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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER

AGRICULTURE RESOURCE

INVENTORY - NEPAL

Project Number 367-0134

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET		1. TRANSACTION CODE A A = Add C = Change D = Delete	Amendment Number	DOCUMENT CODE 3						
2. COUNTRY ENTRY NEPAL		3. PROJECT NUMBER 1067-0234								
4. BUREAU/OFFICE ASIA PD		5. PROJECT TITLE (maximum 40 characters) AGRICULTURE RESOURCE INVENTORY-NEPAL								
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 10/15/82		7. ESTIMATED DATE OF OBLIGATION (Under B) (each, enter 1, 2, 3, or 4) A. Initial FY 1981 B. Quarter 2 C. Final FY 1981								
8. COSTS (\$000 OR EQUIVALENT \$1 = 1000 Rupees)										
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT						
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total				
AID Appropriated Total	476	15	491	2302	27	2429				
(Grant)	476	15	491	2302	27	2429				
(Loan)	-	-	-	-	-	-				
Other	-	-	-	-	-	-				
U.S.	-	-	-	-	-	-				
Host Country	-	21	21	-	27	27				
Other Donor	-	-	-	23	-	23				
TOTALS	476	26	502	2325	54	2379				
9. SCHEDULE OF AID FUNDING (\$000)										
A. APPROXIMATE PRIMARY PRIORITATION/PURPOSE	B. CODE	C. PRIMARY TECH. CODE	D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT			
			1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan		
(1) FY	1982	250	-	-	2500	-	2500	-		
(2)										
(3)										
(4)										
TOTALS					2500		2500			
10. SECONDARY TECHNICAL CODES (maximum 5 codes of 3 positions each) 200					11. SECONDARY PURPOSE CODE 200					
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)										
A. Code		B. Amount		C. Code		D. Amount				
		2500		200						
13. PROJECT PURPOSE (maximum 480 characters)										
<p>To assist HMG/N to establish a national Remote Sensing Center (RSC). Technical assistance activities, commodities and training will be directed specifically to meeting this purpose.</p>										
14. SCHEDULED EVALUATIONS					15. SOURCE/ORIGIN OF GOODS AND SERVICES					
Interim		MM YY		MM YY		Final		MM YY		
		01/82						11/84		
					000 <input checked="" type="checkbox"/> M1 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify)					
16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)										
17. APPROVED BY		Signature <i>Samuel H. Butterfield</i>			Date Signed MM DD YY 6/11/81			18. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 01/19/84		
		Title Samuel H. Butterfield Director, USAID/Nepal								

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I. Summary and Recommendations

- A. GRANTEE: His Majesty's Government, Nepal (HMG/N). Ministry of Finance.
- B. IMPLEMENTING AGENCY: Ministry of Forests, Department of Soil and Water Conservation.
- C. PROPOSED AMOUNT OF GRANT: \$2,400,000
- D. PURPOSE OF GRANT: To assist HMG/N in establishing a national Remote Sensing Center (RSC). Technical assistance activities, commodities and training will be directed specifically to meeting this purpose
- E. DESCRIPTION OF THE PROJECT: The Agriculture Resource Inventory Project - Nepal (ARIPN) is a five year project designed to assist HMG/N in applying remote sensing technology to the efficient meeting of its objectives in natural resource inventory and planning. This particular technology, which consists of acquiring, processing and interpreting aerial and satellite data, is internationally acclaimed as a highly efficient and cost effective means for measuring and recording the resource base in areas that are either inaccessible or undergoing rapid change.
- In order to transfer and fully utilize this technology, the project will establish an operational remote sensing center (RSC) within the Ministry of Forests, Department of Soil and Water Conservation. The center will be responsible for: (1) creating and reproducing photo and map products for use in resource planning, (2) conducting an active training program to increase the number of qualified users of remote sensing technology and data, and (3) disseminating the results of these efforts throughout HMG/N.

The project will develop technical and data archives for use in resource inventories. Ten individuals will receive training in the U.S., so as to provide personnel for the effective operation of the RSC. The center will serve as the official link between HMG/N and other national and regional centers, specifically the regional center in Bangkok and the LANDSAT receiving station in Hyderabad. It will also coordinate its activities with USAID/Nepal in order to provide the Mission with limited quantities of project related aerial photography for use in other projects.

F. END-OF-PROJECT STATUS:

The end-of-project status is derived directly from the purpose: that is, a national remote sensing center will have been established in the Department of Soil and Water Conservation. The center's laboratories will have achieved operational status, and the scheduled training programs will have been successfully completed. By the end of the project (Sept. 1984) one manager and nine analysts will have been trained and will be involved in remote sensing activities as they relate to resource inventories and planning. Some of these individuals will find their way onto the permanent staff and others will be located throughout participating agencies and ministries and will utilize the remote sensing center to obtain their respective product requirements. The capacity for HMG/N to establish links with the Asian Regional Remote Sensing Training Center in Bangkok and the Hyderabad LANDSAT receiving station will exist, in addition to an administrative management and technical system capable of continuing the project in a satisfactory manner after AID's withdrawal in five years.

G. SUMMARY FINDINGS.

The feasibility of this project has been thoroughly studied by a variety of qualified personnel who have concluded that the project is both feasible and ready for implementation. In September-October, 1978, Resource Development Associates (RDA) performed an independent appraisal and evaluation of the project as proposed by HMG/N and the USAID/N in its Project Identification Document (PID). RDA concluded that while success of a remote sensing program in Nepal would be difficult to predict, the planned program being of modest cost, is entirely feasible. Since accurate resource information is needed and will be extremely difficult, if not impossible, to obtain by alternative means, RDA concluded that a remote sensing center is likely to produce benefits to the entire country.

Based on the above analysis, this project is designed to establish a national center which will bring together many different types of remote sensing data, equipment and personnel within Nepal. Furthermore, the project recognizes the need for open and ready access to this data by potential users.

The project meets all applicable statutory criteria and the 611(a) (1) requirement has been satisfied. For details, see the completed statutory criteria checklist (Annex B) and the financial analysis section for the 611(a)(1) determination.

H. RECOMMENDATIONS:

After reviewing HMG/N's natural resource inventory and planning requirements and conducting project analyses, USAID/Nepal recommends that a grant of \$2,400,000 be authorized to finance the establishment of a national Remote Sensing Center.

I. PROJECT ISSUES

A major issue raised by AID/W in State 152281 para 4 dated 14 June 1979, and again in State 161586 para 8 dated 25 June, is the issue of the mini-computer. The general lack of in-country experience in computer systems, coupled with voltage fluctuations, were considered basic weaknesses in the mini-computer concept. Problems in providing adequate housing, operation and maintenance were also envisioned for a complex computer system. AID/W recommended that the mission consider evaluating the need for a computerized system during year three of the project and, if warranted, proceed with a system compatible with the needs of the project. This issue has been addressed. A relatively simple desktop calculator, with memory, screen display and print-out capability, has been decided upon. Furthermore, at Washington's recommendation an evaluation of the data analysis needs of the project will be made during year three to determine if a more advanced system is required.

A second major issue relates to the life of the project. (See State 161586 para 2.) AID/W indicated that four years is an unrealistically short period for a project of this nature. Specifically, it was pointed out that laboratory equipment will require at least one and one-half years to obtain and install. These suggestions have led to the project being revised to cover a five year period.

A third issue, raised by AID/W is the project's training component. Strong emphasis has been placed on training through workshops, seminars

and on-the-job training. In addition, the project will provide substantial U.S. training for ten participants.

Another issue relates to the employment of a full-time U.S. consultant/advisor for the life of the project in Nepal. USAID/Nepal concurs with Washington on this issue. The individual selected to fill this position will have managerial as well as earth science and remote sensing skills.

AID/W (State 152281 para 3) has requested an analysis of the number and kinds of HMG/N organizations expected to utilize the center's end products and how and in what magnitude will this use be translated into indirect economic and/or social benefits for the poor. This issue is addressed in detail in the Social Soundness Analysis.

J. PROJECT DESIGN TEAM

P. Guedet, Design Officer
L. Mailloux, Anthropologist
D. Pressley, Regional Legal Advisor
M. Stevens, Project Officer

II. BACKGROUND AND DETAILED DESCRIPTION OF PROJECT:

A. BACKGROUND OF PROJECT:

In February 1976, seventeen representatives from HMG/N attended a workshop on remote sensing conducted in Nepal. After the workshop, these representatives unanimously recommended the establishment of a national Remote Sensing Center (RSC) in the country. Subsequently Dr. D. Moore and Mr. V. Myers of the Remote Sensing Institute (RSI) of South Dakota State University visited Nepal as part of a remote sensing project being conducted by AID/W's Office of Science and Technology. During their visit, Dr. Moore and Mr. Myers arranged for five Nepalese to undertake a specialized training program at RSI. The five participants left Nepal in September 1977. Four returned to the country after completing their training in December of that year; the fifth extended his stay in the U.S. until February 1978, to work on a large project in geological resource identification and gain additional experience of use to Nepal.

Dr. Moore returned to Nepal in February 1978 to arrange with the HMG/N for a seminar to be held on remote sensing. He was assisted in conducting this seminar by the five original trainees. The aim of this program, which was held April 30 through May 4, 1978, was to report on the accomplishments of the RSI training and to present resource inventory reports to interested HMG/N ministries. The seminar received wide-spread publicity and again resulted in great interest by HMG/N to develop a national remote sensing program.

This interest in remote sensing surfaced again in HMG/N discussions with USAID/Nepal about the proposed Resource Conservation Utilization (RCU) project. It was suggested to USAID/N that a remote sensing center be included as part of the RCU Project, since the generation of resource data for use by the project was deemed essential. AID/W suggested that the development of a RSC should be separated from RCUP. HMG/N concurred and decided to establish a national Remote Sensing Center within the Ministry of Forests, Department of Soil and Water Conservation. The Mission agreed, with the proviso that plans for a RSC be developed simultaneously with the designs for the planned AID-funded RCUP and the Rural Area Development Project (RADP). All parties recognized the importance of such a center to the successful implementation of RCUP and RADP and to a number of other development projects.

