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Irrigation	-	-	5.8	-	6.3	-	4.7	-	2.3	-	-	-	19.1
6. Drinking Water	-	-	1.8	-	1.8	-	1.8	-	1.8	-	1.8	-	9.0
7. a) Community Livestock	1.0	-	7.3	-	9.1	-	14.8	-	28.6	-	17.9	-	78.7
b) Range and Pasture Management	-	-	1.2	-	1.8	-	1.8	-	1.8	-	1.4	-	8.0
8. Agronomy, Extension and Research	6.2	-	7.0	-	6.7	-	12.2	-	6.1	-	6.0	-	44.2
9. Horticulture	3.4	-	4.2	-	6.7	-	9.2	-	9.0	-	10.3	-	42.8
10. Fisheries Development	0.1	-	0.1	-	0.3	-	0.3	-	0.3	-	0.3	-	1.4
11. Training	1.7	-	13.6	-	28.8	-	53.9	-	67.7	-	24.3	-	189.4
Sub-Total	34.5	-	72.5	-	93.6	-	130.6	-	147.0	-	87.0	-	
Total	34.5		72.5		93.6		130.6		147.0		87.0		565.2

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Glossary of Terms and Acronyms

AA	Agricultural Assistant (Ministry of Forests)
ADB	Asian Development Bank
ADO	Agricultural Development Officer
AMC	Agricultural Marketing Corporation
APROSC	Agricultural Projects Service Center, HMG
CACC	Catchment Area Conservation Committee
CCO	Catchment Conservation Officer
CDO	Chief District Officer
CFD	Community Forest Division (Ministry of Forests)
CIDA	Canadian International Development Agency
DCO	District Conservation Officer
DFO	Divisional Forest Office
DSWC	Department of Soil and Water Conservation, HMG
FAO	Food and Agriculture Organization (United Nations)
GON	Government of Nepal
HMG/N	His Majesty's Government of Nepal
IRDP	Integrated Rural Development Program
JT	Junior Technician
JTA	Junior Technical Assistant
MFTW	Ministry of Forestry Training Wing
NDS	National Development Service
ODA	Overseas Development Agency (British)
ODM	Ministry of Overseas Development (British)
PCC	Panchayat Conservation Committee
PCV	Peace Corp Volunteer
PF	Panchayat Forest
PID	Project Identification Document
PP	Project Paper
RAD	Rural Area Development
RCUP	Resource Conservation and Utilization Project
SADP	Small Area Development Program
SECID	South-East Consortium for International Development
SLC	School Leaving Certificate
TOEFL	Test of English as a Foreign Language
UNDP/FAO	United Nations Development Program/Food and Agriculture Organization
U.S.	United States
USAID	United States Agency for International Development
USAID/N	USAID/Nepal Mission
AID/W	AID/Washington Office

I. SUMMARY AND RECOMMENDATION

- A. GRANTEE: His Majesty's Government, Nepal
(HM?/N), Ministry of Finance.
- B. IMPLEMENTING AGENCY: Ministry of Forests, Department of
Soil and Water Conservation.
- C. PROPOSED AMOUNT OF GRANT:
- | | |
|-------|--------------|
| AID | \$27,498,200 |
| HMG/N | 5,060,500 |
| Total | \$32,558,700 |
- D. PURPOSE OF GRANT: To assist HM?/N in the protection
and restoration of the soil, water
and plant resource base upon which
the rural population is totally
dependent. Technical assistance,
commodities, training and construction
components will be provided to
accomplish this purpose.
- E. DESCRIPTION OF THE PROJECT: The Resource Conservation and Utiliza-
tion Project (RCUP) is a multifaceted
and integrated project that will
attempt to halt the rapid degradation
of Nepal's environment. Reforestation,
better range management, development of
alternative sources of energy other than
open wood fires, improvement of agri-
cultural methods and watershed manage-
ment are resource conservation
procedures that will be implemented in
an attempt to control this degradation.
In order to obtain the necessary
personnel to carry out the project,
a multi-tiered training program will
be developed.

These major activities will receive
project support through an inventory
and monitoring system which will record
environmental conditions and changes.
In addition, a social support system
will provide villagers with easy access
to credit so as to facilitate their
participation in the planned activities.

Two catchment areas have been
selected for the initial phase
of the RCU project. They include
Gorkha and Mustang/Myagdi. Two
additional catchment areas will
be considered by AID after an
evaluation is conducted at the end
of the third year of this project.

The actual effects of the RCU project on erosion reduction will not occur immediately. It takes years to develop a forest where none exists. The professional staff required to carry out the varied activities of the project must be selected and trained in programs that are now being designed. The re-orientation of the village inhabitants to ecologically sound land use practices will require considerable time since an extension service program must first be developed and staffed with appropriately trained personnel, who in turn have a positive impact on the villagers.

Therefore, while the first phase of RCUP is a five year project covering two catchment areas, ideally it will be extended after the first five year phase to include two additional catchment areas for a total fifteen year period. This is considered an appropriate time period for a long and complicated environmental project. Nevertheless, during the initial five-years it is expected that RCUP will make inroads in meeting the broad sector goals, which are to relieve food deficit areas of the country by upgrading resources so as to increase food production, and raising the nutritional standards of the population. The secondary goal that will be positively effected by the project is the generation of employment and a decrease in migration from the hills to the plains area or terai.

F. SUMMARY OF FINDINGS:

All of the literature on the Himalayan ecosystem illustrates the staggering range of environmental problems that effect not only Nepal but areas in India (Bihar, Uttar Pradesh, West Bengal) and Bangladesh. The floods and the droughts that are yearly occurrences in the Gangetic plain are partially attributed to the ecological degradation in the catchment areas in the Himalayas. Nepal is presently witnessing the effects of this degradation most seriously in the hills. This is resulting in migration of the hill population to the plains area of the terai. This is only a stop gap solution and promises to pose new ecological and economic problems in the terai. Finally, it is clear that this

adverse situation among these various subsystems, will continue at an unprecedented rate unless corrective action is taken.

The project paper suggests an integration of major components that will exert an influence on the entire system of socio-economic and ecological interdependence that exists in the hills. It is suggested that the project proceed simultaneously in two directions. One is to promptly implement the planned resource and social actions to begin the reversal of the environmental degradation process. The second is strengthening the in-country educational and technical training capabilities so that resource management is developed as rapidly as possible. The implementation plan identifies and provides dates for the specific actions to be taken. Technical analysis indicates the project is feasible. The economic analysis shows a 21.5 percent internal rate of return to the economy.

G. RECOMMENDATION:

The Asia Bureau recommends that a grant for \$27,498,200 be authorized to implement the Resource Conservation and Utilization Project.

H. PROJECT ISSUES:

1. The major issue that will affect the implementation of RCUP is the availability of adequately trained HMG/N personnel in sufficient numbers to carry out the designated field activities. In order to resolve this issue, a major component of the project is directed to the training and upgrading of Nepalese professionals in the required technical and supervisory skills. An expatriate staff will provide educational inputs to in-country institutions. At the same time advanced training in the U.S. will be offered to qualified Nepalese candidates.

2. A secondary issue involves the provision of an adequate infrastructure to accommodate the proposed decentralized field staff. RCUP recognizes that in order to have a positive

environmental impact, trained personnel must be village oriented. This requires field bases. To address the issue the project provides for the construction of field facilities so that the staff can directly serve the people. HMG/N is to provide land for construction. The locations for, and strategy of constructing these facilities will be attended to as a first priority implementation activity.

3. At the village level, RCUP recognizes that an important issue for the implementation of the project is a continued interaction with female farmers. All too frequently women have been passed by in the implementation of projects. Since Nepalese village women are a key element in the entire resource conservation equation, RCUP will train village women as well as men to be field assistants and organize many of the project activities with female farmers in mind.

4. At the Ministry level, the financial flow of funds through HMG/N's administration must be expedited in order for the project to run efficiently. The proposed "memorandum of understanding" procedure, illustrated in the Organization Appendix, is seen as the triggering mechanism to be used by the Department of Soil and Water Conservation (DSWC) in recommending the release of funds to cooperating agencies through the Ministry of Finance (MOF).

I. PROJECT DESIGN TEAM:

J. Paul Guedet, Design Officer
Mervin E. Stevens, Project Officer
Laurie D. Mailloux, Design Officer
J. Gabriel Campbell, Anthropologist
Don Pressley, Regional Legal Advisor
Kumar Upadhyay, Project Manager, HMG/N
Agricultural Projects Services Centre,
HMG/N
South-East Consortium for International
Development

II. PROJECT BACKGROUND AND DETAILED DESCRIPTION

A. BACKGROUND AND RATIONALE:

Nepal, covering a total area of 141,000 square kilometers of land, is populated by approximately 14 million people. The economy is based in agriculture which accounts for over 90 percent of the male/female labor force, 67 percent of GDP and 80 percent of export earnings. While the population is increasing at a rate of 2.6 percent per year, it is estimated that agricultural production is decreasing at the same rate. Per capita income is approximately US \$110 which places Nepal among the poorest of the Relatively Least Developed Countries (RLDC).

60 percent of Nepal's population lives in the hills and mountains. The majority of these people (80 percent) cultivate an average of 0.4 hectares of land. Since 0.6 hectares of land is considered in Nepal to be the minimum from which an average family can subsist, most of the hill population is forced to supplement their income with livestock rearing, migration, trading, and some cottage industry. These people are precariously dependent on their natural environment and any negative change in that environment is critical to their survival.

The Himalayan ecosystem is effected by a number of variables. The steepness of the terrain, the tectonic instability of the area, the monsoon, as well as the relatively young age of the mountains all contribute to the erodability of the slopes and results in a natural weathering process. When the human factor is interjected into this natural process, the ecological balance is seriously affected. As the human population has expanded in the hills, forests have been depleted or degraded. The water retaining capacity of natural vegetation has been reduced and run-off has increased in both quantity and speed. A negative spiral has resulted in which deforestation and the use of inappropriate agricultural techniques on unsuitable land have led to different forms of soil erosion and ultimately to the loss of cultivable land.

The solution to the Himalayan equation is increased in complexity when human behavior is afforded the consideration it deserves. In order to simply survive, the hill inhabitants need food, clothing, shelter and fuel for cooking and heating. Livestock, which forms an integral part of the farming system and an important source of supplementary income, in turn makes demands on the forests for fodder. Population density in many areas has surpassed the carrying capacity of the environment, due to a complexity of economic and cultural reasons.

The result is an ecosystem in which the biophysical components are seriously exploited, and the human component daily confronts issues of survival. Yet the interrelationship between the two elements of this double

helix is critical. Humans are dependent upon, and in many cases negatively affect their own environment. Forests are over-cut, lopped, burned and over-grazed. They are converted to brushland, unproductive pasture land, and worse, barren land. Brush land is exploited for fodder to feed livestock and further stripped for fuel wood. Pasture land has become a mere loitering place for animals in many areas. Where grass exists it is excessively grazed and heavily trampled. Agricultural land is utilized to the last square foot although often inefficiently and in ways harmful to the environment.

From Nepal's 141,000 square kilometers of land, about 240 million cubic meters of eroded soil is transported each year by the country's four major rivers and over 6,000 tributaries. Based on the alarming rate of deforestation and use of marginal lands for agricultural production, it is estimated that the range of soil loss is between 20-50 tons/hectares/year and ranges over 200 tons in many critical areas.

It is recognized that the natural weathering process in the hills and the transportation of a certain amount of fertile sediments to the plains constitutes a natural erosion which cannot be curbed even by complete restoration of the Himalayan forests. However, the human interaction with the environment, which accentuates the natural processes to the negative extent illustrated above, can in fact be altered.

Given the severity of the situation, USAID/N recognizes the need for a strong resource conservation strategy. This is clearly articulated in USAID/N's Country Development Strategy Statement which focuses on the urgency of dealing with related problems of environmental degradation and emphasizes the need to increase the implementation capabilities at the national and local levels.

While the literature on the Himalayan ecosystem is copious, a 1977 AID consultant's report (D.B.Thorud, et. al.) discussed the present status of land use practices and offered a succinct and powerful portrayal of existing conditions in the hill region. This served as the basis for the formulation of the project paper for the design stage of the RCUP program. The South-East Consortium for International Development (SECID), a Title XII institution, was selected to assist HMG/N in designing the RCU project. The design rationale was based on the belief that HMG/N must lead the way, while recognizing the limitations on their own local implementing institutions. The contribution of HMG/N officials and specialists in designing the activities and programs which they will be called upon to implement, was conceived as being of critical importance. The design process developed strategies for the continued participation of the rural population in the project. In addition, a very thorough examination was made of immediate and future training needs by a joint USAID, Overseas Development Agency (ODA) and FAO Forestry Training Mission. Their results are incorporated in the project.

B. DETAILED DESCRIPTION:

The overall strategy of the RCUP is integrative and multi-objective. This is based on the fact that any given ecosystem is composed of a number of variables which interact and have feed-back on one another. In order for that feed-back to be positive and result in environmental rehabilitation, several strategies must be followed and several objectives met simultaneously.

The design team analyzed a number of interrelated approaches from which an overall strategy was derived. This strategy, which will be detailed in the Technical Analysis, includes: 1) Institutional Development, 2) Energy Alternatives, 3) Forest Management, 4) Range Management, 5) Agricultural Improvements and 6) Watershed Management. These are to be supported by: A) an Inventory and Monitoring System and B) a Social Support System. Four catchment areas were selected for the project. They are Gorkha, Kulekhani, Mustang/Myagdi and Jumla. Mustang and Myagdi are analytically separated since they are in different districts, although part of a single catchment.

All project areas, described below were selected as representative of resource problem areas in the country based on varying altitudes, population density, and extent of land degradation. Additional criteria included the degree to which these areas are accessible, and the willingness of the population to participate in RCUP.

Kulekhani Area

The Kulekhani area lies immediately southwest of the Kathmandu Valley within the outer Himalayan mountains. It encompasses approximately 211 square kilometers, all of which is in the drainage basin of the Kulekhani Khola (River).

Highway access is provided via the paved Tribhuvan Rajpath which makes a north-south transect through the region in the west. A graded dirt road connects the highway to the Kulekhani Dam Project. Other access is provided primarily by trails.

Most villages are situated within the stream valleys, although several have hillside or hilltop locations. Settlement and cultivated cropland are concentrated in valleys and on peripheral hillslopes, whereas the higher altitudes are less densely settled and utilized.

The mountain slopes are subject to natural landslides. This tendency to mass wasting is intensified where human disturbances of the vegetation and soils have occurred. Runoff and erosion from these slopes has created torrents downstream which have deposited coarse materials in wide flood-plains on the Sankha Mul Khola, all told destroying as much as 50 hectares of cultivated land.

In the lowland interior, these problems are less extreme, but small scale slumps and cave-ins are noted on poorly constructed crop terrace risers and along the banks of the entrenched Kulekhani Khola.

The forests, mostly on the upper slopes, range from degraded where cutting, lopping and burning are practiced, to high quality near the ridge lines. Erosion is increasing at the expense of the forests.

With virtually all arable land in cultivation, the projected population growth rate of over 2.6 percent per year will create needs for cultivating lands in marginal areas, expanded range requirements, and resulting in the further retreat of the forests. Unless these processes are checked, denudation rates will accelerate to dangerous and destructive levels, making the 50-year lifespan for the Kulekhani Dam optimistic.

Gorkha Area

The Gorkha area lies in north-central Nepal between the Trisuli River and the Tibet border. It is an elongated region drained by the major south-flowing Buri Gandaki River, and the Daraundi and Chepe Kholas, all of which are left-bank tributaries of the Trisuli River. The landscape grades from high glaciated mountains in the north to generally lower altitude but high relief terrain southward.

Road access is under construction from Prithvi Raj Marga in the south up the Daraundi Khola Valley to Gorkha. All other surface access in the area is by trails. Villages lie scattered both in the valleys and on the mountains, but the population densities increase generally southward to over 200/per square kilometer, except in the far southwest where densities are somewhat lower.

Above the timberline, alpine meadows are used for summer pastures, and it is believed that people-induced denudation rates here are minimal. The mountains and valleys south of Barpak are densely settled, and land-use intensities are high. Little native vegetation has survived cutting, lopping, burning, and overgrazing. Poorly-constructed and maintained dry terraces are widespread, and the pre-monsoon drought precludes the growth of terrace crops, allowing the variable pre-monsoon rains to erode considerable sediment. These early monsoon rains probably affect the greatest erosion, since crops are not of sufficient density to break the impact of raindrops, and the soil is largely exposed. Numerous large slides, some possibly natural, but most people-induced, occur on steep slopes where terraces have been built. Likewise, extensive gullying is located both on terraced and grazed lands. Generally, the southern portion of the Gorkha region is in an advanced stage of environmental degradation. The vegetation is highly disturbed, soils are eroded, surface runoff has eroded deep gullies, and main streams are choked with sediment. Monsoonal flooding is on the increase, whereas in the pre-monsoon period, springs are presently drying-up earlier than they have in the past.

Mustang Area

Mustang is located in north-central Nepal in the headwaters of the Kali Gandaki River. Two physiographic regions are represented: the Tibetan Plateau and the Inner Himalaya to the south. Most of the region lies above 3000 meters, with the highest peaks in excess of 7500 meters. The landscape is dominated by the broad glacial trough of the Kali Gandaki River with the snow-clad Annapurna and Dhaulagiri ranges walling the trough.

The combination of remoteness, high altitudes, rugged terrain, and harsh climate have limited settlement and land use intensity. Most villages are found along the Kali Gandaki River valley or major tributary valleys. There is minimal cultivated land beyond a one-hour walk of the villages, and the most extensive land use is livestock grazing.

The only ground access is provided by trails, the most important of which is the old trading route along the Kali Gandaki River between Pokhara and Tibet. Some access is provided by plane and helicopter flights to and from Jomosom.

Population densities are low throughout the region. Intensive agriculture, mostly in the form of irrigated terraces, is limited to the proximity of settlements. Elsewhere, grazing activities dominate. The limited amount of cropland is due primarily to the need to irrigate and the lack of water development in this region. Additional fertile soils, mostly on river terraces, are available, but to date remain uncultivated, awaiting the development of water resources.

The steppe grasslands north of Jomosom and the alpine meadows at higher altitudes provide abundant potential grazing lands. South of Jomosom, there are good stands of forests growing on oversteep and inaccessible slopes. However, north of Jomosom, forests available for community use are scarce to non-existent.

The Mustang region shows land use pressures associated with overgrazing and deforestation. Locally intense natural denudation is found in landslide areas, on steep slopes, and in the vicinity of torrents.

Myagdi Area

The Myagdi area lies due south of the Mustang area within the drainage of the lower Kali Gandaki River valley, between Tatopani and Beni, and its main right bank tributary, the Rahughar Khola. The terrain is a highly dissected portion of the Inner Himalaya, with altitudes extending from 835 meters at Beni to over 6000 meters along the peripheral divides. Everywhere relief is great, and most slopes are in excess of 35°.

Warmer and moister climates give rise to dense native forest vegetation, but increased population densities have also brought extensive clearing and degradation of the native vegetation. Villages cluster both along major rivers and tributaries and on mountain slopes. Accompanying these settlements are irrigated and dry terraces, outlying denuded range lands and retreating forests. Most remaining native forests lie near divides and in limited areas of protected National Forests.

The principal access to this area is by foot trails, some of which traverse precipitous slopes which greatly impede both human and livestock movements.

Throughout most of the Myagdi area but especially in the south, population densities are high and land use intensities are great. Irrigated terraces occur where the generally limited water supplies are adequate. These are relatively well maintained and present no major denudation problem. However, dry upland terraces, often found on steep slopes, are vulnerable to pre-monsoon and early monsoon erosion and mass wasting before crops are sufficiently established to protect the soil from rainsplash and sheetwash.

Denuded forest lands used for grazing are widespread, and almost uniformly contribute to high rates of erosion. Barren soils, gullies and ravines, landslide scars, and eroding stock trails all are found in abundance on heavily grazed lands.

The remaining forests present no immediate denudation problems, largely due to inaccessibility. As wood and tree-fodder resources are depleted, it can be expected that the cycle of forest retreat and the initiation of denudation will begin.

Jumla Area

Jumla lies in the western part of Nepal. It is mountainous and thinly populated. For reasons discussed below the project implementation in Jumla will proceed more slowly than in the other areas.

CIDA has been assisting HMG/N in designing a Rural Area Development Plan for the Karnali-Bheri River Catchment. This Project has identified the need for soil and water conservation activities, but has not catalogued discrete projects. It has been mutually agreed that USAID/N will assist the Department of Soil and Water Conservation in coordinating the building of offices to house personnel within the Jumla area, who will be developing a program of soil and water conservation. USAID is assisting the DSWC to identify and correct existing environmental degradation conditions and establish environmental correction procedures. All activities will be carried out in Jumla by HMG/N using the other RCUP areas and projects as their model.

Following the suggestion of CIDA, the RCUP in Jumla will first assist in establishing the infrastructure that can address the area's problems. The second step will be for the RCUP staff to work with the new Jumla organization assisting them to develop a soil and water conservation program for the area. The third phase will be to implement the identified field projects.

The initial establishment of offices is targeted for late 1980, early 1981. Program development may take 2 years with field implementation of projects started in years 4-5. During the first phase some initial field projects may be started, but large scale activity will not get under way until a soil and water conservation plan has been developed and approved at both the local and national levels.

C. DEVELOPMENT ACTIVITIES OF OTHER DONORS

The establishment of a new campus of Tribhuvan University at Pokhara, the improvement of the Institute of Forestry and the establishment of the Ministry of Forest Training Wing will be undertaken in collaboration with the World Bank (IBRD) through the Community Forestry Project (approximately \$15,000,000). FAO/UNDP will construct the National Conservation Center which will house the Department of Soil and Water Conservation (\$376,000). The British ODA Silviculture Trails Project will provide information from provenance studies of high potential indigenous tree species. The Australian Aid Forestry Project is assisting HMG/N in developing a forest seed storage and distribution center to be located in Kathmandu. Finally, FAO is considering providing extension and publicity support to the Department of Soil and Water Conservation.

III. PROJECT ANALYSES

A. TECHNICAL ANALYSIS

1. INTRODUCTION

RCUP recognizes that in any given ecosystem the components have a system of relationships among themselves. The change in any one of these components will have an impact and feed-back on the others. However in order to have a positive feed-back for resource improvement, all components must be addressed. This includes the human component, since the ecosystem RCUP is addressing has both biophysical and socio-cultural elements. Therefore, the technical analysis is composed of the following sections. 1) Institutional Development 2) Energy Alternatives 3) Forest Management 4) Range Management 5) Agricultural Improvements and 6) Watershed Management. These major components are supported by A) an Inventory and Monitoring System and B) a Social Support System. A detailed description of each of these components is located in volume II, appendices D through R.

2. INSTITUTIONAL DEVELOPMENT

The main objective of this set of activities is to increase the capacity of the Nepalese people to provide the technical and administrative skills required to carry out resource conservation management, while continuing to serve the needs of the target population. Staff requirements, both in Kathmandu and at the project sites, will be expanded to meet program goals and to ensure that villagers are fully involved in the design, implementation, and evaluation of proposed program approaches. This will occur through training of program personnel either in Nepal or out-of-country, depending on the specialized needs of the project and access to, and availability of, training facilities.

Participant training outside Nepal will be done primarily in the U.S. and will lead to academic degrees. In addition, short-term study tours will be provided in order to introduce trainees to subjects not warranting degrees. The participant in-country training program will include the diploma/certificate training. Both types of training will involve on-the-job training components.

In-Country Training

In-country-training requirements will be fulfilled by A) Tribhuvan University, and B) the Ministry of Forestry Training Wing. Those formal training centers presently located under Tribhuvan University, which will be utilized by RCUP, include the new Pokhara campus and the Institute of Forestry at Hetauda. It is expected that these two campuses will eventually be placed under the proposed Institute of Renewable Natural Resources.

Tribhuvan University

Courses leading to degrees for both the certificate and diploma will be offered at the new campus at Pokhara. The construction of this campus will be undertaken by the World Bank under its "Community Forestry Development and Training Project". In addition, the World Bank under the same project, is improving the existing facilities at Hetauda. It is projected that these improved facilities will accommodate 220 students or an annual new enrollment of 110 and will be limited to the certificate course. The certificate program at the new campus at Pokhara is planned to accommodate 220. It is expected that the diploma courses will start in the 1981 school year.

RCUP will supply technical assistance to Tribhuvan University for use at the two campuses. This will include supplying expatriates for teaching purposes (5 long term, plus short term professionals). RCUP will support the participant training for 1,524 certificate graduates at both Pokhara and Hetauda and 339 diploma graduates at Pokhara. The project will provide \$438,100 for supplies and equipment and \$309,400 for in-country

scholarships to support the education of villagers at both campuses. RCUP will also construct green houses for research and classroom use and field research sites.

It is the intent of the project, through its technical assistance to Tribhuvan University, to make the present courses more practically oriented. This will entail one semester being allowed for field experience with students being assigned to District Forests and Conservation Offices in selected RCUP areas. General courses of an interdisciplinary approach, including social sciences, are planned for all students. These will be complemented by specialized studies in particular disciplines i.e. forestry, soil and water conservation. Finally, this program will also provide an opportunity to the Population Commission to give presentations on the determinants and consequences of population growth, with special reference to family planning.

The curriculum designed for the diploma course will span three years and accommodate 120 students (40 annually). Entry into the diploma course is generally restricted to certificate holders who have at least one year of field experience after graduation. A fourth year, leading to a Bachelors of Science, is proposed. Only promising students will be enrolled and upon completion of the degree they will be able to compete for post graduate studies in the U.S.

It is the intention of the project to select a minimum of 10 percent females out of the total number of students chosen, for the certificate stage of training. This will enable them to be in a position to compete for the more advanced training. RCUP recognizes the major role women play in agriculture in Nepal. Specifically it is women who control seed production, storage and composting. It is also women who plant and manure the fields. By ensuring that they will have an equal opportunity to pursue advanced training, the project will not lower their relative status by transferring new skills entirely to men. On the contrary, it will enable women to be active participants in the entire development process, and thereby reap many of its benefits.

Over the next five years, scholarships will be awarded to outstanding members of the teaching staff at Hetauda for advanced study in the U.S. Five serving officers have already been sent overseas under the design stage of the project to acquire advance skills in teaching methods. Six new staff will be recruited by the University and sent overseas immediately for training. These scholarships will be funded by RCUP. Five of the recruits will be holders of diploma/B.Sc. in agriculture or the natural sciences since forestry, soil and water conservation graduates are presently unavailable.

It is envisioned that many Nepalese, other than those already identified, will require training to fill new or vacated posts. This situation is foreseen in teaching and at the Ministerial level. RCUP estimates that the project will fund two trainees per year to pursue two year master's degree programs at an American University.

To fulfill in-country training requirements the following expatriate experts will be required for periods ranging from two to three years.

Assistant to Dean/Curriculum Development

Soil Engineer/Hydraulics

Soil and Water Conservation Specialist

Silviculturist/Forest Management

Economist (Soil Conservation and Forestry).

The Assistant Dean will be trained in university administration for forestry, soil and water conservation programs and will also assume responsibility for curriculum development. Such inputs are scheduled to start in June 1980.

The Ministry of Forest Training Wing (MFTW)

The University's role in the training component of RCUP is clearly defined as pre-service training. Recognizing the need for professionals to continuously up-date their concepts and techniques and the need for intellectual growth through exchange of ideas and experiences, an in-service training program will be established as part of the Training Wing of the Ministry of Forests. The World Bank will finance the construction of a building. USAID will supply two expatriates for professorial purposes for two years each. In addition \$162,150 will be supplied over the five year period for equipment and vehicles.

It is the purpose of the Training Wing to train the trainers who will have the responsibility, in turn, for conducting training sessions at the community/panchayat level. The Training Wing will monitor the training in the whole country, as well as provide necessary guidelines. The initial effort of the MFTW will be to assist the Community Forest Program to develop appropriate training guides and materials, which can also be used in the formation of national policy.

The Ministry's facilities in Kathmandu will produce suitable teaching materials and serve as a location for policy orientation while experience will be gained at field locations. The content and designs will be culturally consistent and educationally appropriate so as to be of value to the rural population. The MFTW will enroll a minimum of 10 percent female in the training program. This is considered of particular importance, since these individuals will be training trainers. It is critical at this stage to educate trainers on the importance of relating programs to rural women. This is in light of the fundamental role women play in all aspects of resource use.

The training management will be under the direction of a coordinator and two assistants. The latter two will be trained in soil and water conservation and forestry. RCUP will support a three month study tour in the U.S. for the assistants, and provide a scholarship to attend a masters program in training methods.

Extension Support

RCUP recognizes the importance of the extension program for the successful implementation of the project. Although extension activities are considered an integral part of all project components, and not an independent activity, for analytical purposes they will be addressed under Institutional Development.

The extension activity will be oriented toward villagers and the staffing requirements will be met by hiring individuals from that same socio-economic background and if possible the same sex, that is female extension agents to work with female farmers. Selecting individuals from the project areas for training is intended to provide a component which is seen as essential for the successful implementation of the project. The technical inputs in various forms will be shared with the villagers from the planning stage through implementation and follow-up.

Agriculture, range management, forestry and soil and water conservation extension workers will be selected from individuals living in the hill regions who possess School Leaving Certification (10th grade equivalent), with females being actively recruited. They will be trained for the certificate level as described above and placed in the project areas as extension workers. In addition these extension activities will attempt to establish linkages with other female employment projects sponsored by HME/N and family planning outreach activities.

Since there will be a gap between the initiation of the project and the training of the extension workers, during the early stages RCUP will utilize Peace Corps Volunteers (PCV) and National Development Service students (NDS). The latter are university graduates who are required to do one year of field work activity. Seeking the participation of PCV's and NDS students is an important aspect of the RCUP. Appointments can be made from these professional and technical labor pools to fill panchayat, district or national needs and for extension vacancies on a short-term basis while permanent employees are being trained.

3. ENERGY ALTERNATIVES:

A fundamental concern of Nepal today, and therefore a priority of RCUP, is the critical energy situation. In Nepal, traditional sources of energy - firewood, animal dung and agricultural wastes - account for 94 percent of total energy consumption. This trend, however, is changing and by 1990

traditional energy should decline to about 90 percent of Nepal's total energy requirements, and commercial energy will account for 10 percent.

Traditional fuels, although domestically produced and not a foreign exchange drain, have low calorific value, low end-use efficiency and contribute to depleting forest areas, which result in soil erosion, landslides and river siltation. In 1978-79, firewood represents approximately 92 percent of the total traditional energy, amounting to about 7.3 million tons of wood, equaling an estimated calorific equivalent of 2.5 million tons of petroleum.

Improved stoves and drying wood before burning would greatly increase firewood efficiency. Until improved stoves are used widely, firewood consumption will probably increase at the same rate as population growth, 2.6 percent per year. These stoves, however, are not an absolute solution but will allow HMG/N time to develop renewable energy (hydro power) throughout the country. According to an IBFD report, firewood usage contributed to the destruction of 25 percent of Nepal's forests during the period of 1968-78.

Available commercial energy consist of coal, petroleum fuels and hydro electricity. Nepal's demand for coal increases at approximately 5 percent per year but coal consumption has remained fairly constant at about 65,000 metric tons from 1974 to 1980. This reflects the supply constraint of imported coal from India. Petroleum fuels represent about 65 percent of commercial energy consumption in 1977-78 and hydro electricity accounted for 10 percent in this period. Per capita consumption of energy (traditional and commercial) is low in Nepal, equaling about 197 kg of oil equivalent in 1978-79.

Potential demand for energy cannot be met in the short term (1-10 years) from Nepal's existing or projected renewable energy resources. Lead time for feasibility studies, final design and construction of medium size hydro power projects requires eight to ten years. Therefore, Nepal will continue to rely on firewood as a major source of fuel for the traditional sector and will probably remain a net importer of electric power from India, as well as petroleum fuels, well into the 1990's. Although petroleum fuels are generally available, rapidly increasing prices (\$27/barrel OPEC price and spot market price of \$43/barrel) may determine that future importation of these fuels is financially prohibitive at Nepal's present volume of consumption.

RCUP will test several alternative sources of energy at the various project sites. It is recognized that when a new energy source is introduced into a village, local participation, especially in terms of female acceptance, is critical to ensure its success. It is well known that women are the collectors and transporters of firewood used as basic cooking fuel. Furthermore, many of them are also involved in dung collection. RCUP recognizes that women are not only victims of changes in firewood supplies but they actively seek everyday solutions in locating and conserving fuel and are the local experts regarding burning qualities of various local woods and

firewood alternatives. Therefore, the expatriate conservationist and anthropologist will work closely with their rural counterparts to enlist village womens' cooperation in the operation and maintenance techniques of new energy sources as well as evaluating their success or failure.

RCUP will initially direct its attention to improving the efficiency of fuel use. This includes developing charcoal processing, and employing extension agents to encourage the use of thoroughly dried wood and improved stove design. The chula, a traditional Nepalese stove, will be improved upon and encouraged for home use. In doing this, RCUP recognizes local cultural sensitivity, variations, and roof drying functions (during monsoon) associated with the "smoky" chula. Therefore in order to ensure the acceptance of energy saving changes in the stoves, RCUP will develop a system for stove design and implementation based on villagers', specifically the females', requirements both in terms of cooking, drying functions, and cultural significance.

Presently USAID/N is funding an OPG grant for research and construction of bio-gas plants in Nepal. While most of these plants will be located in lower altitudes, some research and construction of these plants is being carried on in the hills. If results are favorable, with low cost plants being adaptive to higher altitudes, RCUP will support efforts for construction of plants in the project areas.

Water is Nepal's only renewable source of energy known to have a potential supply far in excess of future demands. Based on stream flow data gathered under the watershed management component, RCUP will examine the potential for micro-hydro installations in villages to support the following activities: improving potable water supply, electrification, irrigation, flour milling and oil expelling, nitrogen fertilizer production, and powering ropeway transport systems. By gathering radiation data, RCUP will also investigate the use of solar energy technology in water heating, space heating and crop drying.

RCUP will initiate research and pilot projects in the use of windmills for lifting water, and in irrigation schemes and electrical generation. It is expected that results will be favorable in northern regions of the project area where it is known that wind directions are stable and velocity suitable for wind power projects.

A multipurpose impoundment will be constructed at Gorkha that will store and deliver water for fisheries, micro-hydro generation, irrigation and community water supply. The impoundment will be an earth filled structure, so as to ensure stability, and will cover 20 to 30 surface hectares.

4. FOREST MANAGEMENT

Directly associated with energy alternatives is the forestry component of RCUP. The wide range of topographical and climatic conditions

in Nepal result in almost every known forest type being represented, with the exception of equatorial rain forests. The present forest area is estimated at 4.5 million hectares with 2.8 million hectares in the hills and 1.7 million hectares in the terai. It has been further estimated that in the last decade, 1 million hectares of mountain forest have been virtually destroyed. Within the RCUP areas, 77 percent of the panchayats are classified as wood deficit. This stems from variables directly relating to human and animal population pressures.

Fuelwood accounts for over 95 percent of all wood consumption in rural areas. It has been estimated that average requirements are 1 m³ per person per year. This implies a demand for approximately 14 million m³ per year.

The second major demand that is met by forests is the supply of fodder. Livestock are an integral part of the subsistence economy in much of Nepal but particularly in the hills. Virtually all farm households have some animals; buffalo, cattle, sheep, goats, pigs and/or poultry. They provide the farmers with milk, meat, manure, draft power, wool and even transport. While the constraints on animal husbandry will be enumerated under Range Management, for the purposes of this section, the most serious constraint is feed.

Presently there is a wide shortage of roughage throughout Nepal. This has resulted from an increasing number of animals and completely inadequate fodder production. Estimates derived from the present low level of feed intake, (also considering low performance of stock) indicate total feed consumption is now at about 9.5 million tons of Total Digestible Nutrients (TDN) per year. 85 percent of this is consumed by cattle and buffaloes. The feed produced by the crop sector is almost half the total, 4.2 million tons of TDN. However, only one fourth of this is used by the hills and mountain region. The apparent productivity of grass land and forest, calculated as a balance, is over 1 ton TDN/hectares for the hills corresponding to a production of 4.8 million tons of TDN. This illustrates well the pressures being placed on the resources in the hills and explains some of the degradation of grazing lands and forests.

The amount of firewood used for cooking and general household purposes, coupled with the demand on vegetation that individuals consume by way of livestock, illustrates the enormous strains a population increasing at 2.6 percent per year will put on grass and trees if there is also an increase in livestock. The further destruction of the forests will thus affect not only the supply of wood but also protein and calories via manure. Already the destruction has gone so far that important food resources of the past - wild game, wild fruits, and edible vegetation - have been liquidated from large parts of the project area. Forest destruction will also lessen the supply of another precious resource, water.

To combat the situation, the National Forestry Plan of 1976 mandated the creation and development of new forests as well as the scientific management of existing forests. This legislation has provided the legal framework for the development of new forests from the present National Forests, with the cooperation and full participation of local communities. The new forests include:

Panchayat Protected Forests - These will be established through cooperative agreements with local panchayats in which the panchayats manage and protect the forests with government guidance. The products will be available to the community on a purchase basis and a percentage of the profits will be returned to the government.

Panchayat Forests - These will be community owned and managed under agreements with the government.

Leased Forests - These will be government owned but available for private use through long-term leasing.

Private Forests - This category will be for private enterprise and land owners who wish to convert their land to forests. They will purchase, plant, harvest and sell their own trees.

It is anticipated that these forests, in combination with the National Forests, will contribute to a number of optional uses and to a harmonized mix of forest related activities for communities at both the national and local levels.

In order to achieve community and national cooperation in attaining the forestry goals, RCUP will undertake three concurrent activities. First, the project will gain farmer support by emphasizing community plantings, community water supply protection and private and leasehold projects. Secondly, Panchayat and Panchayat Protected Forests will be developed as the mainstay of community wood and fodder production. Thirdly, attention will be directed to the development of National Forests. Due to their extensive nature, these will serve as a back-up system for national needs as well as providing watershed protection. Furthermore, it is recognized that the success of new forest programs depends on the simultaneous development of the National Forest.

During the first five years, RCUP will undertake the following specific activities so as to ensure a present and future supply of firewood, fodder and wood products for the rural population and at the same time, reduce soil erosion:

- a. Planting 734,000 trees in the immediate vicinity of peoples homes, places of work and travel to make forestry a part of daily living
- b. Reforestation and/or revegetation on 12,890 hectares of eroded or degraded land to reduce surface water flows and build soil fertility
- c. Forestation on 12,618 hectares of designated Panchayat and National Forests as sources of firewood, fodder, and saw timber

- d. Improvement of watershed management on 86,004 hectares
- e. Inventory of forests and forest land use potentials for 75,097 hectares and 3,300 kilometers of forest demarcation
- f. Establishment of an agro-forest research base, four field research centers, 260 research trail plots, 4 demonstration sawmills (hydro-powered) and one presto-log maker
- g. Improved management of presently unproductive forest stands on 75,097 hectares of National and Panchayat Protected Forests
- h. Preparatory forestry work including the establishment of 46 nurseries, developing management plans for 73,114 hectares, 42 working schemes for establishing Panchayat Forests, establishing 72 hectares of Lease Forest and 200 hectares of Private Forests. This will progress to an expansive stage of intensive forest work applications (thinning, and logging) as forest volumes increase.
- i. In-country training of 77 nursery workers, sawmill research assistants and other forestry workers and out-of-country training of 32 professional foresters
- j. Construction of 112 buildings to house and office the decentralized field staff

While most of the forestry activity will be labor intensive, aerial seeding has been suggested as an alternative to hand planting in order to rapidly cover exposed orphan and new landslide areas. RCUP will support research on the applicability of this technique in project areas.

Every attempt will be made when implementing site specific forestry projects to ensure they support overall local community development by contributing to agriculture, watershed management and range management in addition to fuel and fodder production. These efforts will be coordinated with the National Program of Forestry for Community Development formulated by the Ministry of Forests and other donor agencies who contribute to community forest development (World Bank, FAO/UNDP, CDA, ADA, [Australian Development Assistance Office] and SATA [Swiss Association for Technical Assistance]). The institution building component of RCUP will prepare and schedule training of the local staff and people within the community not only for this project but for the National Program as well.

5. RANGE MANAGEMENT

In order to ensure a positive feed-back on the forestry improvement undertaken by RCUP, range management will be accorded simultaneous inputs. Integration of on-farm production of animal feeds with forage obtained from

rangeland and pastures is the approach taken to balance feed supplies and animal numbers. A pasture development and range management program will have a positive influence in gaining increased soil fertility, decreasing forest encroachment by livestock, protecting watersheds and conserving soil and water. Animal husbandry improvements, while secondary to increasing feed supplies, will substantially aid in augmenting outputs of livestock production. Livestock production is an indispensable part of the RCUP, since the majority of the villagers supplement their economy with livestock rearing. In Mustang, especially, livestock rearing is a main source of income.

At present, it is estimated that only 50-60 percent of livestock feeding requirements are being met. In order to raise this level RCUP's approach will be to integrate forage production into the existing cropping cycle. Farmers generally utilize a mixture of upland and lowland pasture and farm land indicating the practices of diverse cropping patterns. Existing forage crops will be supplemented in order to gain maximum land utilization. Fallow lands, after rice cultivation, will also be brought into forage crop production. The goal is for more intensive land-use based on careful rotation practices. Program components will include: relay cropping, intercropping, interspacing main crops with forage species, adoption of dual purpose crops, and village silos or other storage facilities.

At least 5 percent of all cultivated land excluding Mustang, could be included in such a program. In Mustang approximately 2.5 percent is an attainable goal.

Seeds will be distributed to male and female farmers on an even cost sharing basis. Seeds suitable to Nepal will be procured from farms in Nepal and India. Farmers will be encouraged to adopt seed multiplication techniques and those participating will receive a subsidy under the cost sharing program.

RCUP will also concentrate on range management. In general, a typical farm family in the selected project areas has one or two head of buffalo, one to three head of cattle, a few sheep and goats, and some poultry. Improved animal and poultry strains are not found in the project areas; all are native type. Production is low and animal diseases abound. Feed is in short supply and storage facilities are not available. Grazing is on marginal land, not suitable for crop land, because of low production potential and erosion hazards. Soil erosion reduces forage production by 1 percent a year. Range management activities under RCUP will lead to gaining the maximum use of natural forage while reducing desertification and erosion problems relating to overgrazing.

The techniques to be used by RCUP for treating and managing grazing lands include: proper grazing principles, proper seasonal use linked with rest rotations, control of burning, fencing, seeding of adaptive native grasses, control of undesirable brush, planting of fodder trees, hand harvesting of forage and livestock water development.

From 20-50 percent of unimproved common pastureland will be improved through these various range management techniques. About 5-10 percent of such common land will need reseeded. Partial reseeded and deferred rotational grazing will also be a central part of this effort. Practices to be employed will depend on climatic and altitude considerations.

Pasture and related activities differ slightly from range management techniques in that these lands have been somewhat improved, partially fertilized and usually fenced. Programs to be undertaken include reseeded, greater use of fertilizer, fencing and weed control. Hand harvesting techniques will continue to be employed.

Seedlings and planting materials will be raised at various centers and nurseries for distribution free of charge. It is anticipated that selected grasses and legumes can be grown without disturbing main crop production.

In addition, a goal of 5.5 percent has been established for the transfer of marginal land to temporary pasture production. In general, low yield crops such as millet and buckwheat are currently grown on marginal and steeply sloped land. Continued cultivation of such land leads to further deterioration, decreases soil fertility and increases erosion. Retiring this land from such farming practices on a short-term basis is of upmost importance. At the end of two or three years this land then has the potential to be cropped once again.

This program will be difficult to undertake. Skepticism must be overcome in order to convince the farmer that it is in his/her best interest to pursue this crop/pasture rotational approach. Incentives will include free seeds, fertilizer and some compensation.

RCUP also recognizes the importance of the Panchayat Forests and the National Forests in an integrated approach to Nepal's environmental degradation. Fifty percent of the Panchayat Forest land will be planted with fodder trees and grassland under trees. Initially 816 fodder trees/hectare will be planted and after 4-5 years they will be thinned to 250 trees/hectare, and will be partially fenced. Seventy-five percent of the forest pasture will be hand harvested and the rest grazed after the second growing season. Fodder trees will be lopped under the guidance of the range/pasture assistant. A nominal fee will be levied for grazing, hand harvesting and lopping. These funds will be used to purchase fertilizer, for weed control and further reseeded.

National Forest grazing areas will be improved through partial reseeded on a limited basis and weed control. Native leguminous shrubs and climber/runners will be propagated in patches.

Pasture development activities in conjunction with plantation forests will be carried out in newly planted areas on a limited scale. Greater emphasis will be placed on legumes and grass species suitable for

shady conditions. Forage will be hand harvested and limited grazing will be permitted when timber is harvested.

Finally, many of the above activities, in addition to improving range management, will provide employment opportunities for the local population. This is particularly true in the areas of tree planting and plant nursery establishment.

Animal Husbandry

Animal husbandry, while not a primary focus of RCUP, is considered important in augmenting the outputs in livestock production and therefore in contributing to villagers' economy. Initially, simple programs will be introduced in the area of supplemental feeding, elimination of water stress, construction of sanitary shelters, selection of sires and the reduction of negative breeding practices.