A proposal to establish a RSC in Nepal was prepared by the Ministry of Forests, Department of Soil and Water Conservation in March 1978. It was followed by a Project Identification Document entitled Agricultural Resource Inventory System Project in Nepal which was approved by APAC in January 1979. The project described in the PID was evaluated in November 1978 by Resources Development Associates. Their candid appraisal concludes with the statement that:

"The overall effectiveness of a remote sensing program in Nepal is difficult to measure given current guidelines. In general, however, better resource information is needed and will be extremely difficult if not impossible, to obtain by alternative means. Overall, the current program is a modest one in terms of cost. If it can be successfully implemented, it could produce great benefits to the country as a whole and, through encouraging wiser use of available resources, to people of almost every economic and social strata".

The project proposed in the PID (Project 367-0134) has been slightly modified in this project paper to conform with the recommendations of RDA and APAC. The major change is an emphasis on visual analysis of aerial and satellite images with subsequent planned use of a simple desktop calculator with screen display and print-out capability. In almost all other respects the project follows that described in the PID with minor variations as recommended by RDA and AID/W.

The project will impact favorably, albeit indirectly, on HMG/N's developmental goals, such as increasing food production and assisting the rural poor. Finally the project adheres to USAID/Nepal's CDSS objectives, especially limiting environmental degradation. See Annex C, Logical Framework Matrix.

B. DETAILED DESCRIPTION OF PROJECT

For the purpose of this project paper, remote sensing refers to a particular type of information gathering technology. It involves the collection and analysis of earth resource information through the use of aerial and satellite photography. The products of remote sensing are useful primarily within the context of a natural resource management or environmental monitoring system.

It is the aim of the project to provide current information on the quality and quantity of water and land resources so as to allow for informed land-use decisions. HMG/N realizes that it is impossible to plan, implement and evaluate development projects, outside of a few urban areas, without having accurate information pertaining to available resources and knowledge of the environmental problems of those areas. Presently, HMG/N has neither feasible nor reliable methods of obtaining physical resource data on rural areas. Aerial photography and inexpensive satellite imagery will assist HMG/N in acquiring much of this necessary information.

The proposed project will consist of the following integral components:

- 1) the establishment of a photographic/cartographic laboratory,
- 2) the formation of an image interpretation laboratory,
- 3) the conducting of an extensive training program,
- 4) the application of remote sensing techniques to specific functions and localities in support of HMG/N development projects in Nepal.

1. The Photographic/Cartographic Laboratory

A laboratory equipped for photo processing, enlarging, reproducing and enhancing is essential to any remote sensing operation. AID experiences in Thailand, Bolivia, the Philippines and elsewhere amply justify this aspect of the RSC concept. The function of the laboratory will be to provide basic services to the other project components and for the development of interpretation products and thematic maps. The laboratory's cartographic facilities will be used for thematic and spectral analyses. The laboratory will not be equipped for controlled topographic or other photogrammetrically prepared maps. These maps are already being produced by other agencies in the Government. The laboratory will be responsive to other agencies of HMG/N and to the general public on a cost recovery basis.

Personnel to operate the laboratory will be trained in the U.S. during the initial months of project implementation, while equipment is on order. Subsequent follow-up and replacement training is scheduled to take place in Bangkok, after that center is functional.

Although space will ultimately be made available in a new Department of Soil and Water Conservation building financed by the United Nations/FAO, in the initial stages of the project temporary laboratory facilities will be leased by HMG/N so that work may proceed without hindrance.

2. The Image Interpretation Laboratory

This laboratory is the core of the RSC concept. Most of the operational activities of the project will take place in the interpretation laboratory, or rely on the output of the laboratory for successful completion. The laboratory itself will be equipped with work and light tables, stereoscopes, a zoom transfer scope (to be financed by FAO), a color additive viewer and supporting items such as calculators, area planimeters, data and image files, and other items. Using these, and other materials supplied by participating agencies for specific purposes, laboratory personnel will develop operational techniques for application to specific projects in natural resources inventory. In order to complement and support this facility, funds are included to carry out limited aerial photography and to provide the capability for spectral analysis.

3. The Training Program

In-country training programs will be conducted by the RSC staff to train user agency personnel through workshops, seminars and on-the-job training. Earth scientists currently working in HMG/N ministries on resource inventory problems will be selected for short term training at the RSC in Kathmandu. These professionals will be drawn from HMG/N Departments of Hydrology, Irrigation, Topographic Survey, Geology, Soil and Water Conservation, Roads, Agriculture and Forest Survey. The training will be conducted during annual in-country workshops, with RSC staff being assisted by short-term U.S. consultants specially selected by the project advisor and HMG/N.

It is anticipated that these workshops and seminars will serve as catalysts in identifying participants for longer term, more advanced training in Bangkok when the Asian Regional Remote Sensing Training Center becomes operational in the early 1980s.

All of the consultants utilized in the training component of the project will have university degrees in one or more of the earth and biological sciences, as well as expertise in remote sensing. In keeping with RDA recommendations, the workshops will be resource and discipline oriented; that is, they will not concentrate entirely upon remote sensing concepts and principles.

The major project training component for RSC personnel will consist of short and long term training in the U.S. Following is the proposed participant training program:

- 1) One photographic technician to be sent for twelve months of training to obtain operational skills for use in the photographic laboratory. This training will commence in October 1980.
- 2) One photographic assistant to receive three months of training, starting in July, 1981.
- 3) One cartographic assistant to be trained for three months, commencing in January, 1981.
- 4) One earth scientist to receive two years of Master's Degree training starting in January, 1981.
- 5) Two earth scientists to receive six months of training each, starting in 1981. The training will encompass remote sensing techniques to be used in conjunction with their respective specializations.
- 6) One individual to receive six months of managerial training starting in January, 1981. This training is provided in order to ensure managerial capability important for the success of the project.
- 7) One librarian to receive three months of training beginning in January, 1981. This training is deemed necessary because the planned library is an important adjunct to the RSC and will be necessary as a repository for maps and reports.
- 8) One senior accountant to be trained for six months starting in October, 1980.
- 9) One aerial photographer to receive three months of training starting in October 1980.

All of these participants will become members of the RSC permanent staff, with the possible exception of the earth scientists, trained for 6 months each. These individuals may elect to return to their home agency once their "project" has been completed or stay on as permanent staff. This staff will assist in developing operational guidelines and manuals for RSC users.

4. Application of Remote Sensing Techniques to AID/
HMG/N Projects.

The fourth and final component of the project involves the application of remote sensing techniques to specific functions and localities in support of HMG/N approved development projects.

Part of the responsibility of the RSC will be to develop an image data file and document archive to support Nepal's resource data needs on a cost recovery basis. During implementation, the RSC will collect vast amounts of geographic data on many aspects of Nepal's physical resource base. This information will be derived from the collection of field data as well as through routine delineation and measurement of resources from photographic images. It will be the responsibility of the RSC to properly catalog and safely store all data acquired during the performance of its training and investigative functions.

Finally, success in using remote sensing techniques for the establishment of integrated resource inventories in Nepal suggests that future development projects will benefit from the availability of this data.

C. PROJECT IMPACT ON DEVELOPMENT ACTIVITIES

While the RSC will undoubtedly be useful in the formulation of many future projects, it will also have an important impact on the following three active AID funded projects and related HMG/N institutions.

1. Integrated Cereals Project (ICP): This project will be strengthened by the ability to assess accurately and quickly the rates of adoption of new crop varieties by local farmers in different test areas in Nepal. In addition, information on the scope and direction of changes in cropping patterns will be valuable for trend projections and other purposes. RSC will provide data for ICP to develop strategies and techniques for such assistance to small farmers. Initially, ICP may be provided color aerial photographs of at least one of its current field test sites. As techniques are perfected, the remaining sites could be monitored twice a year, to make measurements and identify changes occurring over time.
2. Resource Conservation and Utilization Project (RCUP): RCUP will benefit greatly from RSC through its assessment of general land use patterns as well as for specific resource information on entire watersheds. Such information would be used in developing effective strategies for erosion control. Both aerial and satellite images can be employed

for such purposes, depending upon the complexity and level of detail required. The RSC will be able to develop interpretation approaches that will enable accurate and consistent classification of land use categories, and the drawing of maps which clearly show the location and expanse of each category. The RSC will also provide facilities for the interpretation and integration of supporting data collected by the RCU project in the field throughout its implementation phases.

3. Rural Area Development Project (RADP): Land use information similar to that needed by the RCUP will be useful to the RADP. Thematic maps of level 1 and 2 land-use categories are needed for use in conjunction with tabular data on both projects' working areas and histories of change. By comparing early vintage LANDSAT images with current images (recent Canadian photography and other RSC-acquired color photos), land-use comparisons and directions of change can be determined. Technicians working in Rapati Zone can use RSC in determining water supply potentials for impoundments and irrigation systems and areas of severe soil erosion. Assessment of resources, conditions and development potentials in the rapati zone can be sharpened with assistance from the RSC, and choices among alternative strategies and development activities facilitated.

These projects provide examples of the kind of productive activities that are expected to be undertaken during the early phases of the project's implementation. Results from these and similar cooperative efforts will be refined as necessary, with growth and experience.

D. LINKAGES WITH THE ASIA REGIONAL REMOTE SENSING TRAINING CENTER (BANGKOK), AND THE INDIAN LANDSAT RECEIVING STATION (HYDERABAD).

HMG/N recognizes the support capability that the planned Bangkok regional center can provide to the national Remote Sensing Center in Nepal. The regional center in Bangkok will establish a data bank and out reach facility to give Asian decision makers the most sophisticated and current information available to guide their resource and land-use planning and policies. The center will also provide a faculty to train Asian technicians so that they can develop resource utilization and development plans based on regional data obtained from U.S. space vehicles.

The Bangkok center will operate on a higher level than will the RSC, with advanced digital computers, sophisticated interpretation and reproduction equipment and allied soft and hardware, and will produce photos and maps from the tapes received from the satellites. It will be able to train personnel, provide basic information, offer project guidance, and work on problems too complex for resolution in Nepal.