More advanced animal husbandry practices will follow when farmers demonstrate an ability to produce adequate forage and feeds for their herds. These practices include: feeding of females during gestation and lactation, castration of scrub animals and young males not needed for breeding, separation of sires from the herd for controlled breeding, pasturing ewes on fresh grazing or forage during lambing periods, and flushing (accelerated feeding) of females prior to breeding.

Other programs which will be introduced for better animal health include drenching against endoparasites. During the five year period 136,500 sheep and goats and 146,000 cattle and buffalo will be dipped twice a year. Dipping/spraying/dusting against ectoparasites which effects sheep and goats is planned. The type of control measures depend on location of project area. 157,000 sheep and goats will be treated in the first five years. Also during this period it is RCUP's objective to immunize 55 percent of the buffalo and 48 percent of the cattle against Hemorrhagic Septicemig, and 78 percent of the buffalo and 63 percent of the cattle against Rinder Pest. RCUP will install a total of forty seven dipping tanks which will be built in the first year.

RCUP will also establish bull/ram/buck stations for genetic improvement purposes. Sixty buffalo bulls will be purchased in the first five years, from India and Nepal. Fifteen buffalo bull stations will be established in different sub-centers and 45 stations at the local level. In addition, two hundred cattle bulls will be purchased and distributed throughout the five year period. Forty Merino rams will be imported and 50 cross rams and 40 kage rams will be distributed for cross breeding.

In the second year of the RCUP 20 Jumuna-pari goats (10 male, 10 female) will be imported from India and stationed at the central goat farm at Bandipur. Starting in the third year male goats will be distributed to the genetic improvement stations.

Twenty thousand poultry birds will be distributed in the first five years.

Equipment will also be distributed. This includes one hundred and five Burdize castrators. Since many villages already have local specialists who perform animal castrations, the equipment will be directed to them. Farmers will also be provided with 235 shearing scissors and 260 hoof cutters.

Finally, RCUP recognizes that women are presently active in animal husbandry. The project will encourage the continued involvement of women by including them as participants in the livestock development program.

6. AGRICULTURAL IMPROVEMENT

As part of its holistic approach to resource conservation, RCUP recognizes the importance of agricultural improvements. While other components of the project will directly or indirectly impact on agriculture, the present discussion will focus on agronomy and horticulture improvements, and an important secondary component, irrigation.

Crop production in the project areas is low and in some areas yields are declining. All the catchments are classified as food deficit. This situation is due to many factors. Initially there has been a transition in the local economy from a situation where land was plentiful to that of today, where there is increasing cost of land, continued fragmentation of fields, depleting of soil fertility and increasing population pressure on that land. Seeds, fertilizers and chemicals are of poor quality and generally not available. Training materials are non-existent and there is a severe shortage of trained extension personnel.

In order to correct the situation RCUP will develop programs which focus on improved varieties of maize, millet, paddy, wheat and naked barley. To ensure success with the new varieties, it is planned that they will be subjected to field/farmer testing for environmental/people acceptance.

The objectives of the horticultural component in the RCUP are to intensify per unit land production, provide extra income for farmers and indirectly, to improve the nutrition of the population. If practiced on a large scale, the horticulture program can be an activity that employs local people, especially women, and increase the export potential from a panchayat, catchment and the nation as a whole. In addition, fruit crops on marginal lands will aid in soil conservation.

In spite of the horticultural potential, the actual practice of horticulture in Nepal plays an insignificant role in the agricultural economy of the country. The Department of Agriculture has 23 horticultural research stations and farms specializing in temperate, sub-tropical and tropical horticultural crops. A wide selection of fruit and vegetable species can be grown,

but not necessarily economically. The complicating factor in growing appropriate horticultural plants is the unique succession of seasons. Most deciduous fruit tree varieties have been developed in more northerly climates where the bulk of rainfall occurs in the winter, and where that season is longer and more pronounced than it is in other parts of Nepal. At present horticulture in Nepal suffers from limited transport facilities, absence of an organized market, the lack of storage and processing facilities, limited pest control coupled with prohibitive cost of pesticides, weak research and development based and natural hazards, such as hail, high winds and a prolonged monsoon.

The horticultural component of this project will target primarily on households at project sites. This will involve a variety of activities including the dissemination of fruit saplings and vegetable seeds to farmers, the provision of technical support for commercial vegetable and fruit production, the establishment of nurseries and the expansion of certain existing facilities. In addition, national level activities will also be undertaken. These focus mainly on developing appropriate national commitment to horticulturally relevant activities, and personnel development including involvement in horticultural processing.

Irrigation

In order to complement the agricultural component of the project, it is intended that early attention will be directed to upgrading existing irrigation systems in the region as well as undertaking the building of new irrigation projects. Only 8 percent of the cultivated land in Kulekhani, Gorkha and Mustang is served by irrigation systems. Yet, it is recognized that a successful irrigation program will substantially reduce pressure to cultivate steep slopes, prevent further soil erosion and assist in efforts to bring additional land under productive cultivation.

A total of nineteen new projects and nineteen rehabilitation projects have been identified in Kulekhani, Gorkha, and Mustang/Myagdi. The planned multipurpose impoundment for Gorkha includes an irrigation benefit in addition to micro-hydro-development, fisheries propagation and water storage.

7. WATERSHED MANAGEMENT

Watershed management is vital and complementary to the project's integrated approach to resource conservation. In addition, the secondary components of drinking water and fisheries are also complementary to an overall ecological balance. The RCUP watershed management strategy will focus early attention on upper drainages and protection of community water supplies in each project region. Watershed reclamation will begin near the divides, since it is here that precipitation inputs of energy are most easily manipulated. Further downslope, water becomes increasingly concentrated and more difficult to control.

The strategies used in watershed management will be a combination of biological and mechanical technique. The techniques selected, and combinations thereof, will be based on adaptability to site specific requirements. For instance, the advantages of mechanical structures, which include dams, gabions, river training structures, and large impoundments, are twofold. Such structures will help spare the remaining productive land in floodplains. In addition mechanical control will have a more direct and visual impact upon local villagers than biological control. However, since mechanical techniques are both expensive and of limited long-term value, they will be concentrated in those areas where flooding, erosion, and landsliding are major threats to life and safety. Since biological techniques are usually cheaper to institute and maintain, and have a better chance for success, these techniques, especially natural and introduced revegetation, will be emphasized throughout the project duration. Later in the project period, the increasing effectiveness of biological control measures will diminish the need for mechanical treatments. This strategy will require the patient education of the villagers, since it takes several years for natural or introduced vegetative regeneration to become effective.

The specific activities to be implemented under watershed management vary according to the site. However the activities are diverse and include such components as terrace management, water development projects, snow management and rehabilitation of selected areas. The latter involves trail improvement, gully and landslide control, stream training, and road embankment stabilization. In addition the project will purchase two hydro-seeders, complete with tractor and motorized slurry tank. They will be located at Kulekhani and Gorkha and will be used to apply vegetative cover to exposed road cuts and fills, borrow areas, and other soil exposed surfaces.

Drinking Water

In coordination with watershed management high priority will be given to the subactivity of protecting, rehabilitating and/or developing water sources which serve the communities for drinking purposes.

A large part of the population is deprived of piped water facilities and rely on local seepage wells, streams, irrigation channels and springs. In addition to deteriorating water quality, due to the poor hygienic living conditions of the inhabitants, the supply of water is diminishing. This is due to the rapidly disappearing vegetation which is further aggravated by the increasing demand stemming from a rapid population growth. The importance of piped water supply is realized as a basic need and a necessary condition for improved rural health.

The poorly developed facilities and very low socio-economic conditions of the areas call for the simplest technology and maintenance requirements for any proposed water supply system. Therefore, RCUP will construct pipelines to bring the best and most convenient water supply to the communities. The water will be distributed through public stand posts.

Two HMG/N agencies will institute a total of 82 water supply projects. The Department of Water Supply and Sewage under the Ministry of Water, Power and Irrigation will implement 12 projects reaching an estimated 15,000 people. 70 smaller projects will be implemented by the Local Development Department under the Ministry of Home and Panchayat. Maintenance of the systems will be the responsibility of local panchayats.

Many activities under the watershed management component will provide employment opportunities for the local villagers. This includes labor intensive activities for many of the mechanical techniques and structures mentioned above, as well as maintenance of drinking water facilities.

Fisheries Management

A fisheries component in RCUP complements the other water related activities. The FAO/UNDP has assisted HMG/N in fishery and fish culture projects and has concluded that development of fisheries, particularly in lakes, has high potential. It is estimated that by the year 2,000 about 50,000 hectares of water surface will be made available for reservoirs either for hydroelectric or for irrigation purposes. Depending upon the specific lake environment, production estimates range from 42 to 200 kg. of fish per hectare of water per year. RCUP impoundments have a potential for supplying needed protein presently absent in the Nepalese diet.

RCUP aims to exploit this potential by directing its fisheries component to the lake (2.2 km²) which will be formed by Kulekhani Dam, the multipurpose impoundment (20-30 hectares) scheduled for the Gorkha area, and the 35 hill top catchment ponds to be built throughout the project sites. It has been estimated that Kulekhani lake alone could yield 2.7 tons of fish per year. While this activity will concentrate on fish production, there is potential for duck farming to be integrated with the fish culture. Thus, fish culture becomes an integral part of utilizing the water resources that also contributes to hydropower, irrigation, and regulation of down stream flows.

The project will initially concentrate on studying the biological aspects of the reservoirs and ponds and then undertake a stocking program of suitable species (mainly carp) to stimulate fish production. To support the stocking program a fish hatchery will be established capitalizing upon the studies done at the Bhairawa hatchery. Use will be made of the Local Resource Conservation Coordination Fund (see Social Support System) to give credit, loans or grants to individuals or groups of individuals who wish to enter the fish/duck business.

8. INVENTORY AND MONITORING SYSTEM

In order to plan wisely for the future allocation of land and to efficiently utilize it to its maximum capability, it is necessary to conduct resource inventories and build an on-going monitoring mechanism that evaluates how applied techniques are adapting to local conditions. This will include detailed information on hydrology, geology, soils, vegetation land capability,

erosion and social/economic monitoring. Detailed surveys will be conducted over the four project regions in each of the above disciplines. This will provide a needed inventory upon which to base rational resource planning. This data will be obtained from a combination of LANDSAT imagery and aerial photographs, supplied from AID's Agricultural Resource Inventory Project and supplemented with data gathered by field surveys.

Using these same techniques, an on-going monitoring of the project areas will be launched and will serve as the means for assessing progress under the program, and determining if corrective actions are required. The actual conservation techniques used will be measured against erosion reduction, water quality, sedimentation reduction in streams, land use changes and other environmental changes.

9. SOCIAL SUPPORT SYSTEM

The overall objectives of RCUP are basically understood at the national and district level. In addition the social soundness analysis clearly indicates that the villagers are well aware of ecological factors that are presently operative on the land from which their livelihood is derived. However, by virtue of their precarious economic situation, they frequently face no alternative but exploitation of public resources, regardless of the long-term negative consequences.

RCUP recognizes that farmers make rational decisions. Furthermore, the economic reality that these farmers face may operate against many of the practices that the project wishes to introduce, such as converting or retiring degraded land and protecting and improving sub-marginal land.

Coupled with this, RCUP is aware of the key role women play in all resource related activities. They are in charge of firewood, fodder, dung, and drinking water collection. They are the ones with whom many of the alternative energy sources must be coordinated. Women constitute nearly 50 percent of the agricultural labor force and are almost totally in charge of seed production, fertilizing, weeding and grain drying. In addition, the trend of total economically active women engaged in agriculture has increased from 92.5 percent to 98.2 percent between 1952-54 and 1971. Finally, the sex ratio of urban - rural distribution shows a higher percentage of women living in rural areas. This is due to male migratory practices in which as high as 60 percent of the males ("some time" immigrants) seasonally leave their villages. It is expected that this trend will continue and increase in the future, leaving more women in the villages.

In order to have male and female farmer participation in the project, RCUP is following a strategy that will address some of the economically mitigating factors that operate against farmer participation and at the same time actively integrate women in development.

RCUP will establish a Local Resources Conservation Coordination Fund. This credit fund of \$1,000,000, which will be a combination of grants and loans, will be set aside for the five year life of the project to provide the critical social support needs to make the project a success. It is RCUP's intent to make a portion of this available to women. The fund will be directed toward the following activities:

- a. Providing credit to male and female farmers wishing to participate in RCUP.
- b. Providing start-up funds to encourage cooperative action in conservation programs consistent with RCUP objectives.
- c. Providing program administrators at the local level a means to fill resource conservation and utilization program gaps in the overall range of financial assistance available to farmers or other program participants.
- d. Accelerating, on a reimbursable basis, the acquisition of materials in support of program elements.
- e. Assisting farmers in converting degraded land to more productive land by using environmentally sound land-use practices, such as agro-forestry, fisheries, and range-pasture development.
- f. Launching local research and demonstration projects which complement overall program objectives.

The fund will also stimulate maximum program participation from on-going government programs designed to assist farmers become more economically self-sufficient. This would include such programs and services as those of the Agricultural Development Bank, Agricultural Inputs Corporation, and the cooperatives program. It is expected that a substantial portion of this fund will be used to supplement these already established HMG/N programs. When used in conjunction with these three programs, the HMG/N agency will be expected to contribute 50 percent of the cost with the balance to be made available from the fund. Upon repayment, one-half of the proceeds will revert to the participating HMG/N agency while the other half will go back to the fund for reinvestment to carry out the above stated fund objectives. The leverage created through this fund will aid existing HMG/N program efforts to expand program participation in hill communities.

B. SOCIAL SOUNDNESS ANALYSIS

Social Feasibility

While the degree of farmers' awareness of the environmental problems addressed by the project varies according to the severity of the problems

in each micro-area, ignorance of basic ecological processes is not a primary determinant of land-use behavior. Rather, the factors which do appear to underlie present land-use behavior relate to increasing resource scarcity, the propensity of farmers to maximize their individual household productivity through exploitation of public land resources, and the patterns of farmer decision-making which balance short-term productivity gains against a high degree of risk avoidance on private lands.

Farmers have thus tended to maximize their investment in long-term land management--which is more often based on sound ecological principles--on their better private land where their investment security is highest and the chances of high returns greatest. As resources have become more scarce through population growth, these private land management trends have included increased utilization of land intensive agriculture as opposed to land extensive agriculture, increased use of terracing and an increased use of irrigation.

Farmer adoption of new land-use practices on private land is thus feasible if it is demonstrated that the ecological and economical risk is low and the yields worth additional investments of capital and labor. If fertilizer supplies are uncertain, if the growing period of new varieties is too long to survive a year of late or poor monsoon, if stalk is not long enough to provide fodder for draft animals, if water availability is uncertain, if fertilizer use potentially reduces the future fertility of the field (all of which have been problems encountered in Nepal), farmers are hesitant to risk their long-term survival. But when new varieties or cultural practices are proven acceptable within the farming system--such as has occurred in many areas with new wheat and potato varieties, row planting of wheat, etc.-- they are adopted.

In contrast to most private land management, ecologically damaging land-use practices are primarily conducted on public lands which are now legally owned by the government, lack systematic management, and for which the benefits from individual restraint (e.g. overgrazing, overlopping) or investment (e.g. fencing, plantation) are insecure and ambiguous. Most communities in the project areas had (and often still have) traditional systems of resource management which were concerned with rights of exploitation and distribution--although not necessarily conservation. However, government nationalization of all uncultivated lands in 1957 undermined these systems' authority and did not promote the local development of institutions for effective resource conservation management.

Evidence from pilot projects and analysis of examples of local initiative in Nepal indicate that public land use patterns can be changed through such project activities as range and pasture management, community forest plantations and protection, and national forest management. Recent government legislation creating Panchayat Forests and Panchayat Protected Forests in which local people are given some degree of ownership rights have created a more positive climate for encouraging these changes. Nevertheless,

project success in this vital area will be dependent on the degree to which local leadership can be mobilized and the genuine participation of various elements in the heterogeneous population in land-use plan formation and management can be fostered.

The primary social factors posing potential constraints to the project's successful implementation of these strategies are: the social distance between government technicians and the rural population, the intensive management required to develop local management systems, the tendency for land-use technicians to develop plans based on physical (e.g. soil properties) criteria in isolation from local people, and the existence of conflicting local interests and factions within some areas.

The RCU project has incorporated a number of measures for overcoming these constraints, including: a) the development of new educational and training programs designed to recruit and train local people from the hills and train personnel at all levels in the special skills--including social skills--required, b) the development of grass roots institutions capable of working collaboratively with project technicians and developing the local management systems essential to project success, and c) the establishment of a socio-economic monitoring and adaptive research component that will function to identify social constraints and strategies for overcoming them. To the degree that these institutions are supported by the project so that they operate with sufficient competence, authority and resources, the project can achieve its ultimate goals.

Social Impact

Project activities for which it is estimated that at least 25 percent and up to 100 percent of the target population will be directly benefited include forest management and tree plantation of various kinds, drinking water, animal health, and provision of improved crop varieties. This is followed by another group of project activities which are estimated to directly benefit between 5 percent and 25 percent of the population in the particular areas in which they are implemented. These include water source protection, irrigation, range and pasture development, agricultural credit and other agronomic inputs, and horticulture. All these activities, with the possible exception of credit and irrigation, follow the strategy outlined in Appendix M.(a) such that while the relatively "wealthy" (who consist of no more than 5 percent-10 percent of the population and themselves rarely own more than 3-4 hectares of land) are included among the beneficiaries, the vast majority to the benefited consist of the rural poor.

For the many additional project activities for which the initial direct project beneficiaries will probably number less than 5 percent of the population, benefit distribution is either neutral with regard to income levels, benefits all groups more or less equally, or is directly or indirectly

targeted to specific segments of the population. The activities targeted to benefit the poorest segment of the population include employment generation through nursery and construction programs, terrace improvement for marginal land farmers and development of lease forests for landless/marginal groups. If these latter two programs prove successful, they have high potential for increasing the land-based income of marginal groups in an ecologically sound fashion.

The potential spread effect of the project activities both within and outside of the project areas differs according to type of activity. The replication of the financially and technically intensive activities such as watershed improvement through engineering activities (e.g. gabion construction) and through land inventory surveys will necessarily be limited by financial and person-power constraints. At the same time, many of the forest management, pasture and range development, and agricultural development activities have the potential for widespread diffusion. In particular if viable local management systems are developed to deal with public land management, the project will have provided the basis for widescale reversal of present environmental degradation.

Project impact on women is not yet easily assessed. Since women are largely responsible for drinking water collection, a large number of unproductive person-hours per day presently wasted on this task will be eliminated wherever drinking water systems will be installed. For the short-term, this labor time saved may be devoted to the increased labor requirements of hand harvesting more fodder and collecting firewood from greater distances that will be required by the project--although in the long term women's labor in these tasks will be decreased over what it would have been. This long term labor saving will be gained even sooner if energy efficient stoves can be successfully diffused throughout the project area--an accomplishment which will only take place if the technology is accepted by women.

These benefits for women, however could be overshadowed by negative affects if the project does not take special measures to incorporate women into the implementation process. Present agricultural, livestock and horticultural extension practices as well as credit policies in Nepal fail to directly involve women. Since close to 50 percent of the agricultural work in the hills of Nepal is conducted by women, not including them in project activities runs the danger of not only failing to reach 50 percent of the population, but of lowering their relative status by transferring new skills entirely to men. The project however is adopting implementation policies that will attempt to ensure that significant proportions of women are recruited and trained, particularly at the local level. It is expected that this will considerably alleviate the situation as well as provide a most effective means of reducing population growth rates.

C. ADMINISTRATIVE AND MANAGEMENT FEASIBILITY

The RCUP will be implemented through the existing organizational and administrative structures of the appropriate HMG/N line agencies. while

building in project coordination units at various levels to accommodate inter-departmental cooperation and complementary integration of the activities at the field level.

In accordance with this policy, the plan for RCUP administration incorporates three parallel vertical organizational structures with horizontal linkages at the national, catchment and panchayat level. (See the following organizational chart). The vertical structures are (1) the existing line agencies, (2) RCUP coordination units at three levels and (3) conservation committees at three levels. This will ensure coordination of the specific projects, and their integration with general development plans so as to address national and local needs.

The National Program

The Ministry of Forests will be responsible for the overall coordination of RCUP. The Minister of Forests chairs the National Conservation Committee, supported by membership from: the Ministry of Forests, the Ministry of Home Panchayat, the Ministry of Food and Agriculture, the Ministry of Water, Power and Irrigation, the Vice-Chancellor of Tribhuvan University, the Foreign Aid Division of Ministry of Finance, a Member of Planning Commission and the USAID/Nepal Representative.

This Committee will provide policy guidance and national level coordination between the various agencies involved in RCUP. It will review project action plans, progress in project implementation and will appoint an advisory board to review line agency budget requests for funds to implement RCUP activities within their various agencies. Each member of the National Conservation Committee will appoint a liaison officer from his agency, to open two-way communication between that line agency and the DSWC/RCU Project Coordinators.

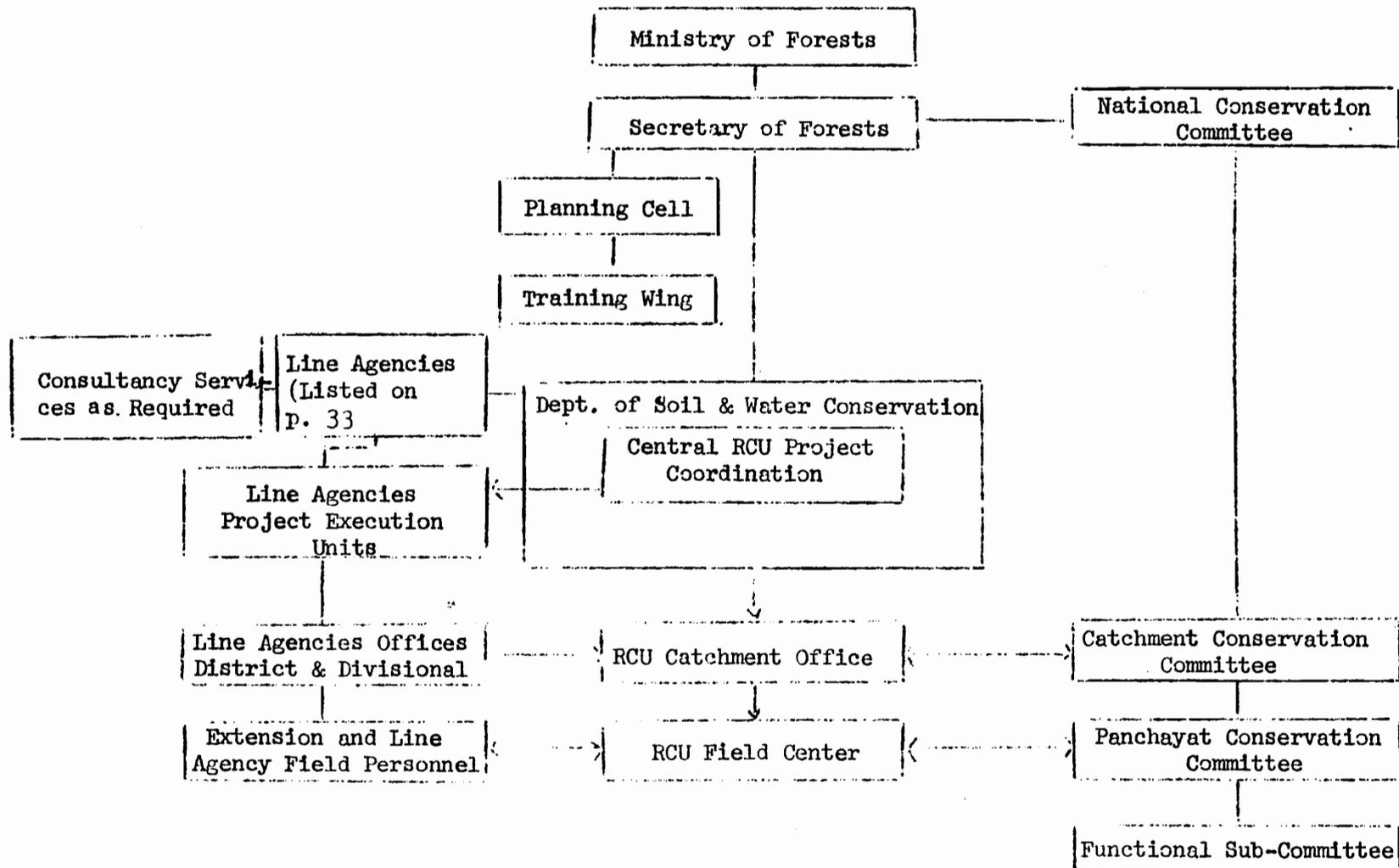
The DSWC has been designated the lead agency in coordinating RCU Project activities. The RCU Project will be an integral point of DSWC operations with arrangements being made to expand the physical plant of DSWC in Kathmandu to accommodate it.