HMG/N will also be in a position to take advantage of the proposed LANDSAT Receiving Station in Hyderabad. The Receiving Station in India will be utilized as a procurement site for new satellite data. While negotiations for the utilization of these facilities will be conducted in the near future, the mere existence of a RSC in Nepal should facilitate these negotiations. It may be possible to utilize Indian rupees from USAID/Delhi to offset training costs at the Hyderabad facility. Realistically, the Bangkok Regional Center may not be operational until FY 82. In the interim, as needs or opportunities arise, it may be desirable to utilize rupee resources for training in India. Until cooperative arrangements are made with Hyderabad and that unit becomes operational, LANDSAT products will continue to be obtained from U.S. sources, primarily EROS data center.

When the India and Thailand centers are operational, they will provide Nepal with LANDSAT images, most of their advanced training needs in specific resource evaluations requiring an image base, and most digital image processing needs. The RSC in Kathmandu will obtain data on Nepal's resources through utilizing available aerial photography and by establishing linkages allowing procurement of LANDSAT imagery and other remote sensing products. The RSC will establish a data file and document archive, and will do the interpretation work needed for its own purposes.

E. OTHER DONOR ACTIVITIES

1. Canadian International Development Association has sponsored a project which is acquiring 1:20,000 scale black and white photography over areas of Nepal below 15,000 feet in altitude. The project is not complete and many gaps in coverage still exist. Nevertheless, the availability of these modern photographs, from the Department of Topographic Surveys, plus the availability of those existing within the Ministry of Forests, will substantially assist in conducting an integrated remote sensing inventory. Although they are not housed in the RSC, the photos will be readily available for use and reproduction by the RSC and other HMG/N agencies. The RSC will supplement this data with larger scale (1:12,000) color and color infrared photos of small sites where greater detail is required.

2. UNDP/FAO is providing approximately \$400,000 for the construction of a new building for the Department of Soil and Water Conservation. One wing of the third floor of this building has been reserved for the RSC. This represents an estimated \$30,000 contribution by UNDP/FAO to the Remote Sensing Center. Annex G shows the layout of laboratory facilities as well as office space and library. In the past, FAO has been an active participant and donor in remote sensing activities. The FAO-funded Integrated Watershed Management project assisted in organizing the initial remote sensing workshop held in Kathmandu in 1976 and is now supporting a trainee in an M.Sc. program at Michigan State.
3. Other donors, the Australians, British, Canadians and UNDP have used remote sensing products in planning. This use has the effect of increasing the awareness and the value of remote sensing techniques.

III. PROJECT ANALYSES:

A. TECHNICAL ANALYSIS:

1. Appropriateness of Project Technology and Cost Effectiveness: At the conceptual level, AID has adopted a clear stance regarding the appropriateness of technology used in its assistance programs. Considerable attention has been given to the question of which technologies have the greatest potential for achieving the goals of AID. Relating the project's technology needs to AID's stance on the appropriateness issue, can be achieved simply by reference to the numerous AID studies comparing the costs and effectiveness of alternative approaches to resource inventory surveys. These studies demonstrate conclusively that resource inventories conducted by remote sensing require less time, cost less and result in more accuracy than is possible using traditional methods such as ground enumerative surveys.

Specifically, in the case of Nepal, travel and research are particularly difficult and slow because of the nation's rough, mountainous terrain and the paucity of communication facilities. Traditional

ground methods of resource gathering are as a consequence completely lacking, and authorities have to rely upon crude estimates of actual situations. For example, even where the few available resource maps exist, they are typically compiled at 1:250,000 or larger scales. This level of detail is not sufficient, by orders of magnitude, to adequately support development activities in many HMG/N projects, including the AID-funded RCUP and RADP. Since ground travel is difficult, hazardous, and time-consuming (most of the country is accessible only on foot), remote sensing technology is now, and will be in the foreseeable future, the only feasible way in which high quality resource data can be obtained quickly and efficiently.

Remote sensing technology will provide accurate, detailed, and timely data for development oriented decision-making. Since remote sensing data are area-specific, as opposed to point-specific, they are more accurate and detailed than data obtained by ground surveys (even in cases where the latter are possible). Natural resources are dynamic and subject to continual change. Annual ground investigations can certainly provide useful data, but they are soon out-dated. Photographs obtained and processed through remote sensing facilities can provide, in a single day, information that would require months or years to collect by using more traditional collection methods.

Remote sensing from aircraft is advantageous because data can be collected on short notice for specific locations at given times, and because a wide choice of data types is available for use. Since resolution or level of detail can vary over a wide range, aircraft-based remote sensing products are more than adequate for most development project purposes. They provide an invaluable aid for predicting flood hazards assessing drought damage, identifying crop infestations, etc.

Remote sensing from spacecraft is also highly advantageous, since users pay only minimal costs for data reproduction. In the case of the project, satellite data will be interpreted largely by manual means, that is, visual analysis. This technique is simple, inexpensive and generally effective over a wide range of applications. For this project, a simple desk calculator with screen display and print-out capability will be used to augment the manually operated equipment.

This is appropriately simple technology and its use is in keeping with Nepal's limited capability and experience in computer operations.

2. Suitability for Replication: The project is designed to demonstrate the effectiveness of remote sensing in establishing resource inventories for use in an RLDC's development planning processes. If that effectiveness is indeed demonstrated, it is anticipated that expansion of the Remote Sensing Center will occur, and that more individuals will be trained in remote sensing techniques. The project may well be found to have replicability for other RLDC's, once the usefulness of its products has been demonstrated in Nepal.

B. ADMINISTRATIVE AND MANAGEMENT FEASIBILITY

The ability of Nepal to accommodate the appropriate remote sensing technology introduced through this project has been satisfactorily demonstrated. Over 100 key decision makers and professional employees of HMG/N have been exposed to the fundamentals of remote sensing through in-country seminars and short training programs in the U.S. While a strong training component is an important and necessary part of the project, the present and available cadre does provide Nepal with a current capability to process and interpret remote sensing images. See Annex E, HMG/N Ministry of Forests Organizational Chart. Coupled with this capacity there is in HMG/N a strong commitment to remote sensing as a component of overall development planning in Nepal. Aside from the 10 people to be trained overseas, at least 25 people will receive direct in-country training from the consultants. These trainees will carryout investigation related to their home agencies and be available to the NDC on ad-hoc basis. Since the project is a simple one in terms of low cost, number of individuals directly involved and the use of unsophisticated equipment, the difficulties in developing administrative and management support systems for the RSC are reduced. Nevertheless, to facilitate smooth operation of the project, AID will provide special training in managerial and administrative skills until September, 1984.

C. FINANCIAL ANALYSIS AND PLAN:

Essential inputs to this project consist of project advisor, short-term consultants, Remote Sensing Center personnel, participant training, laboratory construction, laboratory equipment and supporting services and materials, totaling an estimated \$2,851,000. AID will provide \$2,400,000 (84%), HMG/N's contribution will be \$421,000 (15%), and UNDP/FAO will finance the construction of the RSC laboratory, approximately \$30,000 (1%). Table I presents a summary cost estimate and financial plan, followed by a brief description of AID's and HMG/N's inputs to the project. See Annexes "H", through "L", for detailed annual financial breakdown of specific project inputs and AID's projected expenditures by fiscal year.

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

TABLE I

(\$000)

SOURCE OF FUNDS

	AID		HMG/N		UNDP/FAO		Total
	FX	LC	FX	LC	FX	LC	
<u>Use of Funds</u>							
<u>Technical Assistance:</u>							
Project Advisor/Consultant	\$565.0	\$35.0					\$600.0
Short-term Consultants	283.8	31.2					315.0
Contractors' support budget	107.8	6.0					113.8
Technical & Clerical Support	61.2						61.2
RSC Staff and Operational Support				\$114.0			114.0
<u>Participant Training</u>							
10 participants	169.5			12.0			181.5
<u>Commodities:</u>							
Laboratory equipment & Materials	455.8						455.8
Land, Supplies and Rented of Building				130.0			130.0
<u>Other Costs:</u>							
Furnishing Lab and aerial photos	59.0						59.0
Travel in Nepal				50.0			50.0
Construction of Laboratory					\$20	\$10	30.0
Inflation, 10% per annum	\$ 1702.1	\$72.2		\$ 306.0	\$20	\$10	\$2110.3
	299.4	12.5		60.6	-	-	372.5
Contingency Factor of 15%	\$ 2001.5	84.7		\$ 356.6	-	-	\$2482.8
	301.3	12.5		54.4			368.2
TOTAL	\$2302.8	\$97.2		\$ 421.0	\$20	\$10	\$2851.0

Technical Assistance: Funds have been allocated for a project advisor (60 person months) at \$120,000 per year; 12 short-term consultants (totaling 26 person months) at \$10,500 per month, plus \$3,500 each for travel; and \$175,000 for part-time contractors' office support, including part-time home office technical and clerical support staff.

Participant Training: \$169,500 for a total of ten short-term and long-term U.S. trained participants. Training will start in the initial two years of the project and total 72 participant months consisting of 27 participant months (\$74,500) in FY 80 and in FY 81 45 participant months, costing \$95,000.

Commodities: Virtually all of the equipment required for the laboratory facilities will be purchased in FY 80 (\$155,500) and FY 81 (\$195,000). In each of the remaining three years an average of \$35,100 will be expended for materials and supplies for the RSC.

Other Costs: A total of \$59,000 is budgeted for furnishing the interior of the UNDP/FAO financed laboratory (\$20,000) and to carry out aerial photography (\$39,000) during the life of the project.

HMG/N's contribution of \$421,000 (local currency equivalent) will consist of RSC staff salaries (\$114,000); participant's salaries and sharing travel cost (\$12,000); land, supplies and rental of temporary building for RSC (\$130,000); other costs (\$50,000); and 10 percent per annum for inflation, plus a 15 percent contingency factor. See Annex F for HMG/N's itemized project inputs and estimated annual expenditures. UNDP/FAO will construct the RSC laboratory, estimated at \$30,000.

HMG/N's contribution toward this project is \$421,000, or 15 percent of 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 has granted a waiver to Section 110(a) since Nepal is one of the poorest of the Relatively Least Developed Countries (RLDC) and because of HMG/N's sizable financial resource gap. In view of this financial situation the \$421,000 (15%) contribution represents a firm commitment to the project. 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. Nepal is on the UNCTAD list of RLDC's.