With the addition of RCUP activities to its numerous other responsibilities, the organization of the DSWC is expected to expand. An organizational structure capable of administering a nation wide conservation program was outlined in 1975. RCUP expatriates will be available to assist the DSWC in making this planned transition.

The DSWC project office will be staffed by full or part-time specialists in DSWC, with expatriate assistance in the first few years until sufficient Nepalese professionals have been trained to cover all person-power needs. These Nepalese professionals will be prepared to sustain RCUP-type activities long past the period of donor assistance. A DSWC staff officer will be assigned to person-power planning and placement so that trained people will move into appropriate posts to carry out such activities.

The following chart illustrates the organizational structure of RCUP.

RESOURCE CONSERVATION & UTILIZATION PROJECT ORGANIZATION



The Catchment Program

The next level of organization in the RCUP is at the catchment level. Catchment offices will be located in each district in the RCUP: Kulekhani, Gorkha, Myagdi, and Mustang. Staffing and organization in Jumla will be patterned after the experience of the other catchments when the RCUP eventually extends into that area. The catchment office will be staffed by a catchment conservation officer, three assistant soil conservation officers, an overseer for civil works, and an administrative staff. It is unlikely that the entire staff will be fielded in the first few years of the project, but as appropriately trained people become available and as the field activities expand to the point that a full staff will be required to direct them, people will be moved to the catchment level. The catchment office will function principally to assist line agency district and divisional offices to carry out their RCUP-related activities. Since professional personnel will be spread thin in this project, this will be an important function to perform. In addition, this mutual assistance will further strengthen the interrelationships of the various RCUP activities.

The coordination of catchment level RCUP activities will be further facilitated by the Catchment Conservation Committee, counterpart to the National Conservation Committee discussed above. The Catchment Conservation Committee will be chaired by the District Panchayat Chairman. Members will include: Chief District Officer, Panchayat Development Officer, District Agriculture Development Officer, Irrigation Projects Chief, Drinking Water Projects Chief, Livestock Development Center Head, RCUP Catchment Conservation Officer and others as required.

The Catchment Conservation Committee will serve not only to review plans and progress of the RCUP activities and guarantee coordination among the components of the program, but also to coordinate RCUP projects with the District Administration Plan to avoid redundancy. They will meet at least four times a year to carry out this review function.

The RCUP Field Center is the final step in the operations ladder between the national planners of the RCUP and the farmers who are the ultimate implementers and beneficiaries of the projects. There will be a Field Center in each panchayat which will serve as the nucleus for all the agency programs in the RCUP. The extension agents in different activities can use the center as an office and a place to store tools, seeds, veterinary medicines, and informational materials, prior to distribution. The local people will be able to come to the center for help in any of the project activities. The center will be staffed by a soil and water conservation assistant and two village technicians to assist in and coordinate all of the diverse field activities. As the project progresses, the district level and panchayat level RCUP personnel will explore means of tying the field centers to existing District Service Centers, to perpetuate this direct connection of agency programs to village needs.

Parallel with the national and catchment level organizational structure, there will be a Panchayat Conservation Committee to advise the Field Center on implementation of field activities. The Panchayat Conservation

Committee will be headed up by a recognized panchayat leader. Each ward in the panchayat will be represented on the Committee, and if no women representatives are selected from the wards, then several women members will be added as representatives-at-large. The RCUP field workers and extension personnel will also sit on the Committee.

Sub-Committees will be set up to organize the people directly involved in field activity. Members of these sub-committees will include one representative of the Panchayat Conservation Committee; the rest will be selected from the community. The Chairman of each Panchayat Conservation Committee will sit in the Catchment Representatives Assembly, which will meet semi-annually, to participate in planning and reviewing the various catchment conservation activities.

National Staff Requirements and Sources for RCUP

The following table presents the staffing sources and requirements of trained personnel that will be recruited to carry out RCUP activities.

	Personnel Recruitment Needed					Total for 5 Years
	80 Yr. 1	81 Yr. 2	82 Yr. 3	83 Yr. 4	84 Yr. 5	
<u>National Staff</u>						
<u>1. Central Level</u>						
a. Professionals	8	2	2	-	-	12
b. Sub-Professionals	8	6	-	-	-	14
c. Administration	12	6	-	1	-	19
<u>2. Field Staff</u>						
a. Professionals	21	15	8	4	-	48
b. Sub-Professionals	102	75	66	76	58	377
c. Administration	73	14	15	12	4	118
d. Field Asst. Level	97	20	15	24	5	161
e. Village Asst. Level	54	97	120	125	138	534
Total:-	375	235	226	242	205	1283

Personnel requirements for central and field staff will be satisfied through current staff (6); AID financed participants (70); short-term participant training (93); Institute of Forestry, Certificate and Diploma graduates (291, from 1978 thru 1980 and 300 graduates from 1980 thru 1985); 406 certificate, Diploma and Degree graduates in Agriculture and Livestock from Tribhuvan University; 346 Tribhuvan graduates with either Certificate, Diploma or Degree in engineering; 109 returning AID funded agricultural graduates trained in India; 942 Certificate, Diploma and Degree business and public administration graduates during 1978 thru 1980; and 634 Tribhuvan University graduates (1978) with either Certificate, Diploma or Degree in one of the sciences. These trained personnel total 3,197 over several years. Although trained personnel exceed RCUP staff requirements, it is recognized that other HMG/N activities also have personnel requirements which will compete for the available pool of trained Nepalese. Nevertheless, the output of trained people should be adequate to staff the RCUP.

The following are HMG/N agencies which will both support and complement the RCUP: Department of Forests, Coordination Division of the Ministry of Home Panchayat, Department of Agriculture, Department of Drinking Water, Department of Local Development (LDD), Ministry of Forests Planning Cell, Institute of Renewable Natural Resources, Agriculture Development Bank (ADB), Agriculture Inputs Corporation (AIC), Agricultural Projects Services Centre (APROSC), Department of Irrigation and Hydrology (DIHM), Cooperative Department, Foreign Aid Division, Ministry of Finance, Planning Commission and Project Co-Leader RCUP.

D. FINANCIAL ANALYSIS AND PLAN

RCUP inputs will be directed to both production orientated and supporting categories over a five year period, totaling an estimated \$47,457,600. AID and HMG/N will jointly finance these activities with contributions of \$41,015,100 (86 percent) and \$6,442,500 (14 percent) respectively. Table I presents a summary of costs and a financial plan. This is followed by a description of AID's and HMG/N's inputs and supported by AID's and HMG/N's projected expenditures (tables II and III) for each fiscal year of the five year project. Annexes F through O present detailed annual financial expenditures for the major project categories. These estimated cost figures were derived from studies conducted by the Title XII Team and HMG/N consultants. These studies are assembled in Volume II of this paper.

Technical Assistance: The project will require 542 person months of long term advisers (\$5,420,000) and 133 person months of short-term consultants (\$1,575,000). Additional funds are provided for the contractor's home office support and to develop a five week orientation course for three to six Peace Corp Volunteers who will be assigned to the project (\$420,000) and a budget for local staff (\$117,700). HMG/N will complement AID's contribution by supplying local professionals and staff support to the project, valued at \$2,468,800. This includes funds for partial air fares, salary of participants during their training and local labor contributions directed specifically to forest management, irrigation and drinking water components of the project.

Participant Training: AID's input will finance 70 long-term participants and 144 person months of short-term training (estimate 93 participants) for a total of \$2,889,000. HMG/N's contribution for airfare and salary are included in its professional and staff support budget. Use will be made of the PL-480 fund in India to the degree possible, however, no funds are included in this project of this nature.

Local Consultants: Architects and engineers for construction components and social, economic and natural resource scientists for monitoring, evaluations and special studies will be required throughout the project's life. Total financing by AID for these items is estimated at \$681,000.

Commodities: AID's contribution will be \$8,124,800 and HMG/N's will amount to \$865,500, totaling \$8,990,300 over five years. These funds are required for the purchase of equipment and construction and installation of micro-hydro units, solar energy and wind mills. Also supplies such as electrical, plumbing and other equipment and materials will be needed for buildings and project operations. Vehicles and specialized teaching equipment will also be purchased to support the technical assistance team, consultants and HMG/N personnel who are involved in the project.

Project Allowances: \$986,000 will be provided by AID to project-associated personnel assigned to rural project sites. This will include, among other things, stipend allowances, which were recommended in the joint ODM/USAID report on training, to pay for field demonstration trips for local farmers.

Local Resource Conservation Coordination Fund: An initial credit fund will be established to stimulate farmer interest in converting degraded land to environmentally sound land use programs. Provision is also included to contribute to established credit institutions such as the Agricultural Development Bank, Agricultural Inputs Corporation and the cooperatives program. The total AID input for these programs will be \$1,000,000 with HMG/N contributing \$348,600 for farmer credit.

Other Costs: AID's input to the other cost component totals \$6,940,500 and will finance items such as labor for building construction, operation and maintenance of vehicles and other supporting items for the project. HMG/N's input will be \$517,300 and includes costs for office supplies, rental of buildings, and purchase of land.

The estimated costs of building construction to support decentralization and project's field activities is \$1,752,500. This is not an additive cost. These costs are included within totals presented in "other project costs", "local consultant costs" and "commodities".

TABLE I

SUMMARY COST ESTIMATE AND FINANCIAL PLAN
(\$ 000)

	SOURCE OF FUNDS						Total
	AID		HMG/N		Sub-Total		
	FX	LC	FX	LC	FX	LC	
<u>Use of Funds</u>							
<u>Technical Assistance:</u>							
Project Advisors	\$4878.0	\$ 542.0			\$ 4878.0	\$ 542.0	\$ 5420.0
Short-Term Consultants	1417.5	157.5			1417.5	157.5	1575.0
Contractors Support Budget	399.0	21.0			399.0	21.0	420.0
Local Staff Support	-	117.7			-	117.7	117.7
Professional & Staff Support				\$ 2112.1	-	2112.1	2112.1
Local Contribution				356.7		356.7	356.7
<u>Participant Training:</u>	2889.0				2889.0		2889.0
<u>Local Consultants:</u>		681.0				681.0	681.0
<u>Commodities:</u>	4271.9	3852.9	95.8	769.7	4367.7	4622.6	8990.3
<u>Project Allowances:</u>		986.0				986.0	986.0
<u>Project Credit Fund:</u>		1000.0		348.6		1348.6	1348.6
<u>Other Costs:</u>	446.6	6493.9	5.4	511.9	452.0	7005.8	7457.8
Sub-Total	\$14302.0	\$13852.0	\$ 101.2	\$ 4099.0	\$14403.2	\$17951.0	\$32354.2
Inflation, 12% per year	4730.4	4544.9	33.3	1632.3	4763.7	6177.2	10940.9
Sub-Total	\$19032.4	\$18396.9	\$ 134.5	\$ 5731.3	\$19166.9	\$24128.2	\$43295.1
Contingency, 10% per year	1828.8	1757.0	11.5	565.2	1840.3	2322.2	4162.5
TOTAL	\$20861.2	\$20153.9	\$ 146.0	\$ 6296.5	\$21007.2	\$26450.4	\$47457.6
	44%	43%		13%	44%	56%	

TABLE II

AID's Projected Expenditures by Fiscal Year
(\$ 000)

	Fiscal Year						Total
	1980	1981	1982	1983	1984	1985	
<u>USE OF FUNDS</u>							
1. <u>Technical Assistance</u>							
Advisors	410.0	1720.0	1760.0	1200.0	260.0	70.0	5420.
Short Term Consultants	178.5	343.0	318.5	357.0	259.0	119.0	1575.
Contractor's Support Budget	21.0	84.0	84.0	84.0	84.0	63.0	420.
Local Staff Support	4.5	20.8	23.0	25.0	27.0	17.4	117.
2. <u>Participant Training</u>	252.4	560.9	691.9	691.9	691.9	-	2889.
3. <u>Local Consultants</u>	299.7	123.1	92.1	79.2	67.3	19.6	681.
4. <u>Commodities</u>	266.8	1991.3	1893.9	1784.1	1491.7	697.0	8124.
5. <u>Project Allowances</u>	23.4	150.0	188.4	239.1	278.3	106.8	986.
6. <u>Local Resource Conserva- tion Coordination Fund</u>	20.0	200.0	200.0	200.0	200.0	180.0	1000.
7. <u>Other. Costs</u>	95.5	1215.5	1808.9	1877.5	1670.6	272.5	6940.
Sub-Total	1571.8	6408.6	7060.7	6537.8	5029.8	1545.3	28154.
Inflation, 12% per year		769.0	1796.2	2647.3	2884.7	1178.1	9275.
Sub-Total	1571.8	7177.6	8856.9	9185.1	7914.5	2723.4	37429.
Contingency, 10% per year		717.8	885.7	918.5	791.5	272.3	3585.
Total	1571.8	7895.4	9742.6	10103.6	8706.0	2995.7	41615.

TABLE III

HMG/N's Projected Expenditures by Fiscal Year
(11.90 N. Rupees equal One U.S.\$)
(\$ 000)

	Fiscal Year						Total
	1980	1981	1982	1983	1984	1985	
<u>USE OF FUNDS</u>							
1. <u>Technical Assistance</u>							
Professional and Staff Support	47.7	305.1	418.9	535.6	610.5	194.3	2112.1
2. <u>Local Contribution</u>	0.5	71.1	95.9	89.9	93.4	5.9	356.7
3. <u>Commodities</u>							
Rental of Building, Costs of Land and Supplies	29.3	156.5	181.9	191.3	198.2	108.3	865.5
4. <u>Credit</u>	7.5	40.5	74.8	104.4	111.5	9.9	348.6
5. <u>Other Costs</u>							
Per Diem plus Travel Expenses in Nepal	13.3	87.6	106.1	126.1	135.5	48.7	517.3
Sub-Total	98.3	660.8	877.6	1047.3	1149.1	367.1	4200.2
Inflation, 12% per year		79.3	223.3	424.1	659.0	279.9	1665.6
Sub-Total	98.3	740.1	1100.9	1471.4	1808.1	647.0	5865.8
Contingency, 10% per year		74.0	110.1	147.1	180.8	64.7	576.7
Total	98.3	814.1	1211.0	1618.5	1988.9	711.7	6442.5

A 12 percent per year inflation factor has been included for both AID's and HMG/N's projected expenditures and a 10 percent contingency factor per year to lessen the probability of physical and financial uncertainties adversely affecting normal implementation of the project. Both rates are consistent with and reflect economic conditions existing in the United States and Nepal, the main countries that will supply goods and services to RCUP.

HMG/N's contribution towards this project is \$6,442,500 or 14 percent of the total project costs. Consequently, HMG/N does not meet the 25 percent contribution normally required under FAA, Section 110(a), for AID-financed projects. The Mission requests a waiver to Section 110(a) because (1) HMG/N is making a firm commitment to the project by contributing scarce financial and personnel resources and, (2) Nepal is one of the poorest of the Relatively Least Developed Countries (RLDC). The IBRD has encouraged donors to provide substantial portions of total project cost, particularly local costs in order to assist HMG/N's development efforts. Historically HMG/N has provided less than 15 percent of total project cost for projects financed by IBRD and Asian Development Bank. Provisions for this waiver are provided in section 307 of the International Development and Food Assistance Act of 1975, which allows a waiver of the 25 percent contribution to AID-financed projects for a RLDC.

After the completion of the five year project (Second Quarter FY 1985), recurring costs are estimated at \$1,900,000 annually. HMG/N will allocate sufficient funds to adequately support the project. It is also anticipated that in FY 1984 AID will decide if it will provide a second grant to finance the Phase II program.

The above financial analysis and plan reflect preliminary project planning and current cost estimates for RCUP's inputs. USAID/N has determined that the project concept is feasible and the project cost estimates are reasonably firm for the project elements. Thus, the requirement of FAA, Section 611(a)(1) has been satisfied. Detailed plans and final cost estimates will be developed by local architects and engineers for each construction component of the project. These contracting documents will be reviewed by USAID to ensure that the design is complete and final cost estimates reflect local economic conditions for each construction activity before USAID approves construction contracts.

E. ECCNOMIC ANALYSIS

Through the prudent application and implementation of RCUP inputs, discernible benefits will accrue to people living within the four districts and secondary benefits to most of the people living in neighboring districts. Tertiary benefits should be realized in Nepal's terai due to a decrease in migration from the hills to that area, and in India and Bangladesh because of the decrease of sediment and flooding in the Ganges river system. These latter two economic externalities impacting on areas outside the project, while not quantified in this analysis, will be important, actual benefits attributable to the project. Total population of the target group is approximately 700,000 people, representing 5 percent of Nepal's population.

During the proposed fifteen year span of the RCUP, specific and quantifiable incremental benefits will flow as a result of the following project inputs:

1. Forest Management programs and the establishment of new forests will produce an increase in fuelwood, timber, fodder, forage and decreases in soil loss, soil erosion, and flood peaks as well as lower crop losses from a reduction in sediment deposition. Net benefits will begin in year three with an estimated \$1.8 million and after year five should average \$3.6 million per year.

2. Range Management programs will assist to increase forage production, improve pasture management and introduce more efficient uses of animal manure. Benefits will be an increase in the production of milk, meat, eggs, wool and other animal products which should generate \$354,500 starting in year two and average \$4 million per year over the life of the project.

3. Irrigation and Agronomy programs consisting of improved farming practices as well as new and improved irrigation systems should stabilize the agricultural/ecological systems, resulting in increased land conservation and agricultural production. Modest benefits of \$329,700 are estimated in the initial year of the project and should average \$3.2 million per year during the project's life.

4. Horticulture programs will include the distribution of approximately one million saplings, kitchen garden vegetable production and development of eight fruit nurseries. Major benefits for these activities will not materialize until year ten because newly planted tree crops require several years to produce marketable yields. In the last five years of the project benefits are estimated at \$3.3 million per year.

5. Watershed Management will include, among other items, terrace improvements (1330 hectares) and trail improvements (75 kilometers), major gully control (28 gullies) on range lands, landslide rehabilitation (15 sites) and slope stabilization for roads. These activities will increase crop yields, decrease river and reservoir sedimentation and improve the productive capacity of the land, forest and water resources. Estimated average annual benefits of \$110,000 are low due to substantial amount of expensive structural construction work. Thus, some of the suggested costly structural work may need to be further analyzed and alternative approaches considered during the implementation stage of the project.

6. Drinking Water projects (82) will be undertaken to increase dependable water supplies for villages. Benefits will be derived from unquantifiable health improvements and measurable village labor time-savings resulting from a decrease in time required to carry daily water supplies to households. Initial benefit of \$77,000 will occur in year three and average annual returns for the project are estimated at \$254,300.

7. Energy programs consist of stove improvement, solar and bio-gas demonstration and installations, design and construction of small micro-hydro

plants and multipurpose water impoundments. The immediate objective is to introduce improved stoves, thereby making more efficient use of fuelwood. Additional energy activities are a combination of experimental undertakings and operational installations of energy conservation units. Although benefits will be realized from all of these activities, only the benefits from introducing 590 new, more efficient wood burning stoves are included in this analysis. In the first year benefits are estimated at \$1,500 and should average \$15,500 per year over the project's life.

RCUP will provide other inputs, such as inventory and monitoring, training programs, technical advisors, consultants, construction components and fisheries development. The latter activity is experimental and the former project components are support functions to ensure that the production related programs are adequately equipped and supported to realize RCUP objectives. Actual benefits are not measured for these inputs, but all financial costs incurred in providing these items are included in the total project cost. Additionally, economic cost such as forage production for livestock development and a 10 percent financial contingency are included in the annual economic costs. Expected increase in land value as a result of improvements to forest areas has been excluded from estimated benefits. Consequently, the economic analysis reflects a conservative treatment of recording costs and benefits for the project.

After discounting and comparing the annual flow of the projects estimated economic benefits with costs, it is evident that the project is economically viable, producing a positive net present value (NPV) of \$8,429,800 at a 15 percent discount rate over 15 years.

Sensitivity analysis has been conducted to measure the effects unfavorable variables would have on the project. Using the same discount rate, project costs were increased by 10 percent and benefits decreased by 10 percent, resulting in a net present value of (\$143,700). Therefore, the project remains viable even after introducing adverse economic conditions. A positive NPV indicates that capital, recurrent and economic costs are recovered and a surplus accrues to the project. The 15 discount rate was selected because that rate represents the estimated average opportunity cost of capital in Nepal. Presently, long-term cost of capital varies from 10 percent for small industries to 20 percent for commercial activities; agro based industries average 12 percent.

In addition to computing the NPV, an internal rate of return (IRR) calculation was conducted. The IRR to the economy is estimated at 21.5 percent for a project duration of fifteen years. When the previously mentioned sensitivity analysis is employed, the IRR drops to 14.9 percent. See Annex E for annual costs and benefits and discounted net benefits from July 1981 through July 1995. Volume II, Appendix "L" provides definitive economic supporting data for the project.