After project completion (September 1984), recurring project costs will amount to an estimated \$150,000 annually. HMG/N will allocate sufficient funds to adequately operate and maintain the project.

The above financial analysis and plan reflects current itemized cost for the project's inputs. Project costs for AID and HMG/N include an annual 10 percent inflation rate and a contingency factor of 15 percent, which takes into consideration existing world economic conditions.

USAID/N has determined that the project design is feasible and the project cost estimate is reasonably firm, thereby satisfying the requirements of FAA, Section 611(a)(1).

D. SOCIAL SOUNDNESS ANALYSIS

The Project is a macroscientific approach to development, with a purpose to provide basic resource information that is presently deficient in Nepal. Its products will be useful within the context of natural resource management. As a consequence, the social soundness analysis will restrict its attention to: (1) The relationship between the social environment and the products of the project, (2) The beneficiaries of the project and (3) The spread effect of the project.

1. The Social Environment and the Products of the Project.
Specifically as it relates to the agricultural, forestry, and conservation sectors, it has been well established that at present, planning in Nepal is based on an inadequate knowledge of resources.

The project will provide Nepal with the base-line data as it relates to its resources, thereby filling large gaps in that void. From that point onward, questions concerning resource planning and allocation become a social problem. For it is the interaction between the people and their natural environment that has resulted in many issues that the project is attempting to address, specifically in the areas of environmental degradation. This leads to the main issue of a social soundness analysis for this project. That is, what is the precise nature of the relationship between natural resource base-line data to be used in planning and the human element that effects, and is thus effected by, those resources?

The RSC staff is projected to have the ability to provide up-to-date information on the quality and quantity of resources so as to allow for informed land use decisions. The problematic issue from a social soundness perspective

is not the providing of resource data but who makes land use decisions and what is the manner in which they are made. Will the poor have an input into decision making that has to deal with problem identification and solution or will the decisions filter down from various officials, who are unsympathetic to the plight of the poor?

The project is on the one hand, addressing this issue of decision making since the data gathered from the RSC is proposed to be used in other AID sponsored projects, specifically RCUP, RADP, and ICP. It is expected that on the basis of social monitoring these projects will ensure that the remote sensing data will be given equal weight to key issues, as perceived and communicated by the rural poor, that affect their standard of living and basic human needs.

On the other hand, the RSC is also to provide services to all agencies public and private having a need for resource data and information so as to increase Nepal's planning capabilities. As with all public scientific knowledge, there can be no direct monitoring by AID to ensure that the data is used to benefit the poor.

2. Projected Beneficiaries: In the short run, the project will directly benefit a small number of Nepalese who receive training and employment from the RSC. However, the ultimate beneficiaries should be the rural poor of Nepal who derive a livelihood from those resources that the project is inventoring.

Nevertheless, the long run effects in terms of project beneficiaries could turn out to be double-edged. Specifically, the need for water for human and animal consumption, irrigation, sanitation, power generation and industrial processing is on the increase in Nepal. The country is rich in water potential, however the resources have not been adequately assessed as either surface water or ground water, nor have they been harnessed. Remote sensing could be used by the Department of Water Power and Irrigation to provide the needed data on water development that could broaden the rural poor's access to these resources and provide subsequent opportunities derived from them.

On the other hand, AID should be aware that data provided by RSC on the agricultural encroachment onto forest land, unless the uses are monitored closely, could have a negative effect on the rural poor. An analysis of soil, slope and vegetation cover in terms of potential for soil erosion and degradation could result in rural displacement and potentially dangerous relocation projects.

This is not meant to imply that certain types of data are socially sound, while others are not. Rather, the data obtained through the project is socially neutral. How that data is interpreted and subsequent actions based on the interpretation is not socially neutral.

Recent indications from various HMG/N institutions, however, point out that there is a growing awareness in the Government of the necessity of having two-way planning. Since HMG/N has demonstrated the interest in including the poor in decision making this does much to reassure all parties that the long range effects of the project will be socially sound.

While the RSC will be located within the Ministry of Forests, other ministries will have access to the data. Through conscientious planning, remote sensing can be translated into economic and social benefits for the poor. Specifically, the Ministry of Agriculture plans to use the RSC for information on general crop production and, of particular importance for the rural poor, an early warning system in disaster location as it effects production. The Department of Geology has plans to use the remote sensing data to locate potential mineral developments. The location of such resources could provide needed employment in such areas as mining and stone cutting. The Department of Roads (DOR) is already using remote sensing data from the Canadian project. The complementarity of the project will help DOR in planning better road locations so as to prevent environmental degradation. The construction of these roads, which will mainly be labor intensive, will provide needed employment. Eventually, these roads will result in better access to market outlets. In addition, DOR will be using remote sensing for the development of trail and bridge maps of Nepal, while the Department of Topographical Surveys will be assisted

in making up-to-date country wide maps. Since a major problem in Nepal relates to population, the Central Bureau of Statistics can use remote sensing data in demographic issues. This can be helpful in establishing family planning services and rural medical health units in key areas of population density.

3. Spread Effects: Since the broad issues of resource utilization are of a regional, if not world wide magnitude, the spread effects of the project are critical in the social analysis. The strongest point of the project from a social perspective, is the underlying recognition that a macroecological system exists which transcends national borders, to encompass much of the subcontinent. Nepal's natural resources, their conservation or degradation, will have profound repercussions throughout that system. The project has planned for a network of information exchange between stations in Kathmandu, Bangkok and Hyderabad. This will help to ensure that problems of environmental degradation are placed in a broad ecological framework and will hopefully provide a mechanism in which subsequent planning efforts can be on an equally broad scale.

To summarize, a direct linkage between the project and benefits to the poor is difficult to trace. Yet at the same time, it is possible to demonstrate the impact of the RSC on developing a resource inventory and illustrate how this will be helpful in planning. This planning then becomes the linkage between such a center and an attempt to address the full range of basic human needs.

The indisputable fact is that any project will eventually have a social repercussion. At this time, projections indicate that the long range effects of the project will be socially sound. All parties will need to be alert to issues noted above and to review the uses of the information at regular intervals.

E. ENVIRONMENTAL ASSESSMENT:

The project will not have a significant impact on the natural and physical environment. The project is designed to provide Nepal with the ability to evaluate its natural resources and assess the extent of its environmental degradation problems. The project will provide HMG/N with much needed data on critical problems, on geographic areas undergoing rapid change, and on the potentials for development of specific areas throughout the nation. It will also provide useful data on development limitations and constraints, as in the case of land use planning.

The only possible positive environmental impact which could arise, is the processing of effluents from the photographic/cartographic laboratory. To minimize chemical pollution, precautions will be taken in the design of the laboratory's layout and plumbing system. Action on pollution control will be undertaken after careful assessment of expected operating levels and the costs of installing appropriate recovery systems, coupled with the subsequent treatment of laboratory effluent through the newly installed city sewerage system.

It is expected that the project will have an enhancing impact on facilitative assistance provided by the Department of Soil and Water Conservation to other on-going and future HMG/N development projects, including those funded by AID. The three main project elements, of (1) establishing and equipping laboratories, (2) training, and (3) technical assistance, clearly have no significant direct impact on the physical environment. See Annex D, Environmental Impact Identification and Evaluation Form.

IV. IMPLEMENTATION AND MONITORING OF PROJECT:

A. ADMINISTRATIVE ARRANGEMENTS

The RSC will be housed in the Department of Soil and Water Conservation, Ministry of Forests, which will be responsible for providing the project with all necessary office and laboratory space and associated furniture. Its affairs will be guided by an Advisory Committee comprised of high level representatives from HMG/N Departments of Soil and Water Conservation, Irrigation, Geological Survey, Hydrology and Meteorology, Department of Roads, Department of Survey, and from the Department of Agriculture. At end-of-project status, HMG/N will incorporate all recurring RSC operational costs into its annual recurrent budget.

Since the RSC is to be resource-oriented and multi-disciplinary in approach, it is the intent of the project that various Ministries be actively involved in the center and no prejudice be shown to any particular unit. Annex "E" shows the RSC organizational structure including the role of other participating agencies. As the organization develops the advisory committee should evaluate the possibility of becoming an autonomous unit. To help ensure the close coordination among HMG/N organizations that is essential for the success of the RSC, the project will sponsor regularly scheduled workshops and seminars to bring participants from those agencies together for communication and information exchange. Those workshops will be user oriented and introduce follow-up techniques that can be applied by the trainees to their home agency's day-to-day work. In addition, it is planned that the five HMG/N personnel who were trained at the Remote Sensing Institute of South Dakota State University in

1977, and who are presently situated in various ministries, will devote a minimum of fifty per cent of their working time as ad hoc staff in the remote sensing center for their respective organizations. The arrangement should effectively ensure the wide spread dissemination of information and at the same time provide a nucleus of individuals to promote inter-ministrial coordination and cooperation.

USAID's Office of Agriculture and Resource Conservation will be the responsible office for monitoring the project and facilitating implementation and evaluation schedules as appropriate.

After authorization of the project and signing of the grant agreement, HMG/N will place an advertisement in the CBD, describing the projects' requirements and then issue a requests for technical proposals from eligible and qualified consultants with experience in remote sensing activities. Interested consultants should have substantial experience in developing and operating remote sensing facilities as well as the ability to conduct in-country training programs and monitor participant training in the U.S. The consultant selected by HMG/N, and approved by AID, will sign a contract with HMG/N to implement the project. HMG/N and the contractor will be primarily responsible for effective administrative arrangements and daily management of the project. The contractor will work under a direct Letter of Commitment arrangement, and no cost advances are anticipated at this time.

B. IMPLEMENTATION PLAN:

During the first year of the five year project equipment and materials (\$155,500) for photographic/cartographic and interpretation laboratories will be procured, five participants will be trained and the project advisor plus three short-term consultants will be actively engaged in developing the project. Procurement of equipment and materials will be the responsibility of the Contractor.

In year two most of the remaining equipment and materials (\$195,000) will be purchased, workshops conducted by RSC technicians, the final group of participants will be trained and three short-term consultants on site.

In year three the final item of equipment (\$3,900) will be procured, two short-term consultants will conduct in-country programs for a total of six months and \$33,000 of materials will be purchased. An assessment will be made to determine the need for a larger computer system. If a positive recommendation emerges, such a system will be proposed.

In years four and five, principal activities will include the continuation of in-country training, the upgrading of staff, and the increasingly effective meeting of data needs. Linkages will be improved with the Regional Center in Bangkok and the LANDSAT station in Hyderabad.

C. IMPLEMENTATION SCHEDULE:

The following is the currently projected implementation schedule for the project.

<u>DATE</u>	<u>ACTIVITY</u>
8/3/79	Project approved by USAID/Nepal.
12/1/79	Project approved by HMG/N.
1/23/80	USAID/Nepal authorizes project.
1/24/80	Grant Agreement negotiated and signed.
2/29/80	Conditions Precedent to Grant Agreement are satisfied.
2/29/80	Project advertised.
2/29/80	PIO/T signed.
3/15/80	RFTP issued.
4/30/80	Technical proposals received.
5/30/80	Proposals evaluated by HMG/N, USAID/N and AID/W.
5/30/80	Photographic technicians for long term training selected.
6/15/80	Potential contractor notified.
6/30/80	Negotiations commence between contractor and HMG/N.
6/30/80	Individuals for managerial skills and cartography assistance training selected.
7/30/80	Contract signed between HMG/N and contractor.
8/30/80	Full time consultant/advisor arrives.
9/30/80	RSC advisory committee named.
10/15/80	Initial designs for photo and interpretation laboratories completed.

<u>DATE</u>	<u>ACTIVITY</u>
10/15/80	Order equipment for laboratory.
10/15/80	One photographic technician for long-term training to U.S.
10/15/80	Earth scientist for masters degree training selected.
11/15/80	Establish link with Bangkok, India, and NASA.
1/1/81	One individual to receive 6 months training in managerial skills
1/1/81	One cartographic assistant and one librarian will start 3 months training.
1/1/81	Commence U.S. training of one earth scientist for a masters degree.
1/15/81	Consultants conduct first training program.
1/15/81	Complete design plans for information dissemination program.
1/30/81	Complete project plans for site specific problems with participating agencies.
3/15/81	Receive first equipment for laboratory facilities.
4/30/81	Complete plans for first training program.
6/15/81	Complete preparation of materials for first training program.
6/30/81	Complete plans for cooperating with Bangkok, Hyderabad, neighboring countries and NASA.
7/15/81	Complete first Nepal workshop.
7/15/81	Two earth scientists for short term training selected.
7/15/81	Photographic assistant for short term training selected.
8/15/81	Complete feedback from training activities to advisory committee for comments.
8/30/81	Advisory committee recommendation regarding refinements in training needs.
9/30/81	Initiate arrangements with consultants for training assistance.

<u>DATE</u>	<u>ACTIVITY</u>
9/30/81	Two earth scientists to receive 6 months training each in U.S.
10/30/81	First project audit.
10/30/81	One photographic assistant will receive 3 months training.
12/1/81	Complete second year accomplishment and evaluation report.
1/15/82	Consultants assist on applications and training.
3/15/82	Complete second Nepal Workshop.
4/30/82	Complete feedback to advisory committee.
5/30/82	Advisory committee recommendations regarding refinements in application, site specific projects and training requirements.
6/1/82	Commence new applications and up-date on-going activities.
6/1/82	Initiate arrangements with consultants.
7/1/82	Complete transfer to new RSC facilities built by UN/FAO.
7/30/82	Update specific site project analyses.
9/1/82	Consultants assist on applications and training.
10/30/82	Second project audit.
12/15/82	Complete third round of training and application activities.
12/30/82	Complete third year accomplishment and mid-term evaluation report. Make recommendations on computer usage.
1/30/83	Complete feedback to advisory committee.
2/30/83	Advisory committee recommendations regarding refinements in application, site specific projects training requirements, and computer usage.
3/1/83	Commence new applications and up-date on-going activities.
3/1/83	Initiate training arrangements with consultants.

<u>DATE</u>	<u>ACTIVITY</u>
5/15/83	Consultants assist on application and training.
7/30/83	Update specific site project problems.
8/15/83	Complete fourth round of training and application activities.
9/30/83	Complete fourth year accomplishment and evaluation report.
10/30/83	Third project audit.
11/30/83	Complete feed back to advisory committee.
12/30/83	Advisory committee recommendations regarding refinements in applications, site specific projects, and training requirements; emphasis on follow-through needs.
1/1/84	Commence new applications and up-date on-going activities.
1/1/84	Initiate training arrangements with consultants.
5/15/84	Consultants assist in last round of applications and training activity.
7/30/84	Update specific site project problems.
8/15/84	Complete last round on application and training activities.
9/30/84	Fourth project audit.
10/30/84	Complete final accomplishment and evaluation report.

D. EVALUATION PLAN:

The project will under go two evaluations. The mid-term evaluation will occur 2½ years after the full-time U.S. contractor arrives. The final evaluation will occur at end-of-project status.

While all persons involved fully expect the project to develop into a successful program, this clearly cannot be assured. The evaluations can serve (A) as an important influence on HMG/N commitment to use remote sensing, (B) as an impetus to the considerations for further use of remote sensing in development and (C) as information for HMG/N and AID to estimate the developmental impact of the project. The evaluations must gauge both overall effectiveness and illuminate the process through which the project operates.

1. Mid-term evaluation: 2½ years after the arrival of the full-time U.S. contractor, the mid-term evaluation will be held. Information needed for the successful operation of the project will be gathered. The primary factor that will be evaluated is the project's need for a more sophisticated computer system. If it is deemed necessary, an appropriate system will be chosen. The selection will be based on the project's requirements and HMG/N's ability to maintain and operate the proposed computer.

The second factor that will be evaluated is the progress made towards establishing links with LANDSAT Receiving Station in Hyderabad and the Asian Regional Remote Sensing Training Center in Bangkok. Since these centers are projected to supply Nepal with LANDSAT images, advanced training and most digital image processing, an evaluation of the success of these linkages is important.

The third factor to be evaluated is the success of the project's administration in diffusing the remote sensing information throughout the various participating ministries. This will involve an evaluation of the seminars, workshops and on-the-job training in terms of content, participation and over-all effectiveness.

2. Final Evaluation: The final evaluation will initially direct its attention to the project's purpose, that of creating a national Remote Sensing Center. The design of the project will be evaluated particularly in terms of how the project purpose and outputs were related to technical assistance, training and the remote sensing networking that was to be established between Thailand, India and Nepal.

The evaluation will be concerned with the accomplishment of the project's goals. This includes a discussion on the nature of the data bank and resource archives at the end-of-project status. Does the physical resource inventory meet the project's goals in being accurate and

up-to-date? What is the amount of use that this data bank receives from HMG, AID and other donors? Finally, has the training of resource analysts and managers resulted in an effectively operated Remote Sensing Center?

Since the main intent of the project is to create a facility whose products are to be used for development planning, the extent that this has been accomplished will be evaluated. This will involve a discussion of the appropriateness of the project's technology at the end-of-project status.

E. CONDITIONS AND COVENANTS:

In addition to standard conditions precedent normally placed in grant agreements, a condition precedent requiring HMG/N to indicate that it has taken necessary action to contract with long-term project advisor is included in the agreement

Listed below are five covenants which are included in the grant agreement to ensure timely implementation of the project and prudent management of the RSC.

1. HMG/N covenants to provide all necessary personnel to support the project activities.
2. HMG/N covenants to provide funds for the project on a timely basis to meet HMG/N purposed contribution as shown in Annex I.
3. HMG/N covenants that it will budget, for the period beginning at the Project assistance completion date, funds necessary to adequately maintain the Remote Sensing Center.
4. The parties agree to establish an evaluation program as part of the Project.
5. HMG/N covenants to obtain suitable temporary quarters for the Remote Sensing Center and to cover annual rental expense thereof until completion of the permanent facility.

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CLASSIFICATION

ANNEX - A

DEPARTMENT OF STATE

Proj 367-0234

T E L E G R A M

AID
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UNCLASSIFIED 29 JAN 79 CN: 1027

I N C O M I N G

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TO AMEMBASSY KATHMANDU 7744
BT
UNCLAS STATE 23493

AIDAC

E.O. 12065: N/A

TAGS:

SUBJECT: AGRICULTURE RESOURCES INVENTORY PID (367-0234)

1. APAC APPROVES SUBJECT PID AND AUTHORIZES MISSION TO PROCEED WITH PP DESIGN CONTINGENT UPON: (A) INCLUSION OF ALL MAJOR RDA RECOMMENDATIONS IN PP, (B) FINAL PP BEING REVIEWED IN AID/W BY APAC.

2. IT IS RECOMMENDED THAT:

(A) RATHER THAN RDA RECOMMENDATION 6, AN ADVANCED CALCULATOR CAPABLE OF STATISTICAL CALCULATIONS BUT WITHOUT LONG TERM STORAGE IS WARRANTED IN YEAR ONE OF THE PROJECT GIVEN THE FUNDING LEVEL AND THE NEED TO SCALE DOWN THE TECHNOLOGY.

(B) DS/ST DESCRIBE BY SEPARATE LETTER TO USAID/N APPROPRIATE MECHANICAL STORAGE EQUIPMENT (GEOBASED INFORMATION SYSTEMS) FOR THIS PROJECT AND THE LEVELS OF FUNDING AND COMPLEXITY ASSOCIATE WITH THEM.

(C) QTE REMOTE SENSING CENTER UNQTE IS AN ACCEPTABLE NAME FOR THE PROPOSED CENTER.

(D) A PILOT PROGRAM CONCENTRATING ON A SPECIFIC GEOGRAPHIC AREA(S) AND INITIALLY USING AERIAL PHOTOGRAPHY AND MANUAL RATHER THAN MECHANICAL INTERPRETATION OF LANDSAT DATA SHOULD BE THE PROJECT IMPLEMENTATION DESIGN.