Both the NPV and IRR indicate that the RCUP is economically viable and it contributes to natural resource conservation and Nepal's economic growth. Additionally, and perhaps most important, the project will provide favorable externalities to the target group by increasing the rural populations' aggregate per capita food consumption and in latter years, producing a small surplus of cash crops. As a result, an improvement in the standard of living for an estimated 700,000 to 1,000,000 people should occur over the next fifteen years. Finally, the project will generate employment opportunities for an estimated 7000 people.

F. ENVIRONMENTAL ASSESSMENT

The primary purpose of RCUP is to make land more productive through instituting sound land-use practices appropriate to the control of soil erosion, flooding, deforestation and overall environmental degradation. An Initial Environmental Examination (IEE) was prepared for the RCUP design project paper and it recommended a negative determination. This was approved July 28, 1978.

The project's field operations focus on four selected areas representative of hill and mountain conditions in Nepal, especially with respect to combinations and/or intensities of typical soil and water conservation problems. Within these four ecological zones, discrete but complementary activities will center on the application of practical methods to reverse existing environmental degradation by advocating and demonstrating practices which allow a better balance between people and nature.

At the national level, the project will assist in the training of individuals in the appropriate fields related to resource conservation. RCUP will also support existing and developing institutions that will be involved in resource related activities. It is projected that these activities will lead to the protection, improvement and use of natural resources in ways which promote the highest possible economic and social benefits for the nation.

There are no controversial environmental issues within the proposed actions. The project is unique in that its whole purpose is to identify and correct the existing environmental degradation. It will establish an environmental correction procedure, based upon project activity, that is anticipated to diffuse far beyond the designated sites. During project implementation environmental examinations will be conducted before any infrastructure is constructed in the project areas. See Annex C for a detailed Environmental Assessment.

IV. IMPLEMENTATION PLAN AND MANAGEMENT OF PROJECT

A. IMPLEMENTATION PLAN

The underlying assumption guiding this plan is the signing of the project agreement by April 1980, followed by the signing of a contract with a technical assistance team. Actions implemented prior to the signing and

execution of the final agreement are covered under the Grant Agreement signed August 31, 1978.

The tabulation that follows lists major activities to be implemented during the first five years of the RCUP. The program guide for RCUP output and individual technical appendices detail the interventions. The tabulation concentrates on the initial period of project implementation. As RCUP is implemented and the two way exchange between local requirements and national programs take place, it is imperative that the implementation schedule be examined and revised during each operational year of the project. The number of operative factors is large, and while many are mutually interdependent, slight changes in any one could have an impact on the overall program.

The implementation process will utilize and coordinate existing technical and professional skills, and integrate those skills so as to realize the prompt completion of a program or project. In order to achieve cost-effective administration, the primary coordinating organization for implementation will be located at the local level. Existing structures of local government will be utilized to provide for the maintenance and operation of completed projects. The opportunity for members of the local community to discuss a project with the persons in charge of the implementation will be built into the process. The organization chart in the Administrative Feasibility Section shows project execution levels.

Implementation will receive its main strength from the close working ties between expatriates, their HMG/N counterparts, and other individuals working on similar problems and projects. The expatriates will occupy offices with their HMG/N counterparts. The Contractor, Project Co-Manager and his/her HMG counterpart and DSWC, will be responsible for overall coordination of the project and will make frequent site visits to evaluate progress. Expatriate specialists will spend approximately 60 percent of their time in the field with their counterparts, to expedite agreed upon work plans, train field staff and interact with villagers to ensure implementation plans are effectively carried out.

The expatriate soil and water conservation specialist will be stationed in Pokhara to work with the soil and water conservation officers delegated responsibility for DSWC field activities. Working together, this expatriate and the HMG/N conservation specialist will be expected to review and inspect all program activities and make adjustments if problems arise. This interaction will be quickly responsive to unanticipated changes and encourage rapid and continuous evaluation throughout the system.

All infrastructure projects and programs dealing with natural resource conservation and utilization, including those supported by other donors, will be considered and assessed by the uniform process of inter-agency review in order to ensure that national objectives will be implemented and nationally determined priorities met in a coordinated program of natural resources management. The financial flow section shows the linkage between reimbursement

request, actual release of funds and the built in review system at the funding and inspection levels.

FAO has been requested by HMG/N to furnish educational assistance to the DSWC in conservation publicity and extension. This multi-donor project will furnish the coordination and implementation service in these subject areas to RCUP as part of the daily DSWC operation. The conservation publicity and extension intervention is extremely essential for project success. There must be a direct relationship between the FAO assistance and the MFTW to ensure that timely support is given to each other.

Also key to successful implementation will be the training in public administration, management and accounting techniques which is urgently needed to complement present resource training program. This will be coordinated through the facilities at MFTW.

Responsibility for the unified liaison work will be delegated to the expatriate ~~Co-Manager~~ and his/her assigned DSWC counterpart. These Co-Leaders will work with a liaison officer from the Planning Commission and the individual designated to coordinate RCUP activities within each line agency, to interpret the RCU Project documents into action plans for each agency. These action plans will be incorporated into agency components of the Annual Plan and the Sixth Five Year Plan. The professionals working at the national level on RCUP coordination will prepare design guidelines for the planning of RCUP activities at the panchayat level, and will work with field personnel and local leaders in preparing the plan. This will entail a dialogue between the national and local levels to ensure that goal statements and project designs are meaningful and feasible.

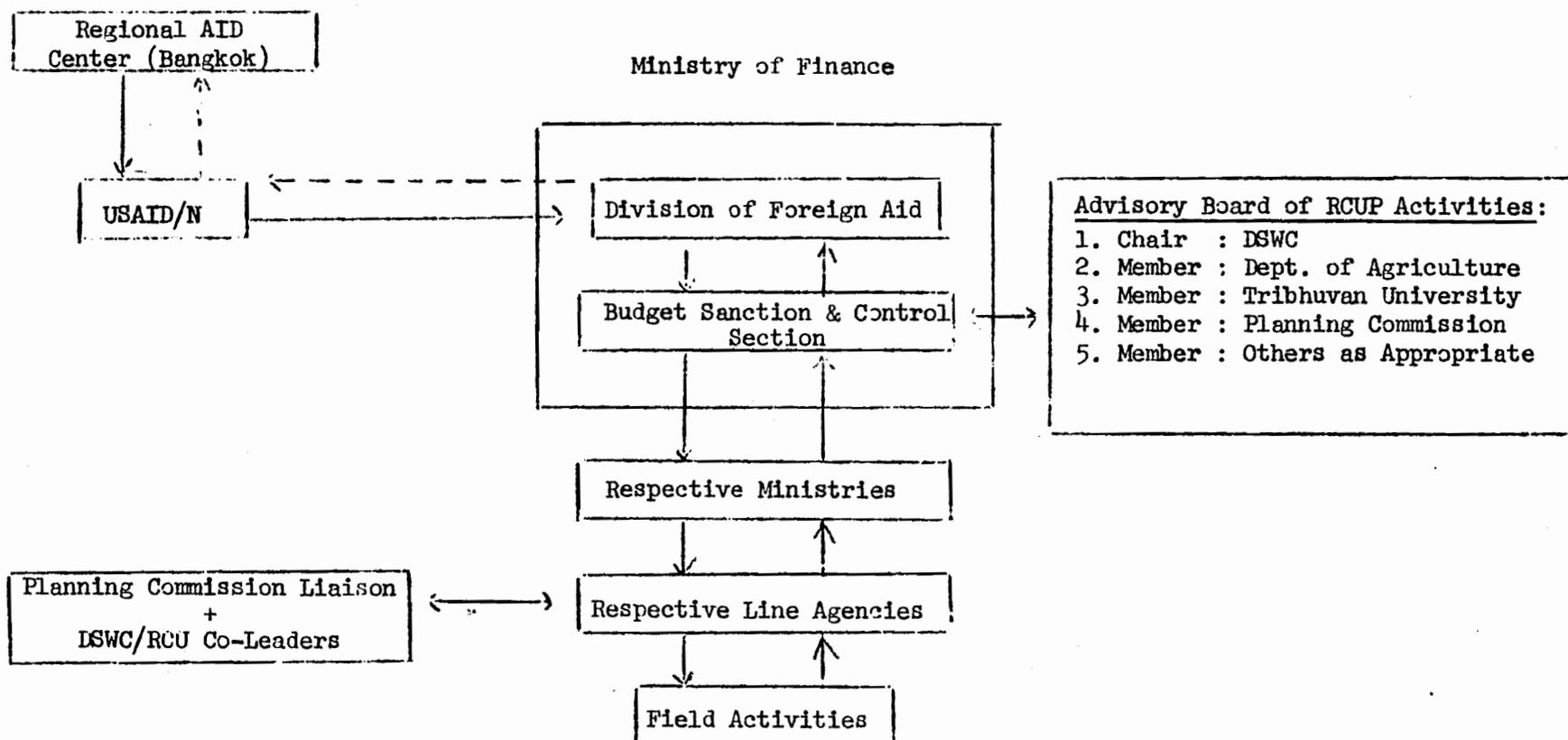
Working with line agencies, the Central Office will participate in and coordinate physical resource inventory projects which are unlikely to be of high priority to local participants, yet are recognized at the national level to be critical for refining project design and monitoring national resource variables. Most importantly, the RCUP office in the DSWC will work with the national level RCU project execution units of the various line agencies participating in the program to ensure that funding, equipment, training and staff assignments flow efficiently to the field, and that the different line agency programs are well integrated and avoid duplication of effort.

RCUP Financial Flow

The financial flow arrangement for the RCUP is simple and functional.

When HMG/N gives its final approval to the RCU Project Paper and supporting Appendices, those documents will serve as a Memorandum of Understanding to guide implementation of the project. On the basis of this Memorandum, a Planning Commission Liaison Officer and the DSWC/RCUP Co-Leaders will work with the RCUP Liaison Officer from each line agency to develop

RCUP Financial Flow



- Advisory Board of RCUP Activities:**
1. Chair : DSWC
 2. Member : Dept. of Agriculture
 3. Member : Tribhuvan University
 4. Member : Planning Commission
 5. Member : Others as Appropriate

————— = Planning and Advise ment
 - - - - - = Disbursal requests
 ———— / — = Disbursals

a plan of action specifying each agency's function for the RCUP, for the Sixth Five Year Plan and each Annual Plan. The line agencies will use the proposed budgets in the various appendices to guide the development of the operational year budget. They will then send a disbursement request through the appropriate channels in their parent Ministry, to the Ministry of Finance, Budget Sanction and Control Section. This Section will collect the disbursement requests and forward them to the Advisory Board for RCUP activities, the members of which will be appointed by the National Conservation Coordination Committee. The Advisory Board will be chaired by a representative of the DSWC, and members will include one representative each from Tribhuvan University, the Department of Agriculture, and the Planning Commission, plus representatives from other agencies as necessary. The Advisory Board will review the agency budget requests for consistency and coordination with proposed project items which have been identified in the RCU project paper. They may invite some informal input from the DSWC/RCUP Co-Leaders at this point. The Advisory Board will then send back to the Ministry of Finance the approved package with some possibly alterations. The Budget Sanction and Control Section will review and approve the disbursement requests, and forward them through the Foreign Aid Division to USAID/N for eventual deposit of a check to the Foreign Aid account in Nepal Rastra Bank. Simultaneously, USAID/N will advise MOF Foreign Aid, the Budget Sanction and Control Section, and DSWC, that the money has been deposited. DSWC will ensure that the funds flow from the Ministry of Finance through the various line agencies to implement intended field activities. This process will be reviewed periodically to ensure that funds are reaching line and field agencies in a timely manner. If delays are experienced in receiving funds, then USAID will suggest to MOF that another, more expeditious system be designed and introduced to ensure successful implementation of the RCUP.

B. IMPLEMENTATION SCHEDULE

The following list of activities is the projected implementation schedule for the RCUP.

<u>Date</u>	<u>Action</u>	<u>Responsible 1/ Agency</u>
1/80	Begin recruitment of 6 PCVs	HMG/N
2/80	Project Paper submitted to AID/W	USAID
3/80	Project Paper review and authorization	AID/W
4/80	1. Project Agreement Signed	USAID, HMG/N

1/ Unless specifically noted responsible agency for action items is assumed to be both HMG/N and contractor

Date	Action	Responsible Agency
	2. HMG/N commence project personnel recruitment	USAID, HMG/N
	3. Contract negotiations begin	AID/W, HMG/N
	4. Detailed site selection for field offices and suspension bridges	Contractor, HMG/N
5/80	1. Contract signed with technical assistant team and all C.P. satisfied	USAID, Contractor, HMG/N
	2. Locate expatriate housing	Contractor
	3. Project co-manager and assistant to Dean arrives	Contractor
	4. Participant selection begins	
	5. Establish consolidated DSWC office including Remote Sensing Center	HMG/N
	6. Short-term consultant requirements identified for 1980-81.	
6/80	1. Select nursery sites and begin construction; selection to be made in conjunction with project planning for initially selected nurseries.	
	2. Prepare Specific "Memorandums-of-Understanding" with respective agencies.	
	3. Establish National Conservation Committee	
	4. Order supplies needed according to work plans for 1980 and 1981 and also duplicating office equipment.	
	5. Begin collection of all resource data leading to preparation of detailed resource management plans and purchase aerial photos and satellite imagery.	
	6. Begin trail work programmed for first year in Darmija area.	

Date	Action	Responsible Agency
	7. Complete Base-line data analysis	
	8. Soil and Water Conservation and Forestry training specialist; (MFTW) Soil and Water Conservation Specialist (IRNR,TU); and Rural Sociologist/Anthropologist (DSWC) arrive.	Contractor
7/80	1. Start design crews working on conservation buildings in following order: Gorkha, Mustang, Myagdi, Kulekhani.	
	2. Make arrangements to support bio-gas research and application in cooperation with United Missions.	
	3. Develop monitoring plan for RCUP activities.	
	4. Participants selected for training in USA for 2 years starting 9/80.	
	5. Begin work on those projects not dependent on receipt of ordered supplies.	
	6. Decide process to record changes on people impacted by RCUP effort; coordinate with original baseline survey.	
	7. Establish and take pictures of projects to be implemented in 1980 and initiate movie arrangements.	
	8. Positively identify the specific roles that women will have in the total RCUP.	
	9. Land-use Planner, Soil Scientist, Range/Pasture Management Specialist, Agriculture/Civil Engineer and Forest Management Specialist arrive.	Contractor
	10. Detailed Action plan made and initiated to carry out first year program according to output guide.	
	11. Short term consultants arrive.	Contractor

Date	Action	Responsible Agency
8/80	<p>12. Establish schedule to provide training for project accountants at National and Field Project areas.</p> <p>1. Field examination of possible irrigation sites in high plateau in the Kagbeni-Muktinath area.</p> <p>2. Begin development of a management plans for Kulekhani sheep farm.</p> <p>3. Establish a system of tree and forage planting records including plant survival.</p> <p>4. Select suspension bridge sites near Pakhapani and on the Kali Gandaki Khola near Kagbeni. Gather survey information for plan design in cooperation with USAID Bridge and Trail project.</p> <p>5. Order Environmental Education Van.</p> <p>6. Ministry of Forest Training Wing to prepare Training Guidelines and Manual to meet objectives of community forest, extension and environmental education.</p> <p>7. Establish credit, loan and grant procedure with ADB/N for forestry activity.</p>	
9/80	<p>1. Begin introduction of 'new' improved stove in all RCUP areas.</p> <p>2. Participants leave country for training.</p> <p>3. Set up a continuous forest inventory system.</p>	
10/80	<p>1. Select multipurpose dam site and begin survey in Pakhapani area. Integrate planning with irrigation system work into project work plans.</p> <p>2. Test drilling for water (Muktinath area).</p>	

Date	Action	Responsible Agency
	<ul style="list-style-type: none">3. Make arrangements for solar drying demonstrations, two in each catchment area.4. Concentrate on establishment, coordination and training required for conservation committees.5. PCV's begin project work.	Peace Corps
11/80	<ul style="list-style-type: none">1. Evaluate project progress. Prepare written report for AID/W.2. Begin work on supply dependent projects (supplies received)3. Begin preparation for base maps in cooperation with remote sensing center.	
12/80	<ul style="list-style-type: none">1. Write site specific work prescription plans.2. Set up pilot fire warden system, Kulekhani.3. Take follow-up pictures at established camera points on projects completed and establish new points for planner projects.	
1/81	<ul style="list-style-type: none">1. Expatriates selected to begin work in 1981.2. Silviculturist/Forest Management and Economist for Institute of Renewable Natural Resource and Hydrologist and Soil and Water Conservation Specialist for ISWC arrive.3. Short term expatriate consultants selected.	Contractor
2/81	Begin setting up stream gages and water runoff plots and sediment and climatic measuring stations.	
3/81	1. Begin construction of buildings in Gorkha.	

Date	Action	Responsible Agency
	2. Order supplies needed for 1982 work plans.	
	3. Begin detailed design work for 1982 work plans including multipurpose dam.	
	4. Distribute kitchen garden kits.	
4/81	Begin work with groups and individuals to develop food and fruit processing and markets.	
5/81	Evaluate progress and prepare action plan for next HMG/N fiscal year.	
6/81	1. Receive Environmental Education Van.	
	2. Complete detailed project design for one Gorkha small water impoundment.	
	3. Project participants return from training in USA.	
	4. Identify short term consultants needed for winter 1981.	
	5. Select participants for US study tour.	
	6. Select participants for training in USA for 2 years starting 9/81.	
7/81	Prepare action plan for Jumla Soil and Water Conservation Office establishment and operations.	
8/81	Start up of Pokhara Institute of Natural Resources.	HMG/N
9/81	Participants leave country for 2 years of training.	
10/81	1. Begin work in Gorkha impoundment.	
	2. Carry out first project evaluation.	AID/N
	3. Receive supplies ordered for 1982 work.	

<u>Date</u>	<u>Action</u>	<u>Responsible Agency</u>
11/81	<ol style="list-style-type: none">1. Record accomplishment on work projects started to date.2. Write prescription and prepare site specific work plans needed for action beginning 1/83.	
12/81	Take follow-up pictures and movies of completed 1980 and 1981 projects.	
1/82	<ol style="list-style-type: none">1. Begin work on all planned 1982 projects including multipurpose impoundment.2. Select short term expatriate consultants.3. Establish camera points; take "before" pictures of 1982 projects.	
3/82	<ol style="list-style-type: none">1. Order supplies needed for 1983 work plans.2. Begin any detailed design work for 1983 work plans.	
5/82	Install first windmill in Mustang area.	
6/82	<ol style="list-style-type: none">1. Select participants for study tour.2. Participants return from training in USA.3. Select participants for 2 years of training in USA.	
9/82	Participants leave for 2 years of training.	
10/82	Receive supplies ordered for 1983 projects as per 3/82.	
11/82	Record accomplishment on all projects to date.	
12/82	Follow-up pictures of completed 1980, 1981 and 1982 projects.	

Date	Action	Responsible Agency
1/83	1. Begin work on all planned 1983 projects. 2. Establish camera points and take "before" pictures of 1983 projects. 3. Select short term consultants.	
3/83	1. Order supplies needed for 1984 work plans. 2. Begin any detailed design work for 1984 work plans.	
6/83	1. Select participants for 2 years of study in USA. 2. Training participants return. 3. Select participants for study tour.	
9/83	Participants depart for 2 years of training.	
10/83	Receive supplies ordered for 1984 projects.	
11/83	1. Record and evaluate accomplishment on projects to date. 2. Write prescriptions and prepare site specific work plans needed for action beginning 1/85.	
12/83	Follow-up pictures of completed 1980, 1981, 1982 and 1983 projects. Take follow-up movies.	
1/84	1. Establish camera points and take "before" pictures of 1984 projects. 2. Begin work on all planned 1984 projects.	
6/84	1. Select participants for 2 years of study in USA. 2. Participants return from 2 years of training.	

<u>Date</u>	<u>Action</u>	<u>Responsible Agency</u>
9/84	Participants depart for 2 years of training.	
10/84	Schedule 5 year project evaluation and accomplishment summary.	HMG/N, Contractor AID/N
11/84	Prepare PP for Phase II RCUP.	USAID/HMG/N
12/84	Follow-up pictures and movie on all project activities.	
1/85	Approve phase II Project Paper	HMG/N and USAID
2/85	1. Review and authorize PP	AID/W
	2. Sign Grant Agreement	HMG/N, USAID
4/85	Negotiate new contract.	
7/85	First five year HMG project is completed.	
7/85	Final RCUP Phase I evaluation completed.	USAID, HMG/N and Contractor.

C. ADMINISTRATIVE ARRANGEMENTS

The Ministry of Forests, Department of Soil and Water Conservation will be the coordinating HMG/N agency for the RCUP. Detailed organizational arrangements have been developed, outlining coordination and cooperation between HMG/N departments and other donor agencies. The project will be decentralized with emphasis placed on supporting the field operations. HMG/N agencies will support the project to ensure effective and efficient implementation. RCUP is not a separate project within the DSWC, but an integral partner in assisting to develop a unit to address Nepal's natural resource problems.

After authorization of the RCUP and the signing of the grant agreement, contract negotiations with the Title XII team to implement the project will begin. The contractor, prior to being awarded the contract, will be requested to present a project proposal/terms of reference which will describe the contractor's proposed process of planning, coordinating and incorporating the many and varied project inputs into an orderly structured management and implementation plan directed to successfully meeting RCUP objectives. Accompanying the proposal/terms of reference the contractor

will provide names and bio-data for the nominated long-term advisors, who are being recommended for teaching positions and as technical field advisors to implement the project. Representatives of HMG/N will schedule trips to the U.S. for interviewing nominees prior to the final selection of these advisors. Presently, HMG/N officials are deciding if HMG/N has the personnel resources to enter into a direct contract with the Title XII Team or if an AID direct contract would be more efficient. Recently AID/W made the determination that under the collaborative assistance approach, HMG/N could enter into a host country contract with United States universities. (See State 292354, November 9, 1979.)

In either case, HMG/N and the contractor will be primarily responsible for administrative arrangements and daily management and implementation of the RCUP. The contractor will be charged with participant training and procurement of all commodities except those required for the design and construction of supporting infrastructure. This latter function will be carried out by HMG/N and USAID/N through local architectural, engineering and construction firms.

Payment will be made to the contractor through an AID direct Letter of Commitment; no cash advances are anticipated for the U.S. Contractor. Advances will, however, be necessary for locally hired contractors and consultants to ensure that these firms and organizations have funds to initiate project activities. Furthermore, providing cash advances to contractors could, in many instances, benefit the project by HMG/N receiving a lower priced contract. With rapid inflation and uncertainties of supplies, especially in the construction sector, it behoves USAID and HMG/N to provide cash advances to construction contractors for the advance purchase of construction materials. Other project elements which will require cash advances are local personnel associated with rural project sites and the Local Resource Conservation Coordination Fund, which will supply credit to farmers.