3. ALL THE ABOVE PP DETAILS DISCUSSED WITH MERV STEVENS ON TDY DECEMBER 12.

4. PLEASE ADVISE ANY FURTHER AID/W ASSISTANCE NECESSARY IN PP PREPARATION. VANCE

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STATUTORY CHECKLIST

The Country Checklist prepared recently for the Population Policy Project (367-0130) remains valid and is applicable to this Project Paper which has been prepared in the same fiscal year (FY 79). Items from the Standard Item Checklist have been reviewed and taken into consideration during the preparation of this project paper. Applicable items from the Standard Checklist have been addressed in this Project Paper and/or the Grant Agreement for this project. Therefore, according to Handbook Three guidelines, the Country Checklist and the Standard Item Checklist are not required to be included in this project paper.

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE?
HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PRODUCT?

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) Yes.

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?
 - (a) All plans necessary to implement the assistance program are complete. (b) The costs of assistance by the U.S. are reasonably firm. See Financial Analysis & Plan, Section III.C 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?

Not applicable.

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?

Not applicable.

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 with the development of this project, regional connections with other Asian Remote Sensing Centers will be established.

A.

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.

Not applicable.

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 programs (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 EMG/N will utilize local currencies for support of local costs expenses of the project. See Section III.C in Project Paper for EMG/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. 612(e). Will the project utilize competitive 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 does not directly treat this subject.
- (b) The project does not involve this subject.
- (c) The project does not apply to this subject.
- (d) Yes, indirectly, through favorable project impact on rural areas.
- (e) Yes, by providing remote sensing with Bangkok and Hyderabad, India.

b. FAA Sec. 103, 103a, 104, 105, 106, 107. Is assistance being made available: (include 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.)

(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 supply natural resource inventory data to HMG/N Ministry of Agriculture and other governmental agencies to develop projects directed to increasing food production.

(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 Analyses, Section III.A in project paper.

d. F&A 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 15% of the cost of the project; a waiver for a "relatively least developed country" is granted. See F&A Section 110(a) discussion in Section III.C of Project Paper.

e. F&A 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. F&A 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.

g. F&A 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 the establishment of the Remote Sensing Center.

2. Development Assistance Project Criteria (Loans Only)

Not applicable.

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

b. F&A 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?

AID 50-117-721

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Project Title & Number: **AGRICULTURE RESOURCE INVENTORY - NEPAL - 367-0134**

Life of Project:
From FY **80** to FY **84**
Total U.S. Funding: **\$2,400,000**
Date Prepared: **8/27/79**

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To improve the standard of living of the rural poor through increased agricultural production and raising the nutritional level of the rural people.</p>	<p>Measures of Goal Achievement:</p> <ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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>Assumptions for achieving goal targets:</p> <p>HMG/N politically and financially supports rural development and agricultural development projects and objectives.</p>
<p>Project Purpose: 1. To assist HMG/N, Dept. of Soil & Water Conservation in establishing a national Remote Sensing Center for the purpose of recording and measuring the physical resource base of Nepal in order to utilize this recorded data to make informed land-use decisions during the dev. of Agri. & environmental projects.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> 1. Establishment of operational photo reproduction & interpretation laboratories. 2. Trained photo lab technicians, image interpreters & other managerial and technical personnel. 3. Apply data to Dev. Projects. 	<ol style="list-style-type: none"> 1. Visual observation & quality of products produced; records of equipment & materials purchased. 2. Successful completion of US participant training program & full-time employment at RSC. 3. Review list of new HMG/N projects being developed & examine RSC impact on projects. 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1. HMG/N & UNDP/FAO provide land & building for RSC. 2. HMG/N selects qualified candidates for US participant training. 3. HMG/N agencies will use the collected resource data in project development.
<p>Outputs: 1. An operational RSC consisting of constructed & equipped photographic/cartographic & image interpretation laboratories.</p> <ol style="list-style-type: none"> 2. Trained professional & staff personnel qualified to utilize data & efficiently operate RSC. 3. Data archive. 4. Linkage with other Regional RSC. 	<p>Measures of Outputs:</p> <ol style="list-style-type: none"> 1. RSC complex consisting of approximately 1500 sq. ft. & equipped with modern lab equipment valued at an estimated \$450,000. 2. 10 RSC staff successfully completed US training & employed full-time at RSC. 3. 50 to 75 volumes added to RSC per year. 4. Regular international meetings. 	<ol style="list-style-type: none"> 1. Visual observation. 2. Visual observation & expanded production of data from RSC. 3. Visual observation; journal subscriptions & purchase records. 4. International meeting. 	<p>Assumptions for achieving outputs:</p> <p>That HMG/N supports RSC and encourages other HMG/N ministries & agencies to make full use of RSC. That HMG/N makes effort to apply RSC data & experience to project development.</p>
<p>Inputs:</p> <p>AID & HMG/N provide financing to equip laboratories, purchase materials & supplies for RSC operation and train technical and managerial personnel to operate and maintain RSC.</p>	<p>Implementation Target (Type and Quantity)</p> <p>Implementation Plan presented in Project Paper, Section IV "A" and "C".</p> <p>Commodities = \$585,800 Photos = \$59,000 Construction of Lab = \$30,000 Training = \$181,500</p>	<ol style="list-style-type: none"> 1. Grant Agreement signed by HMG/N and AID. 2. RSC reports and AID evaluations. 	<p>Assumptions for providing inputs:</p> <p>That HMG/N is committed to producing remote sensing data and using this information in project development.</p>

Appendix 3E to CR 3
HB 3 (TM 3:1)

ANNEX C

IMPACT IDENTIFICATION & EVALUATION FORM

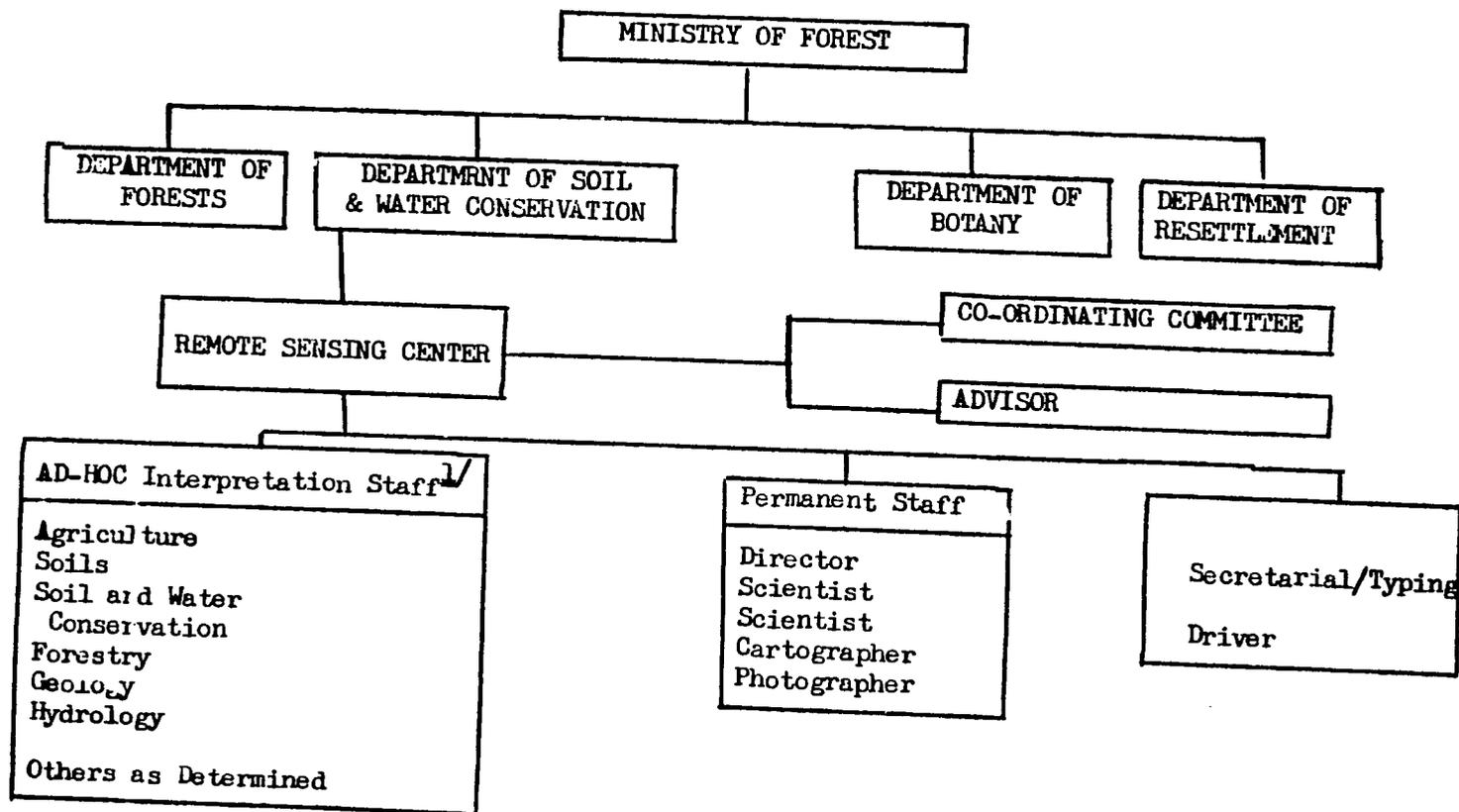
Agriculture Resource Inventory - Nepal 367-0134

Impact area & subareas

A. Land Use		
1. Changing the character of the land through:		
a. Increasing the population		N*
b. Extracting natural resources		N
c. Land clearing		N
d. Changing soil character		N
2. Altering natural defenses		N
3. Foreclosing important uses		N
4. Jeopardizing man or his works		N
B. Water quality		
1. Physical state of water		N
2. Chemical & biological states		L
3. Ecological balance		N
C. Atmospheric		
1. Air additives		N
2. Air pollution		N
3. Noise pollution		L (-)
D. Natural Resources		
1. Diversion, altered use of water		N
2. Irreversible, inefficient commitments		N
E. Cultural		
1. Altering physical symbols		N
2. Dilution of cultural traditions		N
F. Socio-economic		
1. Changes in economic/employment patterns		L (+)
2. Changes in population		N
3. Changes in cultural patterns		N
G. Health		
1. International impacts		L (+)
2. Controversial impacts		N
3. Larger program impacts.		M (+)
H. General		
1. International impacts		L (+)
2. Controversial impacts		N
3. Larger program impacts		M (+)