The role of the expatriate advisors will change as implementation activities are completed. Returning participant trainees and others receiving on the job training will assume technical responsibility as the project evolves. USAID/N's office of Agriculture and Resource Conservation will be the responsible office for monitoring the project and facilitating implementation and evaluation schedules as appropriate.

D. EVALUATION PLAN

The evaluation plan for RCUP is somewhat distinctive since a system for inventory and monitoring is built into the project. In addition to this on-going evaluation of the biophysical environment, RCUP will have a mid-term and final evaluation which will include all of the project components.

To establish an Inventory and Monitoring System for each specific site where an intervention program is to be implemented, the physical status of the area prior to intervention, the amount and kind of intervention

activity, and the physical status after intervention will be determined. The measurement and monitoring program will be as supportive and informative as possible and any associated disruption of the intervention program will be kept to a minimum. This process will be facilitated by USAID/N's Agriculture Resource Inventory Project which will provide specific detailed information on physical characteristics of the RCUP area by means of its remote sensing techniques. This documentation, supplemented by aerial reconnaissance and photography and data gathered from site investigations, will provide sufficient information to establish baseline data and to monitor the change occurring within the project area as a whole. The effect of the RCUP on the entire project area can be determined by the comparison of the baseline data with comparable data obtained at the end of the five year project period.

The mid-term and final evaluation will include assessments obtained from the inventory and monitoring system with three other project components: (1) institutional development, (2) project management and (3) the impact on the target population. All of these aspects will be developed in relation to well specified objectives and an evaluation criteria which will be developed in relation to quantifiable outputs supported by qualitative data.

The evaluation component of the institutional development aspects of this project will reflect current status and any needed changes in the organizational projections. Any additional required training will reflect the lead time needed to effect the transformation of the person power from their unqualified state at time (n) to a qualified state at time (+n). In addition, information will be gathered on institutional capabilities, effectiveness of on-the-job training and the in-service training of needed staff. Cost data of such activities and personnel functional effectiveness will be sought in order to improve on the current projections of person power needs and costs involved.

The management component of the RCUP includes the internal workings of the project particularly as it relates to the impact of the project on the site areas. This evaluation will reflect staff effectiveness, resources accounting, and sub-components of the project support system such as construction, procurement, and maintenance of equipment.

The impact of RCUP on the target population is critical to the success of the project. A baseline survey was conducted in the fall of 1978 during which time interviews were obtained from a random sample of approximately 625 families located in 44 wards in 22 panchayats within the RCUP districts of Kulekhani, Gorkha, Mustang and Myagdi.

This preliminary data will be compared with additional data gathered on the target population during on-going project monitoring and at mid-term and final stages. Specific attention will be paid to villagers perception of the resource conservation measures. An analysis of the

changes that these inputs have on village life will be included. This involves an evaluation of social, economic and nutritional changes. An attempt will also be made to obtain data related to population pressures, especially changes in fertility, mortality and contraceptive usage. The data gathered on population will be collected by the Population Commission Staff.

Since a particularly important link in meeting project objectives involves a positive interaction between extension agents and the villagers (male and female), the nature of this link will be evaluated. If social misunderstandings are occurring at a frequency which seriously inhibit project implementation, this information will be fed-back to the training sector of the project.

Related to this is RCUP's concern with the overall effect the project is having on women. Specific efforts will be made to evaluate rural females' participation in the project, that is whether or not they are being drawn into the development orbit. Attention will be directed to female participation in the training sector of the project, their ability to obtain credit from the Local Resource Conservation Coordination Fund and their access to the employment opportunities that are being generated by the project.

The methodology to be employed in the evaluation will be appropriate to the component being investigated. That is, natural scientific techniques will be used in evaluating environmental changes while survey methods, that are culturally and socio-linguistically appropriate, will supplement a more qualitative analysis of the projects social components.

E. CONDITIONS AND COVENANTS:

In addition to the two standard conditions precedent required for grant agreements, conditions precedent requiring an executed contract for long-term technical services and that HMG/N appoints a qualified project manager are included in the grant agreement.

Four covenants are included in the grant agreement; essentially they commit HMG/N to (1) establish an evaluation program, (2) provide qualified personnel to fill necessary permanent positions to implement the project, (3) provide funds on a timely basis in accordance with the HMG/N budget shown in Annex I of the grant agreement and (4) to budget and provide recurring costs after the completion of the project.

CHECKLIST OF STATUTORY CRITERIA

Items from the Standard Item Checklist have been reviewed and taken into consideration during the preparation of the Project Paper. Applicable items have been addressed in the Project Paper and/or the Grant Agreement.

COUNTRY CHECKLIST

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights?
2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the United States unlawfully?
3. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?
4. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. The Department of State has not determined that the Government of Nepal has engaged in consistent patterns of gross violations of internationally recognized human rights.
2. No.
3. Yes.
4. No such indebtedness is known to exist.

5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? 5. No.
6. FAA Sec. 620(a), 620(f); FY 79 App. Act, Sec. 108, 114 and 606. Is recipient country a Communist country? Will assistance be provided to the Socialist Republic of Vietnam, Cambodia, Laos, Cuba, Uganda, Mozambique, or Angola? 6. No.
7. FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? 7. No.
8. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, or U.S. property? 8. No.
9. FAA Sec. 620(1). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason? 9. An investment guaranty program for the specific risks cited has not been instituted. The AID Administrator has not considered denying assistance to Nepal for this reason.
10. FAA Sec. 620(0); Fishermen's Protective Act of 1967, as amended, Sec. 5. If country has seized, or sanction against, any U.S. fishing activities in international waters:
a. has any deduction required by the Fishermen's Protective Act been made?
b. has complete denial of assistance been considered by AID Administrator? 10. Nepal has not seized or imposed penalties or sanctions against any U.S. fishing activities. Nepal has no navy.
a. Not applicable.
b. Not applicable

11. FAA Sec. 620; FY 79 App. Act, Sec. 603. (a) Is the government of the recipient country in default for more than 6 months on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act. appropriates funds?

11.

a. No.

b. No.

12. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount of foreign exchange spent on military equipment and the amount spent for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes, as reported in annual report on implementation of Sec. 620(s)". This report is prepared at time of approval by the Administrator of the Operational Year Budget and can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

12. Not applicable

13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

13. No, to the first question. Second question not applicable.

14. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?

14. Nepal is not in arrears in its obligations to the UN.

15. FAA Sec. 620A, FY 79 App. Act, Sec. 607. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism?

15. No.

16. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?

16. No.

17. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it detonated a nuclear device after August 3, 1977, although not a "nuclear-weapon State" under the nonproliferation treaty?

17. No.

B. FUNDING CRITERIA FOR COUNTRY ELIGIBILITY

B. FUNDING CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

1.

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy?

a. The Government's commitment and progress on each of these matters are reviewed as appropriate in preparation and evaluation of projects. Criteria, are established within the context of each project as objectively verifiable indicators.

b. FAA Sec. 104(d)(1). If appropriate is this development (including Sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor?

b. Coordinated assistance addresses problems of nutrition, agricultural production, rural development and assistance to the rural poor.

2. Economic Support Fund Country
Criteria

2.

a. FAA Sec. 502B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights?

a. Not applicable.

b. FAA Sec. 533(b). Will assistance under the Southern Africa program be provided to Mozambique, Angola, Tanzania, or Zambia? If so, has President determined (and reported to the Congress) that such assistance will further U.S. foreign policy interests?

b. Not applicable.

c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

c. Not applicable.

d. FY 79 App. Act. Sec. 113. Will assistance be provided for the purpose of aiding directly the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

d. Not applicable.

e. FAA Sec. 620B. Will security supporting assistance be furnished to Argentina after September 30, 1978?

e. Not applicable.

ANNEX A

PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634A. (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?

- a. Notification of the proposed project has been sent to the congress as part of the annual AID congressional presentation.
- b. Congress will be notified of any increase in project funding.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Yes see Financial Analysis & Plan, Section III.D; page 43 of Project Paper.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required.

4. FAA Sec. 611(b); FY 79 App. Act. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?

Yes, preliminary planning has been carried out and economic NPV and IRR analyses conducted. See Section III. E of Project Paper.

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

Yes, See Annex D.

6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

The project as designed is not at this time susceptible of execution as part of a regional or multilateral project. However other international donors are also assisting in this sector.

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

Yes to (b), (c), (d) and (e).

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance program (including use of private trade channels and the services of U.S. private enterprise).

U.S. private enterprise firms may be involved in implementing the project.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The project Grant Agreement contains provisions which assure that the HMG/N will utilize local currencies for support of local costs expenses of the project. See Section III.D in Project Paper for HMG/N local currency contribution.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No.

11. FAA Sec. 601(e). Will the project utilize competitive selection selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes

12. FY 79 App. Act Sec. 608. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar, or competing commodity?

Not applicable

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

- a. The project deals directly with this subject
- b. The project directly involves this subject.
- c. The project does not apply to this subject.
- d. Yes, through favorable project impact on rural areas.
- e. The project does not apply to this subject.

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (including only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

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(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

Project will assist in the protection and restoration of Nepal's natural resources, and assist to increase crop yields and rural employment.

(2) [104] for population planning under sec. 104(b) or health under sec. 104(c); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

Not applicable

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

Not applicable.

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

Not applicable.

(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(ii) to help alleviate energy problems;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

(v) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. [107] Is appropriate effort placed on use of appropriate technology?

Yes, see Project Analysis, Section III.A. in Project Paper.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

The HMG/N will provide at least 14% of the cost of the project; a waiver for a "relatively least developed country" is requested. See FAA Section 110(a) discussion in Section III.0 of Project Paper.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to the Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

Not applicable.

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country, utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

The HMG/N has stated in its five year plans its desire to address increasing food production and assisting the rural areas. This project is viewed as crucial to the HMG/N's ability to do this. It centrally utilizes Nepalese institutional resources in the process of which they will be further developed, not least to assist with self-governing governmental policy-making.

109/110
g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase or productive capacities and self-sustaining economic growth?

The project should contribute to the long run increase of productive capacities and achievement of self-sustaining economic growth through natural resource conservation.

2. Development Assistance Project Criteria (Loans Only)

Not applicable.

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

3. Project Criteria Solely for Economic Support Fund

Not applicable.

a. FAA Sec. 531(a). Will this assistance support promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102?

b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities?

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project
from FY 80 to FY 85 ANNEX B
Total U.S. Funding \$41,015,100
Date Prepared: December 31, 1979

Project Title & Number: Resource Conservation and Utilization, 367-0132

NARRATIVE SUMMARY	OBJECTIVELY VARIABLE INDICATOR	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: To improve the standard of living of the rural poor through increased agricultural production, raise the nutritional level of the rural population and to develop employment opportunities in rural areas.</p>	<p>Measures of Goal Achievement: 1.Improve income distribution over the long-term for rural farmers. 2.Foreign exchange savings attributable to a decrease in imports of food. 3.Improved family health through an improved nutritional intake.</p>	<p>1.HMG/N National Income Accounts. 2.Ministry of Finance and Central Bank's records. 3.Ministry of Health, regional and district health clinic records of family visits to rural clinics.</p>	<p>Assumptions for achieving goal targets: HMG/N politically and financially supports rural development.</p>
<p>Project Purpose: To assist HMG/N in the protection and restoration of the soil,water and plant resource base upon which the rural population is totally dependent.</p>	<p>Conditions that will indicate purpose has been achieved:End of project status 1.Reduction in soil loss. 2.Increased agricultural production. 3.Increased rural employment. 4.Increase in per capita fire wood and forage availability.</p>	<p>1.Watershed monitoring 2.Use of photo points. 3.Continuous forest inventory. 4.Baseline survey and socio-economic monitoring. 5.Periodic project evaluation.</p>	<p>1.HMG/N will support the RCUP with timely financial and personnel inputs. 2.HMG/N selects qualified candidates for US participant training.</p>
<p>Outputs: 1. Increase in number of trained persons in natural resource management. 2.Watershed & forest management programs established 3.Fodder and fuelwood tree plantations established. 4.Increase in crop yields. 5.Increase livestock productivity.</p>	<p>Magnitude of Outputs: 1.70 participants trained in U.S. & 144 short termers. 2.173,991 hectares of watershed improvement. 3.Over 12,618 hectares planted. 4.Yields/hectare of farm land increased by 15%. 5.Estimated 10% increase.</p>	<p>1.Participants return to Nepal and join RCUP. 2.Visual observations and inspections of rural areas where RCUP is active. 3.Evaluations and project monitoring.</p>	<p>Assumptions for achieving outputs: That HMG/N supports RCUP and introduces and encourages sound resource conservation practices.</p>
<p>Inputs: AID and HMG/N provide financing to carryout technical services, purchase equipment and materials, construct infrastructure and train staff for RCUP.</p>	<p>Implementation Target (Type and Quantity): Implementation Plan presented in PP.</p>	<p>Annual project expenditures and periodic accomplishment reports and project evaluations</p>	<p>Assumptions for providing inputs: That HMG/N staffs the RCUP with able and experienced personnel.</p>

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

PROJECT LOCATION : NEPAL
PROJECT TITLE : RESOURCE CONSERVATION AND UTILIZATION PROJECT
FUNDING : \$27,498,200
EA PREPARED BY : MERVIN E. STEVENS, PROJECT OFFICER
ENVIRONMENTAL ACTION
RECOMMENDED : NEGATIVE DETERMINATION

1. Summary

The primary thrust of the Resource Conservation Utilization Project is toward land conservation, i.e., making land more productive by applying land-use practices appropriate to the control of soil erosion and flooding, and thereby introducing effective management of soil and water resources.

The project's field operations will focus on four selected areas representative of hill and mountain conditions in Nepal, especially with respect to combinations and/or intensities of typical soil and water conservation problems. Within these four ecological systems, discrete but complementary activities will center on the application of tried practical means to reverse existing environmental degradation by advocating and demonstrating practices which allow a better balance between man and nature. Special attention will be given to (a) soil erosion, (b) deforestation, (c) watershed run-off, and (d) stream flooding.

At the National level, the project will focus on assisting in the institutionalization of the HMG Department of Soil and Water Conservation and other supporting agencies, the establishment of the Tribhuvan University Institute of Renewable Natural Resources, and the creation of the Ministry of Forest Training Wing to carry out in-service education programs. These activities will lead to the protection, improvement and use of natural resources in ways which promote the highest possible economic and social benefits for the nation.

There are no controversial environmental issues within the proposed actions. The project is unique in that its whole purpose is to identify and correct existing environmental degradation conditions. It will establish an environmental correction procedure, based upon project activity, that can be extended far beyond the field work areas.

The Initial Environmental Statement made for the RADP/RCUP Design Project, No. 367-0133, states, "A decision for a negative determination is recommended, with the understanding that ex ante evaluation of environmental impact be included in all scopes of work contributing to the design effort, and that field activity pre-feasibility studies include the same."

2. Purpose and Need

USAID/N was first approached by HMG/N in 1976 for assistance in developing a project for the conservation of natural resources in the uplands of Nepal. It was thought that such a project would complement rural development activities and provide guidance and direction for a wider understanding of the environmental basis of wholesome development. In 1977, a US team came to Nepal to prepare a preliminary report on conservation needs and to develop a framework for conservation program design. This group recommended the fielding of a joint team of US and HMG experts to design a project that would include soil and water conservation land treatments to reduce erosion, reforestation to develop a sustained firewood-timber-fodder yield, range improvement to increase forage production, irrigation to increase crop production, watershed development to adjust stream and river flows, and multi-purpose structures to retard flood flows and provide for municipal water supplies and hydropower generation. The team recommended that the above local level activities be implemented concurrently with the establishment of a national infrastructure capable of continuance after USAID/N assistance terminates. These recommendations have resulted in the five year, first phase Project Paper for the fifteen year Resource Conservation and Utilization Project to which this Environmental Assessment applies.

Over 60 percent of the people in Nepal live in the hills and mountains. The typical rural family relies for its sustenance on the produce of less than 1 hectare of mostly marginal and submarginal land. According to Erik Eckholm (Losing Ground), soil fertility is declining and "the average hectare of arable land in Nepal's hills must now support at least nine people." As a result of these facts, exploitation of all available natural resources tends to be extremely heavy in this country. In February, 1979, an AID Report to Congress, entitled "Environmental and Natural Resource Management in Developing Countries", highlighted the severe environmental and natural resource problems that afflict developing countries in Asia. The following facts were written about Nepal:

- "In Nepal only eight percent of the population has access to a safe and convenient drinking water supply."
- "These river resources are as yet under-utilized. Many river projects have been undertaken with insufficient attention to the full resource potential of the water (because of inadequate

infrastructure, for example, or the lack of grid systems for power transmission). For example, Nepal, reportedly, has the highest potential hydroelectric generating capacity in the World."

- "Total forest area in Nepal decreased by about twenty-five percent from 1964 to 1975. Without the initiation of large-scale reforestation projects, accessible forests in the hill areas could disappear within fifteen years and those of terai within twenty-five years."

- "Soil erosion is occurring in hilly and mountainous areas, which often constitute the only remaining land available for cultivation. With the monsoon rains, erosion is inevitable unless there is an extensive terracing system. The rivers of Nepal annually carry over 240 million cubic meters of soil to India. This loss has been called Nepal's 'most precious export'."

- "Nepal's Sixth Development Plan (1980-85) discusses the relationship between the government's resettlement program and the country's limited natural resource base, and the associated need to provide alternative employment opportunities in the non-agriculture section."

These are, of course, only a small sampling of many factual statements made about Nepal's environmental situation. They are representative, nevertheless, of the facts that led to USAID/N's positive response to the HMG/N's request for assistance.

3. Alternative, Including the Proposed Action

There are basically four options open to designers of projects in soil and water conservation and related environmental concerns:

- a. No action.
- b. A single objective approach, where a single solution is sought for one national problem only.
- c. A multi-objective approach, where partial solutions are sought for an associated sub-set of national problems.
- d. An comprehensive integrated approach, where simultaneous solutions are sought for all problems existing within an area or drainage basin.

Alternative (a), no action, is unacceptable for obvious reasons.

Alternative (b) is easily conceived but difficult to execute. Given existing social constraints and the almost total use of natural resources in Nepal's rural areas, break-downs in portions of the operations would be inevitable. This option would entail real danger of over-looking and neglecting important, vital relationships between the rural population and the natural resources on which they depend. It could also tend to concentrate scarce development resources on solving single problem(s) that may not rank high in evolving national priorities.

Alternative (d) is too ambitious. HMG/N personnel resources are spread thin as it is, and would not now be able to manage the extensive operations required effectively to carry out a fully-integrated approach. Further, this limited staff currently has no functioning field infrastructure capable of supporting efforts to find simultaneous solutions. Finally, basic resource data are unavailable, and there is a great paucity of knowledge needed for constructing and articulating an integrated approach.

Alternative (c) is the option selected for this project.

The plight of the Himalayan landscape has been lamented in every report and publication on natural resources in Nepal. Its exploitation is not wanton, but stems from understandable human needs and anxieties. The ability of land in Nepal to recover from abuse seems to be substantial, and this resiliency suggests that appropriate soil and water conservation practices can significantly improve the land and its capacity to be productive. The establishment of the Department of Soil and Water Conservation within HMG/N's Ministry of Forests indicates the high priority Nepal's policy makers are giving to the land and to the need for long-range plans to protect and improve it.

A successful program in soil and water conservation in Nepal will require strong national leadership. In requesting American assistance for this project, HMG/N is signalling recognition of Nepal's need for the kind of strong national policy that has evolved in the U.S., from somewhat similar conditions 100 years ago. Strong technological and institutional assistance from the U.S.D.A.- land grant University soil and water conservation linkage is both needed and desired.

4. Affected Environments

The first five years of this sequentially phased project addresses the need to build national and local level infrastructures capable of implementing blueprints for effective soil and water conservation management. At the national level, the emphasis will be on institution building, training and coordination. Orientation in the field will be toward the introduction of effective, participatory

local level conservation programs. The four areas selected for intensive project implementation activity are described as follows:

The KULEKHANI site is a 211 km² drainage basin lying immediately south-west of the Kathmandu valley within the outer Himalayan foothills. With a average density of 976 people per km², the total population is 206,000. There is highway access. Rocks include granites, quartzites, schists, limestones, sandstones and slates. Elevations go up to more than 3,500 meters and most slope angles exceed 25 percent. Soils are thin and poorly developed. Forest vegetation is subtropical broadleaves. The estimated sediment yield is 700m³/km²/yr. Precipitation ranges between 1500 to 2500 mm with about 30 percent falling during the monsoon season, and 90 percent contributing to the excessively large runoff. Forests account for 49 percent of the land cultivated lands, 39 percent pasture, 10 percent and other uses, 2 percent. Current trends toward increasingly intensified land usage promise to accelerate the processes of denudation.

The GORKHA site is an elongated 794.96 km² drainage area in North-Central Nepal populated with 225,000 people. There is road access into the lower watershed. Gorkha is located in the inner Himalayas and is made up of sedimentary, metamorphic and igneous rocks. Mountains in the northern part of the watershed rise up to over 5,000 meters. The lowest elevation is about 600 meters. Slopes are mostly greater than 36 degrees. Soils range from deep alluvium to thin alpine. The natural forest ranges from subtropical broadleaf to coniferous. No sediment yield data is available, but estimates indicate upper limits of 300 - 1000 m³/km²/yr. Annual precipitation ranges from 1400 to 1600 mm. Forests make up 41 percent of the land; cultivated lands, 39 percent; pasture lands, 17 percent, snow covered, 1 percent; and other uses account for 2 percent. Vegetation is highly disturbed, soils are eroded. There are many deep gullies, and main streams are choked with sediment.

The MUSTANG/MYAGDI sites will be separated during project implementation, but are grouped here since the areas are within one large watershed. Located within north central Nepal, this area covers 2509.19 km² with most of the region lying above 3000 meters. The highest peak is in excess of 7,500 mm. The population is 107,000. Rocks include sedimentaries, metamorphics and igneous. Soils vary greatly, from relatively deep to very thin coarse textured. Forest vegetation ranges from subtropical broad-leaved species to coniferous. There is extensive grass land. Most of the area receives less than 400 mm of moisture per year. Sedimentation-runoff rates are high. Land uses

include forests, 15 percent; cultivated lands, 8 percent; pasture lands, 31 percent; snow covered, 7 percent; rock outcrop, 39 percent; and others uses less than 0.05 percent. Population density is low, but ruminant grazing dominates the agricultural economy. There is the clear opportunity to stop land degradation trends.

The JUMLA site is located in northwestern Nepal. Basic descriptive data for the area are being collected with Canadian (CIDA) assistance. This project (RCUP) will support conservation within the area by helping to build an infrastructure modeled upon lessons learned in the other three project areas.