*Symbols: N = no environmental impact; L = little impact;
M = Moderate impact; H = high impact; U = unknown;
(+) = beneficial impact; (-) = adverse impact

Organization Chart of Remote Sensing
Center Showing Location of Center Within
Ministry of Forests

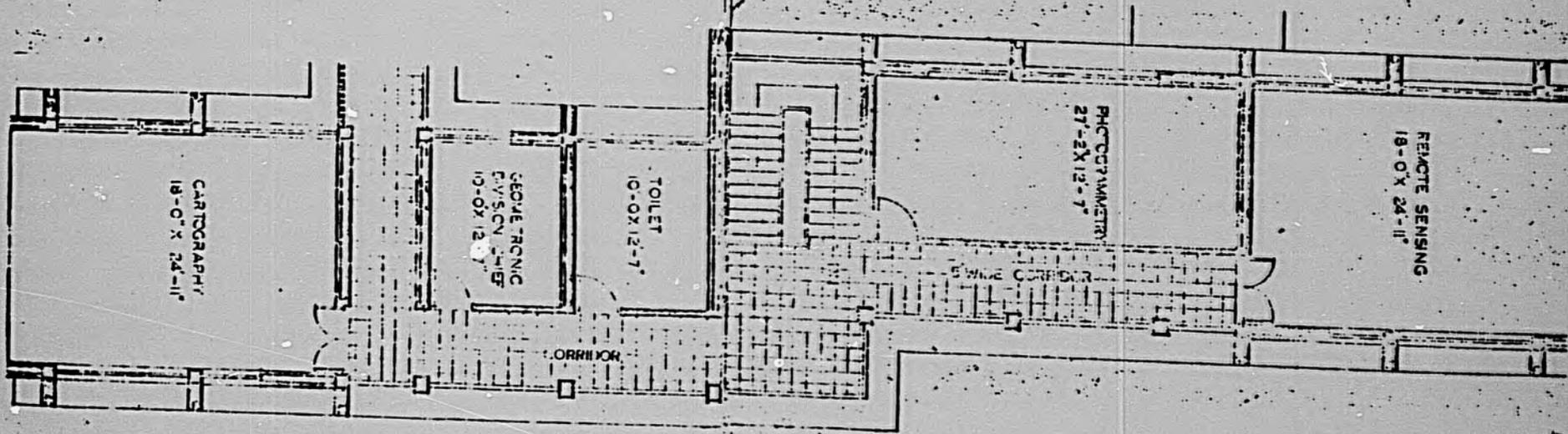


✓ This staff will be assigned to work in the RSC 50% of the time from their home agency working on home agency related activities. Participants trained at RSI in 1978 represent the initial staff of this interpretation group.

HMG/H Projected Expenditures by Fiscal Year
(11.90 Rupees equal one U.S. \$)

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>Total</u>
I. <u>Technical Assistance</u>						
Professional and staff support to operate Center	\$15,000	\$22,000	\$24,000	\$25,000	\$28,000	\$114,000
II. <u>Participant Training</u>						
Represents air fare from Kathmandu to New Delhi and participants salary during training period	5,000	5,000	2,000	-	-	12,000
III. <u>Commodities</u>						
Rental of building, land and supplies	40,000	40,000	20,000	15,000	15,000	130,000
IV. <u>Other Costs</u>						
Travel expenses in Nepal	10,000	10,000	10,000	10,000	10,000	50,000
Sub Total:-	\$70,000	\$77,000	\$56,000	\$50,000	\$52,000	\$306,000
Inflation, 10% per annum	-	7,700	11,760	16,550	24,600	60,610
Sub Total:-	\$70,000	\$84,700	\$67,760	\$66,550	\$77,600	\$366,610
Contingency Factor of 15%	11,000	12,300	10,240	9,450	11,400	54,390
Total:-	\$81,000	\$97,000	\$78,000	\$76,000	\$89,000	\$421,000

Floor diagram of Remote Sensing Center within
New Department of Soil and Water Conservation
Building to be constructed by FAO/UNDP.



ANNEX H

Estimated Costs for Project Advisor and Short-term Consultants.Project Advisor: (Spouse and 2 School aged children).

Basic Salary	\$40,000	
Differential pay @15% of salary	6,000	
Insurance @ 8%	<u>3,680</u>	\$ 49,680
Contractor's overhead rate of 75%		34,500
School allowance, 2 children		10,000
One way air fare and travel expenses (4)		6,000
Shipment & Storage of Household effects & car		6,000
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>
Annual cost of project advisor		\$120,000

Short-term Consultant: (one month)

Salary @\$160/day X 22 work days/month	\$ 3,520
Insurance @ 8%	280
Contractor's Overhead Rate of 1.5	5,280
Per Diem in Nepal for 30 days	1,200
Miscellaneous Expenses	<u>220</u>
	\$ 10,500
Round trip for domestic and international air fare plus travel expenses.	\$ 3,500

Projected Requirements for Short-term Consultants

FY	Number Consultant X	Months each	Total Persons = Months	\$10500 X Month	Column 1 + X\$3500 Air Fare	Total Cost
1980	3	1	3	\$ 31,500	\$ 10,500	\$ 42,000
1981	3	3	9	94,500	10,500	105,000
1982	2	3	6	63,000	7,000	70,000
1983	2	2	4	42,000	7,000	49,000
1984	2	2	4	42,000	7,000	49,000
	<u>12</u>		<u>26</u>	<u>\$ 273,000</u>	<u>\$ 42,000</u>	<u>\$315,000</u>

ANNEX - I

Estimated Costs For Participant Training

FY 1980

<u>Participant</u>	<u>Months</u>	<u>Training^{1/} Cost</u>	<u>Air Fare^{2/}</u>	<u>Total</u>
One Photo Technician	12	\$ 30,000	\$ 3,500	\$ 33,500
One Cartographic Assistant	3	7,500	3,500	11,000
One Management	6	8,000	3,500	11,500
One Librarian	3	4,000	3,500	7,500
One Aerial Photographer	3	7,500	3,500	11,000
Sub-Total:-	<u>27</u>	<u>\$ 57,000</u>	<u>\$ 17,500</u>	<u>\$ 74,500</u>

FY 1981

One Earth Scientist	24	\$ 32,000	\$ 3,500	\$ 35,500
One Photo Assistant	3	7,500	3,500	11,000
Two Earth Scientists (6 Mo. each)	12	30,000	7,000	37,000
One Accountant	6	8,000	3,500	11,500
Sub Total:-	<u>45</u>	<u>\$ 77,500</u>	<u>\$ 17,500</u>	<u>\$ 95,000</u>
Total:-	<u>72</u>	<u>\$ 134,500</u>	<u>\$ 35,000</u>	<u>\$ 169,500</u>

^{1/} Short-term participant training cost for intensive technical programs averages \$ 2,500 per month, and academic participant training averages \$ 16,000 per year.

^{2/} Round trip international and domestic air fare, plus travel per diem totals about \$ 3,500 for each participant.

1. Photographic/Cartographic Laboratory:

Voltage regulators and adopters	\$ 1,500	
Photo Enlarger and lenses	5,000	
Contact printer (1:250,000 scale prints)	14,000	
Temperature controls	500	
Print Dryer (20' min. width)	2,000	
Film print washer	3,000	
Chemical mixers	1,000	
Electronic timer	300	
Film processing unit	5,000	
Film & Paper processor	3,000	
Copy Camera	3,000	
Copy stand	1,000	
Printer/processor	1,500	
Refrigerator for film storage	450	
Drafting pens & drafting aids	600	
Sub-total		<u>\$41,850</u>

2. Interpretation Laboratory:

6 Hand programable calculators (\$300 each)	1,800	
Vehicle--(sub-compact)	7,500	
Light Table (36' x 48" illuminatuon area)	1,500	
Light table w/stereoscope	9,000	
Drafting table	2,000	
Enlarger/reducer	7,800	
Dual vision stereoscope	3,000	
2 slide projectors (500 each)	1,000	
Storage cabinets (maps, film, m crofiche)	2,000	
Document shelves	1,000	
Microfile reader/printer	4,500	
35 mm SLR field camera and lenses	700	
two - 2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ aircraft mounted cameras & lenses	7,500	
Sub-total		<u>\$49,300</u>

3. Materials for RSC:

Library Materials	\$ 5,000	
Image Data	5,000	
Photo papers & chemicals	7,500	
Photo lab supplies	2,500	
Film	1,250	
Publications/Communications	5,250	
Aerial Photos	2,000	
Sub-total		<u>\$28,500</u>
30% for shipping and insurance		<u>\$119,650</u>
TOTAL		<u>\$155,500</u>

ANNEX K

Procurement of Equipment and Materials in FY 81

1. Photographic/Cartographic Laboratory:

Black and White auto Processor	\$15,000
Color Processor	<u>12,000</u>

Sub-total

\$27,000

2 Interpretation Laboratory

Generator, 7.5 KW	\$ 3,000
Light table (36" X 48" illumination area)	1,500
Color additive viewer	17,500
Scanning Stereoscope	3,500
Electronic Area Planimeter	1,500
Color density slicer	30,000
Desk top calculator	<u>40,000</u>

Sub-total

\$97,000

3. Materials for RSC

Some items as purchased in FY 80,
except for a \$2,500 decrease in
library materials.