In all of these project areas, the populace in general, and small farm families in particular, will be directly benefitted by the project's conservation activities. First, farmers will have ready access to increased fodder and firewood production on higher, steeper slopes, and improved pasture on lower, outward sloping terraces of marginal and submarginal land currently used primarily for crop production. Second, whole communities will benefit from the enhanced output of community-managed forests and pasture lands, irrigation works, water impoundments, channel diversion structures, and other erosion control devices and measures. Soil and water conservation measures of many types will contribute to stabilizing and enhancing village economies, and making village life more productive, rewarding and safe.

5. Environmental Consequences

The multi-objective, field oriented alternative selected for this project has as its primary focus the reducing of erosion, runoff and floods through means of reforestation, better range management, and improved agricultural practices, etc. The ultimate success of the project will be measured not only in terms of actual reductions in soil erosion brought about during the course of its 15 year life, but also in the degree to which permanent, desirable changes are introduced into the behaviour and lifestyles of the populations involved. Over 700,000 people will receive tangible benefits from the project, through increased land productivity added jobs, and a better standard of living. Soil losses are expected to be reduced from up to 200 tons per hectare per year under the worst unmanaged state of current land use practice, to as low as six tons under well-managed conditions.

The introduction of improved soil and water conservation practices within the project areas is expected to reverse the present trend of a one percent per year reduction in food production which results mainly from poor conservation practice, and begin immediate upgrading of the watersheds with early support of the

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villagers. A five dry metric ton per hectare forage increase is expected from the pasture development activity. This gain, obtained after three years, represents a change from 1.2 dry metric tons to 6.2. By decreasing the excessive trailing now required by buffaloes and cattle to obtain forage and water, milk production should increase by 15 percent. In the cooler sub-alpine areas it is expected that forage production will be doubled to at least 4 metric dry weight tons per year within 2 years. By emphasizing treatments on critical land areas, such as sub-marginal lands, soil losses should be reduced on 17,000 hectares per year. The estimated 150 metric tons per hectare per year of erosion occurring from roads should be reduced to 12 metric tons. Impoundments will contribute to downstream sediment reduction, flood control and increased water storage to be used for irrigation, hydro-power and fisheries production. Irrigation alone should contribute to an increase of 0.44 tons crop production yields per hectare per year. There will be opportunities to retire non-productive eroding cropland to forage and fodder tree production. Crop production will increase by 15 percent with the emphasis applied to supporting agriculture on suitable lands. Over 32,000 hectares will be planted to trees, thus contributing to the multiple goal of furnishing ground cover as well as fuel, fodder, and timber. It is estimated that well managed forest sites will increase in yield from 9 m³ to 16 m³ per hectare after 40 to 50 years. One result of better vegetation management will be an increase in the quality and quantity of the wildlife habitat.

At the national level, an in-country Institute of Natural Renewable Resources will be established to serve as the unit producing about 250 qualified soil and water conservation officers and foresters each year. These personnel will be capable of following through with the principles and implementation procedures established by the project. Additionally, an inservice training program will be established whereby forestry and soil and water conservation authorities can carry out short-term, job-specific training suited to changing local conditions. There will be inter-organizational coordination and institutional building linking the local and national infrastructures.

Many of the practices to be implemented in the project sites will have an effect on labor. Pasture improvement alone will account for almost 860,000 person days per year of labor savings. By increasing production improved range lands, over 24,000 person days per year should be saved by reducing herding times. The labor required to collect fuel, fodder and timber will be reduced at least 70 percent. Labor requirements as a result of terrace improvement should be reduced by 25 percent. At least 30 percent of water hauling labor requirements should be eliminated.

There will be some unfavorable effects. Until the reforestation activity begins to yield sufficiently to meet demand, increased tourism, business and commerce may create new forest product shortages. It may be found that each area cannot be made self-sufficient, and out-migration may occur. The successful implementation of the project will require basically that the people in the project areas change some of their land use practices. Social impacts will be carefully monitored and evaluated during the project to ensure the mitigation of any adverse social effects. Construction of impoundments and other physical land modification projects may cause localized adverse impacts on the natural environment. Specific sites for such projects have not been identified yet; however, none of these projects will be allowed to proceed until: (1) specific project plans are prepared outlining resource information, conservation measures and a construction schedule including management, design, construction method and maintenance, and (2) a study of environmental impacts is undertaken.

A baseline study was conducted during the design of the project. Interviews were conducted with 625 families located in 44 wards and 22 panchayats of the four RCUP areas. This data will serve as the foundation for systematic project monitoring. The project also includes on-going mechanisms to resurvey and evaluate project effects and implement indicated modifications.

The use of pesticides is not envisioned. At some higher levels, there may be found snow leopards, an endangered species; however, this project does not foresee the implementing of any activities that would threaten wildlife populations.

6. Recommendations and Conclusions

Specific sites for project activities which do have a potential for creating localized adverse impacts cannot be identified at the time of Project Paper submission. However, environmental analyses of these various activities will be undertaken as the sites are identified and the projects are designed for implementation, and these analyses will be reviewed by USAID/N before a decision is made to proceed with each sub-project.

USAID/N, therefore, recommends that all project components except the construction of new irrigation systems, impoundments, and micro-hydro-units be given a Negative Determination. The review of environmental impacts of irrigation systems will be undertaken after specific sites are identified. Recommendations stemming from such studies will be taken into account before proceeding with each irrigation sub-project. As for impoundments and micro-hydro units, the feasibility studies for these activities will include an analysis of environmental impacts. A covenant to the grant agreement will provide for such studies and actions to be taken with respect to study recommendations.

Section 611(e) Certification
And
Resource Conservation/Utilization Project

I, Samuel H. Butterfield, Principal Officer of the Agency for International Development in Nepal, having taken into account, among other things, the maintenance and utilization of projects in Nepal previously financed or assisted by the United States, the performance of the Ministry of Forests, Department of Soil and Water Conservation which has responsibility for implementing and maintaining natural resource projects in Nepal, and the previous assistance from other donors specifically directed to natural resource development, do hereby certify that in my judgement His Majesty's Government, Nepal has both the financial capability and the human resource capability to effectively maintain and utilize the project to be carried out under this grant.



Samuel H. Butterfield
Director, USAID/Nepal

Date: 1/11/80

ANNEX E

CALCULATION OF NET PRESENT VALUE AND INTERNAL RATE OF RETURN FOR RCUP

BENEFITS AND COSTS, 1981 - 1995
(\$ 000)

End of Year	Total Cost	Total Benefits	Net Benefits	Discounted 15%	Discounted 20%	Discounted 25%
July 1981	7790	323	(7467)	(6496.3)	(6220.0)	(5973.6)
July 1982	9014	1153	(7861)	(5942.9)	(5455.5)	(5031.0)
July 1983	8709	4066	(4723)	(3107.7)	(2734.6)	(2418.2)
July 1984	7493	6909	(584)	(334.1)	(281.5)	(239.4)
July 1985	5952	8065	2113	1050.2	849.1	693.1
July 1986	4664	11168	6504	2809.7	2178.8	1704.1
July 1987	4664	11168	6504	2445.5	1814.6	1365.8
July 1988	4664	11168	6504	2126.8	1515.4	1092.7
July 1989	4664	11168	6504	1847.1	1261.8	871.5
July 1990	4664	11168	6504	1606.5	1053.7	695.9
July 1991	5143	20131	14988	3222.4	2023.4	1289.0
July 1992	5143	20131	14988	2802.8	1678.7	1034.2
July 1993	5143	20131	14988	2443.0	1393.9	824.3
July 1994	5143	20131	14988	2113.3	1169.1	659.5
July 1995	5143	20131	14988	1843.5	974.2	524.6
				8429.8	1221.4	(2907.5)

Note: The internal rate of return (by interpolation) is 21.5 percent.

Annex F

Estimated Costs for Long-Term Advisors^{1/} and Short-Term Consultants^{2/ 3/}

FY	Number		Total Person Months (X) Costs Per Month (+) Consultant (=) Costs				Consultant (=) Costs		Total	
	Advisors	Consultants	Advisor	Consultants	Advisor	Consultants	Consultants Air Fare	Advisors(+) Consultant(=)		
1980	11	6	41	15	10,000	10,500	21,000	410,000	157,500	588,500
1981	16	11	172	29	10,000	10,500	38,500	1,720,000	304,500	2,063,000
1982	16	10	176	27	10,000	10,500	35,000	1,760,000	283,500	2,078,500
1983	12	12	120	30	10,000	10,500	42,000	1,200,000	315,000	1,557,000
1984	5	8	26	22	10,000	10,500	28,000	260,000	231,000	519,000
1985	1	4	7	10	10,000	10,500	14,000	70,000	105,000	189,000
Total			542	133			178,500	5,420,000	1,396,500	6,995,000

1/ Long term Advisor costs (spouse and 2 school aged children)

Basic Salary	\$40,000
Differential Pay, 15% of Salary	6,000
Insurance 8%	<u>3,680</u>
Contractors overhead, 75%	34,500
School Allowance (2)	10,000
One way air fare and travel allowance (4)	6,000
Shipment and storage of household effects and car	6,000
Local Rent and Utilities	6,500
R & R travel (4)	<u>4,800</u>
	Sub-Total
	<u>\$117,480</u>
2 percent contingency	<u>2,520</u>
	Total Annual Costs
	<u>\$120,000</u>

(\$10,000 per month)

2/ Consultant Costs Per Month

(A) Salary @ \$160/day(X)	
22 work days/month	\$ 3,520
Insurance @ 8%	280
Contractors overhead	
rate of 1.5	5,280
Per Diem in Nepal	
for 30 days	1,200
Miscellaneous Expenses	<u>220</u>
	\$10,500

3/ Provision for contractors home office support budget is included in table 1 and calculated at \$84,000 per year.

(B) Round trip for domestic and International air fare plus travel expenses per Consultant	\$ 3,500
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ESTIMATED TIME OF ARRIVAL AND DURATION OF ADVISORS AND CONSULTANTS

Advisors								Consultants		
Title	Person Months Per Fiscal Year						Total	Title	Person Months	Approximate Current Year Timing
	1980	1981	1982	1983	1984	1985				
A. Project Co-ordinator	5	12	12	12	12	7	60	1. Institute of Renewable Natural Resources ^{1/}	50	80, 81, 82, 83, 84, 85
B. Ministry of Forest Training Wing								2. Horticulturist	8	81, 82, 83
1. Soil and Water Conservation training specialist	4	12	8	0	0	0	24	3. Watershed Economist	8	81, 82, 83
2. Forestry Training specialist	4	12	8	0	0	0	24	4. High altitude nursery management specialist	5	80, 81
C. Inst. of Renewable Natural Resources								5. Sampling statistician	7	80, 81, 82, 83
1. Asst. to Dean/Curriculum Development	5	12	12	7	0	0	36	6. Adaptive Research specialist	5	83, 84
2. Soil Engineer/Hydraulics	0	4	12	8	0	0	24	7. Energy specialist	13	80, 81, 82, 83, 84
3. Soil/Water Conservation specialist	4	12	8	0	0	0	24	8. Other	37	80, 81, 82, 83, 84, 85
4. Silviculturist/Forest Management	0	9	12	9	0	0	30	Total	133	
5. Economist	0	9	12	9	0	0	30			
D. Central Staff, DSWC										
1. Land use planner	3	12	12	12	1	0	40			
2. Soil Scientist	3	12	12	12	1	0	40			
3. Hydrologist	0	9	12	9	0	0	30			
4. Range/Pasture Mngt.	3	12	12	9	0	0	36			
5. Agriculture/Civil Engineer	3	12	12	12	9	0	48			
6. Forest Management	3	12	12	9	0	0	36			
7. Rural Sociologist/Anthropologist	4	12	8	0	0	0	24			
8. Soil and Water Conservation specialist	0	9	12	12	3	0	36			
Total	41	172	176	120	26	7	542			

^{1/} Position and duration according to Joint ODA/USAID report on training.

Annex G

Estimated Costs of Participant Training ^{4/} ^{6/}

	Number		Training Costs	^{3/} Air Fare	Total
	No.	Months			
			<u>FY 1980</u>		
Long Term ^{1/}	10		\$160,000	\$35,000	\$195,000
Short Terms ^{2/}		12	30,000	21,000	51,000
Sub-Total			190,000	56,000	246,000
			<u>FY 1981</u>		
Long Term	25		400,000	52,500	452,500
Short Term		24	60,000	42,000	102,000
Sub-Total			460,000	94,500	554,500
			<u>FY 1982</u>		
Long Term	30		480,000	52,500	532,500
Short Term		36	90,000	63,000	153,000
Sub-Total			570,000	115,500	685,500
			<u>FY 1983</u>		
Long Term	30		480,000	52,500	532,500
Short Term		36	90,000	63,000	153,000
Sub-Total			570,000	115,500	685,500
			<u>FY 1984</u>		
Long Term	30		480,000	52,500	532,500
Short Term		36	90,000	63,000	153,000
Sub-Total			570,000	115,500	685,500
Total	70	144			
Sub-Total			2,360,000		2,857,000
Language Instruction ^{5/}			32,000		32,000
Total			\$2,392,000	\$497,000	\$2,889,000

^{1/} Long term participant training averages \$16,000 per year and programmed for 24 months per participant, except the 15 new starts in FY 84 will be on a 12 month program.

^{2/} Short term participant training averages \$2,500 per month.

^{3/} Round trip International and Domestic air fare plus travel per diem totals about \$3,500 for each participant.

^{4/} No costs are projected in FY 1985.

^{5/} Includes language instruction plus TOEFL Exam.

^{6/} See table G (1) for participant distribution by HMG/N Agency.

ANNEX G.1

Estimated Distribution of Long and Short-Term Participant
Training by HMG Line Agencies

Agency	Time and Place	Project Years					Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	
1. Institute of Renewable Natural Resources	Long Term (US)	6	2	3	2	3	16
	Long Term (India) ^{1/}	0	5	5	0	0	10
	Short Term (US)	2	4	4	4	4	18
2. Department of Soil and Water Conservation	Long Term (US)	2	3	3	3	3	14
	Long Term (India)	4	14	6	4	0	28
	Short Term (US)	3	4	4	4	4	19
3. Department of Forest	Long Term (US)	0	2	3	2	2	9
	Long Term (India)	4	4	4	4	0	16
	Short Term (US)	0	1	2	2	2	7
4. Department of Agriculture	Long Term (US)	0	2	2	2	2	8
	Long Term (India)	7	7	5	5	5	29
	Short Term (US)	0	3	3	2	0	8
5. Department of Local Development	Long Term (US)	0	1	1	2	2	6
	Long Term (India)	3	1	2	2	2	10
	Short Term (US)	1	1	1	1	1	5
6. Department of Livestock Development & Animal Health	Long Term (US)	1	2	2	2	2	9
	Long Term (India)	0	2	4	1	0	7
	Short Term (US)	0	2	2	2	2	8
7. Department of Irrigation, Hydrology & Meteorology	Long Term (US)	0	1	1	1	1	4
	Long Term (India)	3	3	1	1	1	9
	Short Term (US)	0	1	1	1	1	4
8. Department of Water Supply and Sewerage	Long Term (US)	0	1	0	0	0	1
	Long Term (India)	2	3	1	1	1	8
	Short Term (US)	1	1	1	1	1	5
9. Ministry of Forest Training Wing	Long Term (US)	0	1	0	0	0	1
	Long Term (India)	0	0	0	0	0	0
	Short Term (US)	2	2	2	2	2	10
10. Other Agencies	Long Term (US)	1	0	0	1	0	2
	Long Term (India)	0	0	0	0	0	0
	Short Term (US)	1	2	2	2	2	9
Total	Long Term (US)	10	15	15	15	15	70
	Long Term (India)	23	39	26	16	9	117
	Short Term (US)	10	21	22	21	19	93

^{1/} India training will be carried out under PL-480.

ANNEX G.2

This table represents a summary of estimated costs for activities recommended in the ODA/USAID Training Renewable Natural Resources Report.^{1/} These costs have been accounted for in other budget tables and are not additive. This table reflects the portion of project funds allocated for training.

Activity	FISCAL YEAR						Total
	1980	1981	1982	1983	1984	1985	
A. <u>IRNR</u>							
1. Participant training ^{2/}	\$121,000	\$171,000	\$117,750	\$117,750	\$117,750	-	\$ 645,250
2. Stipend ^{3/}	9,200	45,400	49,700	64,000	78,100	\$ 63,000	309,400
3. Expatriate Costs	125,526	578,420	678,420	448,420	118,420	82,894	2,032,100
4. Equipment	-	48,300	235,700	74,100	40,000	40,000	438,100
5. Research ^{4/}	-	-	60,000	60,000	30,000	10,000	160,000
Sub-Total	\$255,726	\$843,120	\$1,141,570	\$764,270	\$384,270	\$195,894	\$3,584,350
B. <u>MFTW</u>							
1. Participant training	\$ 12,750	\$ 32,250	\$ 32,250	\$ 12,750	\$ 12,750	-	\$ 102,750
2. Expatriate Costs	80,000	240,000	160,000	23,684	23,684	-	527,368
3. Equipment	5,000	62,900	49,250	15,000	15,000	15,000	162,150
Sub-Total	\$ 97,750	\$335,150	\$241,500	\$51,434	\$51,434	\$15,000	\$792,268
TOTAL							\$4,377,118

^{1/} World Bank is scheduled to finance costs for building as shown in the report.

^{2/} This does not include costs of PL 480 Training in India.

^{3/} The Sixth Year stipend costs shown in the ODA/USAID training report will occur in Phase II of the RCUP.

^{4/} Research is not included in the ODA/USAID report.

Local Consultants, USAID Inputs
(\$ 000)

Project Component	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Inventory and Monitoring	9.7	14.3	15.7	17.3	19.0	3.3	79.3
2. Watershed Management	6.9	11.8	11.8	9.2	9.2	2.3	51.2
3. Forest Management	0.9	5.4	8.3	6.5	5.5	-	26.6
4. Energy	8.4	8.4	8.4	9.0	9.0	-	43.2
5. Irrigation	163.9	0	0	0	0	0	163.9
6. Drinking Water	37.4	0	0	0	0	0	87.4
7. Community Livestock Range-Pasture Management	0	19.8	0	0	0	0	19.8
8. Agronomy, Extension, Research	6.8	19.9	13.4	10.9	-	0	51.0
9. Horticulture	1.3	1.5	1.9	2.1	0.4	-	7.2
10. Fisheries Development	8.4	-	8.4	-	-	-	16.8
11. Training	6.0	42.0	24.2	24.2	24.2	14.0	134.6
Total	299.7	123.1	92.1	79.2	67.3	19.6	681.0

Local Resource Conservation Coordination Fund, USAID Inputs^{1/}
(\$ 000)

Category	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Agriculture	7.5	33.4	61.8	89.8	109.2	7.5	309.2
2. Livestock	0	7.1	13.0	14.6	2.3	2.4	39.4
3. Forestry	5.0	120.0	100.0	70.0	60.0	145.0	500.0
4. Watershed Management	4.5	29.5	5.2	5.6	8.5	15.1	68.4
5. Fishery Management	3.0	10.0	20.0	20.0	20.0	10.0	83.0
Total	20	200	200	200	200	180	1,000

^{1/} As described in the PP this fund is for combination of Credit, Loans and Grants.

Annex I

Commodities - USAID Inputs
(\$ 000)

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	3.5	29.0	14.1	90.4	11.3	53.4	9.9	31.3	5.7	21.2	10.4	89.3	369.5
2.	Watershed Management	14.8	23.9	196.6	92.6	204.2	19.0	196.2	12.0	151.7	11.6	44.2	71.8	1038.6
3.	Forest Management	31.6	17.3	210.7	126.6	328.7	157.5	350.5	159.8	322.4	152.8	94.3	52.3	2004.5
4.	Energy	1.1	8.4	2.2	42.2	239.0	159.3	240.6	160.5	5.2	111.4	3.3	25.2	998.4
5.	Irrigation	8.5	33.6	60.8	142.0	66.1	154.3	49.1	114.7	23.8	55.6	25.2	100.9	834.6
6.	Drinking Water	3.9	17.1	25.9	58.8	34.5	79.7	25.1	58.0	26.3	60.7	11.6	51.4	453.0
7.	a) Community Livestock	4.1	11.6	139.9	55.9	43.2	42.7	47.5	59.1	57.7	72.5	12.5	34.8	581.5
	b) Range-Pasture Management	2.7	1.2	9.6	5.4	17.4	11.1	27.3	15.3	42.8	22.3	8.3	3.4	166.8
8.	Agronomy, Extension Research	1.1	3.5	20.0	68.7	16.7	57.2	17.1	41.7	18.9	70.2	3.2	10.4	328.7
9.	Horticulture	2.6	5.7	12.5	27.5	2.5	17.7	24.8	16.0	21.6	8.5	8.0	17.0	164.4
10.	Fisheries Development	-	-	14.0	29.7	3.4	3.3	33.4	13.0	7.9	3.5	-	-	108.2
11.	Training	10.0	31.6	81.8	463.4	26.3	145.4	18.3	62.9	38.3	179.1	4.5	15.0	1076.6
	Sub-Total	83.9	182.9	788.1	1203.2	993.3	900.6	1039.8	744.3	722.3	769.4	225.5	471.5	8124.8
	Total	266.8		1991.3		1893.9		1784.1		1491.7		697.0		8124.8

Total: \$8124.8; LC: \$3852.9; FX: \$4271.9

Annex J

Project Allowances - USAID Inputs
(\$ 000)

Project Component	Fiscal Year						Total
	1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1. Inventory and Monitoring	1.0	6.0	6.6	7.2	7.2	3.3	31.3
2. Watershed Management ^{1/}	1.8	10.3	13.8	16.7	18.2	5.5	66.3
3. Forest Management	3.9	18.1	19.8	23.3	24.0	11.8	100.9
4. Energy	-	-	-	-	-	-	-
5. Irrigation	0	5.2	5.6	4.2	1.5	0.5	17.0
6. Drinking Water	0	3.2	4.2	3.1	2.8	0.5	13.8
7. Community Livestock Range-Pasture Management	2.5	25.5	38.6	53.6	65.8	7.4	193.4
8. Agronomy, Extension, Research	4.1	29.7	42.0	56.0	69.4	12.2	213.4
9. Horticulture	0.9	6.0	7.5	9.7	9.8	2.6	36.5
10. Fisheries Development	-	0.6	0.6	1.3	1.5	-	4.0
11. Training ^{2/}	9.2	45.4	49.7	64.0	78.1	63.0	309.4
Total	23.4	150.0	188.4	239.1	278.3	106.8	986.0

Note: ^{1/} Energy allowances are included in watershed management.

^{2/} Includes stipend for training as per ODA/USAID report.

Annex K

Other Costs - USAID Inputs
(\$ 000)

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	2.8	4.8	13.2	30.0	15.1	30.2	16.9	30.2	16.1	30.2	8.4	14.7	212.6
2.	Watershed Management	25.5	2.0	294.2	12.7	316.3	13.0	313.9	12.9	271.0	12.7	76.6	6.0	1356.8
3.	Forest Management	20.9	-	294.9	-	566.1	-	566.0	-	648.7	-	62.6	-	2159.2
4.	Energy	9.5	-	44.4	-	398.3	-	401.1	-	116.6	-	28.5	-	998.4
5.	Irrigation	2.6	0	54.9	5.1	58.9	6.1	44.4	4.5	22.8	2.2	-	-	201.5
6.	Drinking Water	0	0	28.2	3.5	38.0	4.6	27.7	3.4	29.0	3.5	0	0	137.9
7.	a) Community Livestock	2.4	0.3	126.9	47.1	93.1	16.7	118.9	17.4	161.4	24.9	6.9	0.7	616.7
	b) Range-Pasture Management	3.3	-	22.4	-	41.4	-	61.1	-	85.7	-	9.9	-	223.8
8.	Agronomy, Extension Research	4.6	0.6	138.4	1.7	144.5	1.7	170.6	3.5	203.5	4.9	13.9	1.7	689.6
9.	Horticulture	7.8	1.4	30.6	6.9	41.5	4.4	35.9	4.0	8.4	2.1	23.3	4.3	170.6
10.	Fisheries Development	-	-	28.7	-	4.0	-	30.1	-	1.9	-	-	-	64.7
11.	Training	2.0	5.0	11.7	20.0	5.0	10.0	5.0	10.0	10.0	15.0	5.0	10.0	108.7
	Sub-Total	81.4	14.1	1088.5	127.0	1722.2	86.7	1791.6	85.9	1575.1	95.5	235.1	37.4	6940.5
	Total	95.5		1215.5		1808.9		1877.5		1670.6		272.5		6940.5

Total: \$6940.5; LC: 6493.9; FX: \$446.6

Annex L

Professional and Staff Support - HMG/N Inputs^{1/}
(\$ 000)

	Category	Fiscal Year						Total
		1980 LC	1981 LC	1982 LC	1983 LC	1984 LC	1985 LC	
1.	Inventory and Monitoring	3.2	17.9	20.7	22.9	23.5	10.0	98.2
2.	Watershed Management	6.8	39.7	54.6	67.9	75.5	20.3	264.8
3.	Forest Management	19.6	90.7	99.2	116.7	119.8	58.8	504.8
4.	Energy ^{2/}	-	-	-	-	-	-	-
5.	Irrigation	0	13.0	14.1	10.5	5.1	-	42.7
6.	Drinking Water	0	8.0	10.6	7.8	8.2	-	34.6
7.	Community Livestock Range & Pasture Management	4.9	51.0	77.3	107.2	131.5	14.8	386.7
8.	Agronomy, Extension and Research	8.1	59.3	84.1	112.0	138.9	24.4	426.8
9.	Horticulture	1.8	11.7	14.9	19.4	19.7	5.3	72.8
10.	Fisheries Development	-	3.8	3.9	8.7	9.8	-	26.2
11.	Training	3.3	10.0	39.5	62.5	78.5	60.7	254.5
	Total	47.7	305.1	418.9	535.6	610.5	194.3	2112.1

1/ Also includes participant training inputs (Air Fare and Salary)

2/ Included in the watershed management cost.

Annex M

Local Contribution - HMG/N Inputs
 (\$ 000)

	Category	Fiscal Year						Total
		1980	1981	1982	1983	1984	1985	
1.	Forest Management	0.5	8.3	20.2	34.9	54.9	1.4	120.2
2.	Irrigation	-	34.6	37.6	27.9	11.5	2.0	113.6
3.	Drinking Water	-	28.2	38.1	27.1	27.0	2.5	122.9
	Total	0.5	71.1	95.9	89.9	93.4	5.9	356.7

Credit - HMG/N Inputs
 (\$000)

	Category	Fiscal Years - Local Cost						Total
		1980	1981	1982	1983	1984	1985	
1.	Agriculture	7.5	33.4	61.8	89.8	109.2	7.5	309.2
2.	Livestock	0	7.1	13.0	14.6	2.3	2.4	39.4
	Total	7.5	40.5	74.8	104.4	111.5	9.9	348.6

Annex N

Commodities - HMG/N Inputs
(\$ 000)

	Category	Fiscal Year												Total
		1980		1981		1982		1983		1984		1985		
		LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1.	Inventory and Monitoring	2.3	0.0	9.2	1.1	9.2	1.1	3.7	0.5	3.7	0.5	6.9	1.0	39.2
2.	Watershed Management	5.7	0.7	28.2	1.7	28.6	1.7	28.6	1.7	21.8	1.7	17.3	1.0	138.7
3.	Forest Management	5.8	-	8.6	-	4.5	-	-	-	-	-	8.1	-	27.0
4.	Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Irrigation	-	-	6.5	6.5	7.0	7.1	5.2	5.3	2.5	2.5	-	-	42.6
6.	Drinking Water	-	-	4.6	3.4	6.1	4.5	4.8	3.4	4.8	3.4	-	-	35.0
7.	Community Livestock, Range & Pasture Management	1.9	-	6.9	-	17.6	-	20.5	-	22.3	-	14.0	-	83.2
8.	Agronomy, Extension and Research	3.7	1.2	7.5	7.1	16.2	11.0	25.1	6.3	30.4	14.9	11.2	3.6	138.2
9.	Horticulture	3.3	-	11.8	-	6.7	-	7.7	-	-	0	10.1	-	39.6
10.	Fisheries Development	-	-	1.3	0.4	1.3	0.4	2.9	0.8	3.4	1.3	-	-	11.8
11.	Training	4.7	-	51.7	-	58.9	-	74.8	-	85.0	-	35.1	-	310.2
	Sub-Total	27.4	1.9	136.3	20.2	156.1	25.8	173.3	18.0	173.9	24.3	102.7	5.6	865.5
	Total	29.3		156.5		181.9		191.3		198.2		108.3		865.5

Total 5 years: 865.5; LC 769.7; FX 95.8

Annex 0

Other Costs - HMG/N Inputs
(\$ 000)

Category	Fiscal Year												Total
	1980		1981		1982		1983		1984		1985		
	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	
1. Inventory and Monitoring	0.8	-	3.9	-	4.5	-	5.2	-	5.1	-	2.4	-	21.9
2. Watershed Management	1.8	-	9.8	-	12.6	-	15.2	-	15.8	-	5.6	-	60.8
3. Forest Management	7.8	-	36.3	-	39.7	-	46.7	-	47.9	-	23.6	-	202.0
4. Energy	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Drinking Water	0	-	2.5	1.5	3.8	1.5	2.8	1.1	2.8	1.3	-	-	17.3
6. Irrigation	0	-	6.5	-	7.0	-	5.2	-	2.6	-	-	-	21.3
7. Community Livestock and Range Management	0.8	-	8.5	-	12.9	-	17.9	-	21.9	-	2.5	-	64.5
8. Agronomy, Extension and Research	1.4	-	9.9	-	14.0	-	18.7	-	23.1	-	4.0	-	71.1
9. Horticulture	0.2	-	2.0	-	2.5	-	3.2	-	3.3	-	1.0	-	12.2
10. Fisheries Development	0	-	0.9	-	1.0	-	1.8	-	2.3	-	-	-	6.0
11. Training	0.5	-	5.8	-	6.6	-	8.3	-	9.4	-	9.6	-	40.2
Sub-Total	13.3	-	86.1	1.5	104.6	1.5	125.0	1.1	134.2	1.3	48.7	-	517.3
Total	13.3		87.6		106.1		126.1		135.5		48.7		517.3

Total Project Cost: 517.3; LC 511.9; FX 5.4

ACTION MEMORANDUM FOR THE ACTING ADMINISTRATOR

Thru: ES *ES*
THRU: A/AA/PPC, Mr. Charles Paolillo
FROM: AA/ASIA, John H. Sullivan *JH*
SUBJECT: Nepal - Resource Conservation and Utilization Project (367-0132)

Problem: Your approval is required for a grant of \$27,498,200 from the FAA Section 103 (agriculture, rural development and nutrition) appropriation to Nepal for the Resource Conservation and Utilization Project (RCUP). The project will be incrementally funded during FYs 1980-85 with a planned FY 1980 obligation of \$1,800,000.

Discussion: The project is an integrated and complex program to address the serious problem of environmental degradation in the Nepal hills area. Soil, water and plant depletion in the hills both reduces the agricultural base for support of the hill population and also has major long-term environmental implications for Nepal. Single problem responses, such as drainage control by itself, a separate reforestation program, range management alone, etc., are simply not adequate to what is essentially a total problem. The project, therefore, employs a range of related interventions directed to addressing the whole social, economic and ecological system in each project area.

In the first three years, the project is limited to the two catchment areas, Gorkha and Mustang/Myagdi, respectively, about 50 and 125 miles from Kathmandu. The distances, however, belie the difficulties of reaching these areas, particularly Mustang/Myagdi, which are effectively two days' travel away from the capital.

In each catchment area, the project will work toward introduction and improvement of forest management and reforestation, range management, animal husbandry, energy alternatives, agriculture, watershed management, irrigation, community drinking water and fisheries. Short-term project objectives include for each area the establishment of basic watershed and forest management activities, increases in crop yields and livestock production, arresting of soil erosion through reforestation, production of fodder and fuelwood, and a major increase in the number of people trained in resource management. The long-range project objectives are directed to broader improvement in the standard of living of the people of these hill areas through increase in agricultural production, creation of employment and higher standards of basic nutrition.

The institutional ability of the Government of Nepal (GON) to carry out the program will be reinforced by development of forestry and conservation training capacity at two campuses of Tribhuvan University, development of a special training branch in the GON Ministry of Forestry (MOF), and concentrated support of extension activities. Credit will be provided through the project to ensure that villagers are able to take part in the project through direct improvement of their own land. While the principal implementing agency at the national level will be the MOF, the integrated character of the project will be emphasized through the coordinating role of the National Conservation Committee, including membership from all participating GON agencies. At the field level, the related roles of the project catchment and field units and the GON line agencies will be coordinated by similar conservation committees, supported by direct participation of the villagers.

The AID grant represents \$27.5 million of the total project cost of approximately \$32.6 million equivalent. The AID portion will finance long-term advisors in training and in each of the major substantive fields, including soil and water conservation, land use planning, range management, forest management, agriculture and civil engineering. The work of this main team will be supplemented by short-term consultants as required. The AID grant will also fund training of Nepalese staff in the United States and Nepal, procurement of materials and equipment for the project interventions themselves, design and construction of infrastructure components and conduct of an inventory and monitoring system to evaluate progress. The AID grant will, in addition, finance the credit fund (Local Resource Conservation Coordination Fund) subject to prior agreement on the procedure for this fund.

The project will be implemented under a Title XII contract with the South East Consortium for International Development (SECID). This consortium includes some 31 institutions, and three of these will play a leading role in carrying out this project: Duke, West Carolina State and Virginia Polytechnic. West Carolina State was also involved in the development of the project under a preceding Title XII contract.

CDSS: The project is fully consistent with and supportive of the CDSS. The USAID/N strategy focuses on the urgency of addressing the related problems of environmental degradation, rural poverty in the hill areas, and lack of implementation capacity at the national and local levels, each of which is addressed as a main objective of the project.

Design Changes: The project originally proposed four catchment areas. In view of the significant technical and management complexity of the project, however, the Asia Bureau, USAID/Nepal and GON have agreed the program should first be initiated in only two catchments. A mid-project evaluation at the end of the third year will provide the basis for deciding whether to extend the project to the two additional catchments with a corresponding increase in funding.

Conditions: In addition to AID standard requirements, the following conditions precedent to disbursement are included in the Project Authorization:

- that the GON provide implementation plans for the project as a whole and in more detail for each subproject;

- that prior to construction of any new irrigation system, an environmental study be made and its findings, as agreed by GON and AID, be reflected in an appropriate implementation plan; and
- that the GON prepare an acceptable plan outlining the criteria and procedures to be applied for the credit funds to be made available from the Local Resource Conservation Coordination Fund.

Covenants: In addition to standard covenants, the Authorization reflects additional covenants obligating the GON with respect to: (a) budgeting and provision of project funds; (b) qualified project personnel; and (c) evaluation.

Congressional Notification/Audits: The project is described at page 101 of the FY 80 Congressional Presentation. There are no outstanding GAO or AID audit issues.

Waivers: A waiver of the FAA Section 110(a) requirement of 25 percent host country contribution is requested. The GON share will total \$5,060,500 equivalent or 15.5 percent of the total project cost. In view of Nepal's condition as one of the relatively least developed countries, this contribution is already significant and a waiver is entirely appropriate.

Recommendation: That you sign the attached Project Authorization.

Attachments:

1. Project Authorization
2. Project Paper

Clearance: MLH
GC:NHolmes REC for Date 7/11/80

^{DB}
ASIA/PD:PGuedet/DBrennan/KFinan:fv:6/18/80:X58450

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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

OFFICE OF
THE ADMINISTRATOR

PROJECT AUTHORIZATION

NEPAL

Resource Conservation
and Utilization
Project No. 3 67-0132

Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended (the "Act"), and the Delegations of Authority thereunder, I hereby authorize the Resource Conservation and Utilization Project (the "Project") for Nepal (the "Cooperating Country"), involving planned obligations of not to exceed Twenty Seven Million Four Hundred Ninety-Eight Thousand Two Hundred United States Dollars (\$27,498,200) in Grant funds over a five year period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project.

The Project is a multifaceted and integrated project that will attempt to arrest the rapid environmental degradation of two catchment areas in the Cooperating Country. The two catchment areas which have been selected are Gorkha and Mustang/Myagdi. Reforestation, better range management, development of alternative sources of energy to open wood fires, and improvement of agricultural methods and watershed management are examples of resource conservation activities to be undertaken in the attempt to control environmental degradation.

Grant funds will finance long-term advisors, short-term consultants, training of personnel, procurement of materials and equipment and the design and construction of necessary infrastructure components in rural areas.

The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. Regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

A. Source and Origin of Goods and Services

Except for ocean shipping and as A.I.D. may agree otherwise in writing, goods and services financed by A.I.D. under the Project shall have their source and origin in the Cooperating Country or in countries included in A.I.D. Geographic Code 941. Ocean shipping financed by A.I.D. under the Project shall, except as A.I.D. may agree otherwise in writing, be financed only on flag vessels of the Cooperating Country or countries included in A.I.D. Geographic Code 941.

B. Conditions Precedent to Disbursement

(1) Conditions Precedent to Disbursement of Funds for Subproject Activities

(a) Prior to the disbursement under the Grant or the issuance by A.I.D. of any documentation under the Project Agreement pursuant to which the first disbursement will be made for any subproject, the Cooperating Country will, except as A.I.D. may agree otherwise in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., an implementation plan for the entire Project including approximate time phasing of subprojects and estimated budget requirements.

(b) Prior to the disbursement under the Grant or the issuance by A.I.D. of any documentation under the Project Agreement pursuant to which disbursement will be made for each subproject, the Cooperating Country will, except as A.I.D. may agree otherwise in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., an implementation plan for each subproject which will include:

- a time-phased schedule of actions necessary to complete each such subproject;
- evidence that adequate staff will be assigned to each such subproject; and
- refined budget requirements for each such subproject.

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(2) Condition Precedent to Disbursement of Funds for Construction of Irrigation System

Prior to the disbursement under the Grant or the issuance by A.I.D. of any documentation under the Project Agreement pursuant to which disbursement will be made for the construction of any new irrigation system, the Cooperating Country will, except as A.I.D. may agree otherwise in writing, undertake an environmental study of each such irrigation system, consult with A.I.D. on measures to implement the recommendations of such study, and provide a plan to A.I.D. to carry out such of these measures or other findings as are agreed upon by the Cooperating Country and A.I.D.

(3) Condition Precedent to Disbursement of Funds for the Local Resources Conservation Coordination Fund

Prior to the disbursement under the Grant or the issuance by A.I.D. of any documentation under the Project Agreement pursuant to which disbursement will be made for the Local Resources Conservation Coordination Fund, the Cooperating Country will, except as A.I.D. may agree otherwise in writing, provide a plan acceptable to A.I.D. for participation by each of the credit institutions in the Fund, which will specify the eligible uses for such Fund, the criteria and conditions for extending credit from such Fund, including types of credit, eligible recipients, interest rates, and terms of repayment, the procedures for administration of such Fund, and the eligible use of the repayments made to such Fund.

C. Covenants

Except as A.I.D. may agree otherwise in writing, the Cooperating Country will agree to:

(a) budget for and provide funds and other contributions to the Project on a timely basis according to annual Project budgets;

(b) provide qualified personnel to implement the Project; and

(c) support the monitoring and evaluation program of the Project.

D. Waiver

The following waiver is hereby approved:

- the requirement of Section 110(a) of the Act that the Cooperating Country provide twenty-five per centum (25%) of the cost of the Project is hereby waived pursuant to the provisions of Section 124(d) of the Act on the basis that the Cooperating Country is determined to be a relatively least developed country by the United Nations Conference on Trade and Development (UNCTAD) and on the basis that financial constraints prohibit the Cooperating Country from meeting this requirement.

Clearance:

Norman L. Holmes, GC
Charles Paolillo, A/AA/PPC
John H. Sullivan, AA/ASIA

Date

7/14/80
7/11/80
7/11/80

Initial

HTA
CP
JS

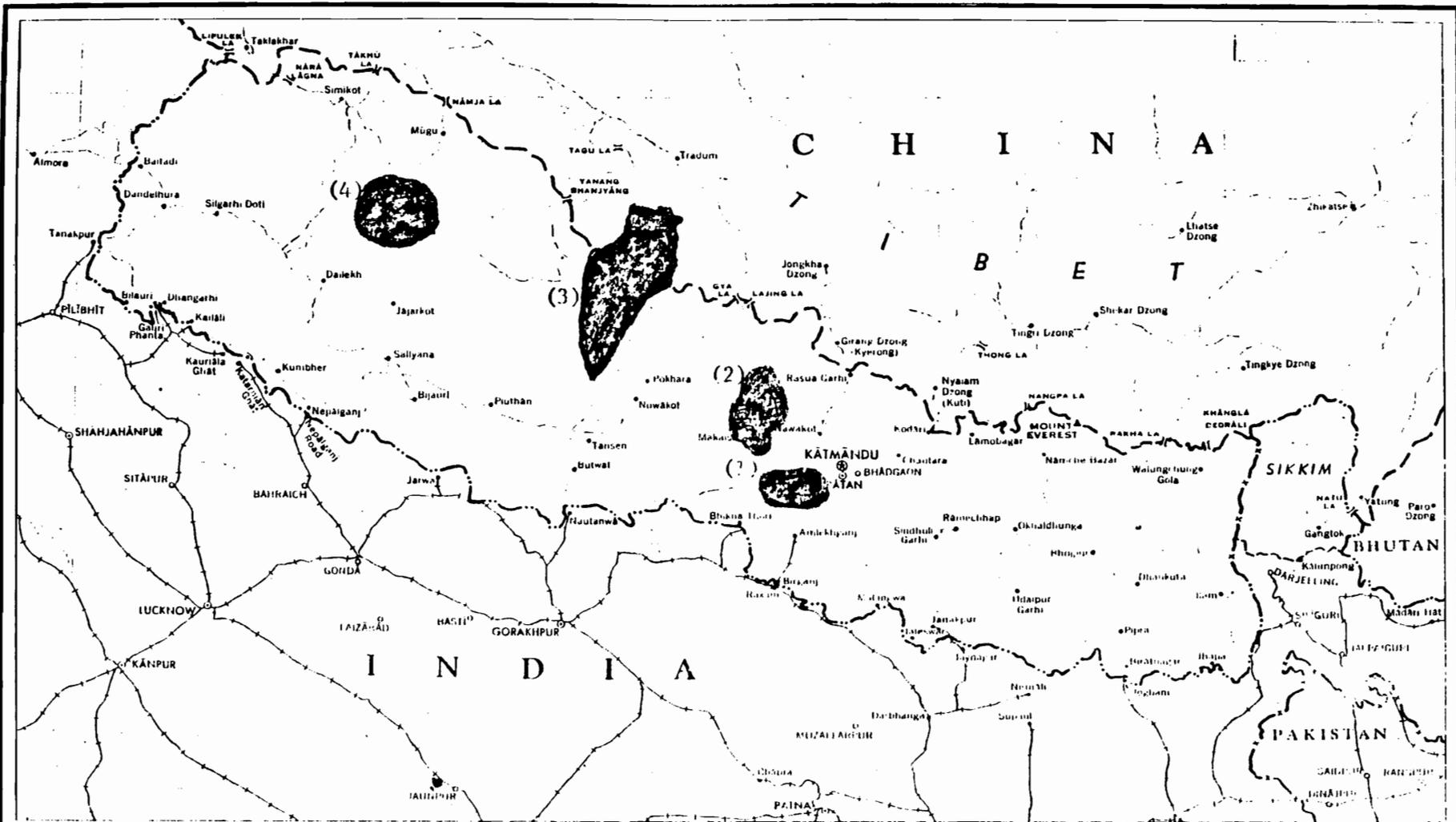
Signature

Joseph C. Wheeler
Joseph C. Wheeler
Acting Administrator

Date

Jul 15, 1980

GC/Asia:HEMorris;AdeGraffenried:
USAID/Nepal:PGuedet:fv:7/9/80



NEPAL

RCUP Locations

- (1) Kulekhani
- (2) Gorkha
- (3) Mustang/Myagdi
- (4) Jumla

- - - - - International boundary, demarcated
 - - - - - International boundary, delimited only
 - - - - - International boundary, indefinite

0 25 50 100 Miles
 0 25 50 100 Kilometers

———— Railroad
 ———— Road

- - - - - Track or trail
 = = = = = Pass

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ANNEX 2



ANNEX R

His Majesty's Government

MINISTRY OF FINANCE
KATHMANDU
NEPAL

13th February 1980

Mr. Samuel H Butterfield
Director
USAID/Nepal
Kalimati Durbar
Kathmandu

Dear Mr. Butterfield:

I refer to your letter dated January 10, 1980 and our recent discussion with the officials of USAID regarding the Resource Conservation and Utilisation Project Paper (PP). On behalf of His Majesty's Government of Nepal, I would now like to request USAID to provide financial assistance for the implementation of this project as mentioned in the Project Paper.

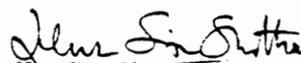
Regarding the Project Paper may I submit the following observations of HMG/N for your kind consideration:

- a. to finance the local costs to the maximum extent possible under the grant assistance;
- b. to minimize, if possible, the provision of experts for the implementation of the project;
- c. to apply HMG/N's procedure regarding financial flow;
- d. to finance the cost of the training programme (TU & MFTW) under the grant assistance as mentioned in USAID/ODM Training Mission's report except building and operating costs, which are proposed to be financed with the assistance of the World Bank.

I would be grateful if you could kindly take necessary action in this respect. We also look forward to finalising the grant agreement of this project as soon as possible.

With best regards.

Yours sincerely,


H. S. Shrestha
Joint Secretary

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