Sub-total

<u>26,000</u>
\$150,000

30% for shipping and insurance

<u>45,000</u>
<u>\$195,000</u>

Procurement of Equipment and Materials in FY 82

1. Film an itometo: for Photographic Lab.

\$ 3,000

2. Materials for RSC (same items as FY 81)

<u>26,000</u>
\$ 29,000

30% for shipping and insurance

<u>8,700</u>
\$ 37,700

AID's Projected Expenditures by Fiscal Year

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>Total</u>
<u>I. Technical Assistance</u>						
Project Advisor	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 600,000
Short Term Consultants	42,000	105,000	70,000	49,000	49,000	315,000
Contractors Support						
Budget	22,750	22,750	22,750	22,750	22,750	113,750
Technical & Clerical Support	12,250	12,250	12,250	12,250	12,250	61,250
Sub-Total	\$ <u>197,000</u>	\$ <u>260,000</u>	\$ <u>225,000</u>	\$ <u>204,000</u>	\$ <u>204,000</u>	\$ <u>1,090,000</u>
<u>II. Participant Training:</u>	\$ 74,500	\$ 95,000				169,500
<u>III. Commodities</u>	155,500	195,000	37,700	33,800	33,800	455,800
<u>IV. Other Costs</u>	-	<u>15,000</u>	<u>34,000</u>	<u>5,000</u>	<u>5,000</u>	<u>59,000</u>
Sub-total:-	\$ 427,000	\$ 565,000	\$ 296,700	\$ 242,800	\$ 242,800	\$1,774,300
Inflation, 10% per annum	-	<u>56,500</u>	<u>62,307</u>	<u>80,367</u>	<u>112,683</u>	<u>311,857</u>
Sub-total:-	\$ 427,000	\$ 621,500	\$ 359,007	\$ 323,167	\$ 355,483	\$2,086,157
Contingency Factor of						
15%	<u>64,000</u>	<u>93,500</u>	<u>53,993</u>	<u>48,833</u>	<u>53,517</u>	<u>313,843</u>
Total:-	\$ 491,000	\$ 715,000	\$ 413,000	\$ 372,000	\$ 409,000	\$2,400,000

PROJECT AUTHORIZATION

Country: Nepal

Project: Agriculture Resource Inventory Nepal

Number of Project: 367-0134

Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Agriculture Resource Inventory-Nepal Project for Nepal involving planned obligations of not to exceed \$2,400,000 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 designed to assist HMG/N in applying remote sensing technology to the efficient meeting of its objectives in natural resource inventory and planning. This particular technology, which consists of acquiring, processing and interpreting aerial and satellite data, is internationally acclaimed as a highly efficient and cost effective means for measuring and recording the resource base in areas that are either inaccessible or undergoing rapid change.

In order to transfer and fully utilize this technology, the project will establish an operational remote sensing center (RSC) within the Ministry of Forest, Department of Soil and Water Conservation.

The center will be responsible for: (1) creating and reproducing useable photo and map products for use in resource planning, (2) conducting an active training program to increase the number of qualified users of remote sensing technology and data, and (3) disseminating the results of these efforts throughout HMN. The project will develop technical and data archives for use in resource inventories. The center will serve as the official link between HMN and other national and regional centers, specifically the regional center in Bangkok and the LANDSAT receiving station in Hyderabad.

Grant funds will finance a long-term advisor, short-term consultants, training of people, procurement of materials and equipment and other cost elements for the project.

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

Goods and services, except for ocean shipping, 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 except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag' vessels of the United States or the Cooperating Country.

b. The following waiver to A.I.D. regulations is hereby approved; a waiver of the standard required 25 percent host country contribution to the cost of the project.

Signature: Samuel H. Butterfield
Samuel H. Butterfield
Director, USAID/Nepal

Date: 1/23/80

A.I.D. Project Number 367-0134 ✓

PROJECT GRANT AGREEMENT

BETWEEN

HIS MAJESTY'S GOVERNMENT OF NEPAL

and the

UNITED STATES OF AMERICA

for

AGRICULTURE RESOURCE INVENTORY - NEPAL

Dated: January 24, 1980

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Project Grant Agreement

Dated: January 24, 1980

Between

His Majesty's Government of Nepal (hereinafter referred to as "HMG/N")

And

The United States of America, acting through the Agency for International Development (hereinafter referred to as "A.I.D.").

Article 1: The Agreement

The purpose of this Agreement is to set out the understandings of the Parties named above with respect to the undertaking by the Parties of the Project and with respect to the financing of the Project by the Parties.

Article 2: The Project

SECTION 2.1. Definition of Project. The Project will consist of assisting HMG/N in applying remote sensing technology to its needs in natural resource inventory and planning.

SECTION 2.2. Annex 1. Annex 1, attached, amplifies the above definition of the project. Within the limits of the above definition of the Project, elements of the amplified description stated in Annex 1 may be changed by written agreement of the authorized representatives of the Parties named in Section 8.2., without formal amendment of this Agreement.

Article 3: Financing

SECTION 3.1. The Grant. To assist HMG/N to meet the costs of carrying out the Project, A.I.D., pursuant to the Foreign Assistance Act of 1961, as amended, agrees to grant HMG/N under the terms of this Agreement not exceed two million four hundred thousand United States ("U.S.") Dollars (\$2,400,000) ("Grant"). The grant may be used to finance foreign exchange costs, as defined in Section 6.1., and local currency costs, as defined in Section 6.2., of goods and services required for the Project.

SECTION 3.2. HMG/N Resources for the Project

(a) HMG/N agrees to provide or cause to be provided for the Project, in addition to the Grant, the other resources required to carry out the Project effectively and in a timely manner.

(b) The resources provided by HMG/N for the project, including costs borne on an "in-kind" basis, shall be the equivalent of approximately four hundred twenty one thousand U.S. dollars (\$421,000).

SECTION 3.3. Project Assistance Completion Date

(a) The "Project Assistance Completion Date" hereinafter referred to as "PACD", which is September 30, 1984, or such other date as the Parties may agree to in writing, is the date by which the Parties expect that all services financed under the Grant will have been performed and all goods financed under the Grant will have been furnished for the Project as contemplated in this Agreement.

(b) Except as A.I.D. may otherwise agree in writing, A.I.D. will not issue or approve documentation which would authorize release of the Grant for services performed subsequent to the PACD or for goods furnished for the project, as contemplated in this Agreement, subsequent to the PACD.

(c) Requests for release, accompanied by necessary supporting documentation prescribed in Project Implementation Letters are to be received by A.I.D., or any bank described in Section 7.1., below, no later than nine (9) months following the PACD, or such other period as A.I.D. agrees to in writing. After such period, A.I.D., after consultation with HMG/N, may at any time or times reduce the amount of the Grant by all or any part thereof for which requests for release, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

Article 4: Conditions Precedent to Release

SECTION 4.1. Release. Prior to the first release under the Grant, or to the issuance by A.I.D. of documentation pursuant to which release will be made HMG/N will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to the Parties:

(a) A statement from the Ministry of Finance that this Agreement has been duly authorized and/or ratified by, and executed on behalf of

HMG/N and that it constitutes a valid and legally binding obligation of HMG/N;

(b) A statement of the name of the person holding or acting in the office of HMG/N specified in Section 8.2., and of any additional representatives, together with a specimen signature of each person specified in such statement;

(c) Evidence that HMG/N has taken necessary action to contract with long-term project advisor(s).

(d) Evidence that HMG/N has appointed a project manager to implement the Project.

SECTION 4.2. Notification. When A.I.D. has determined that the conditions precedent specified in Section 4.1. have been met, it will promptly notify HMG/N.

SECTION 4.3. Terminal Dates for Conditions Precedent. If all of the conditions specified in Section 4.1. have not been met within 120 days from the date of this Agreement, or such later date as A.I.D. may agree to in writing, A.I.D., at its option, may terminate this Agreement by written notice to HMG/N.

Article 5: Covenants

(a) HMG/N covenants to provide all necessary personnel to support the project activities.

(b) HMG/N covenants to provide funds for the project on a timely basis to meet HMG/N purposed contribution as shown in Annex I.

(c) HMG/N covenants that it will budget, for the period beginning at the Project assistance completion date, funds necessary to adequately maintain the Remote Sensing Center.

(d) The Parties agree to establish an evaluation program as part of the Project.

(e) HMG/N covenants to obtain suitable temporary quarters for the Remote Sensing Center, and cover annual rental expense thereof until completion of the permanent facilities.

Article 6: Procurement Source

SECTION 6.1. Foreign Exchange Costs. Releases pursuant to Section 7.1. will be used exclusively to finance the costs of goods and services required for the Project having their source and origin in the countries included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time orders are placed or contracts entered into for such goods or services ("Foreign Exchange Costs"), except as provided in the Project Grant Standard Provisions Annex, Section C.1. (b) with respect to marine insurance. Ocean transportation costs will be financed under the Grant only on vessels under flag registry of the United States or HMG/N except as AID may otherwise agree in writing.

SECTION 6.2. Local Currency Costs. Releases pursuant to Section 7.2. will be used exclusively to finance the costs of goods and services required for the Project having their source and, except as A.I.D. may otherwise agree in writing, their origin in Nepal.

Article 7: Release

SECTION 7.1. Release for Foreign Exchange Costs

(a) After satisfaction of conditions precedent, HMG/N may obtain releases of funds under the Grant for the Foreign Exchange Costs of goods or services required for the Project in accordance with the terms of this Agreement, by such of the following methods as may be mutually agreed upon:

(1) by submitting to A.I.D., with necessary supporting documentation as prescribed in Project Implementation Letters, (A) requests for reimbursement for such goods or services, or, (B) requests for A.I.D. to procure commodities or services on HMG/N's behalf for the Project; or,

(2) by requesting A.I.D. to issue Letters of Commitment for specified amounts (A) to one or more U.S. banks, satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made by them to contractors or suppliers, under Letters of Credit or otherwise, for such goods or services, or (B) directly to one or more contractors or suppliers, committing A.I.D. to pay such contractors or suppliers for such goods or services.

(b) Banking charges incurred by HMG/N in connection with Letters of Commitment and Letters of Credit will be financed under the Grant unless HMG/N instructs A.I.D. to the contrary. Such other charges as the Parties may agree to may also be financed under the Grant.

SECTION 7.2. Release for Local Currency Costs

(a) After satisfaction of conditions precedent, HMG/N may obtain releases of funds under the Grant for Local Currency Costs required for the Project in accordance with the terms of this Agreement, by submitting to A.I.D., with necessary supporting documentation as prescribed in Project Implementation Letters, requests to finance such costs.

(b) The local currency needed for such releases may be obtained by acquisition by A.I.D. with U.S. Dollars by purchase.

The U.S. dollar equivalent of the local currency made available hereunder will be, in the case of subsection (b) above, the amount of U.S. dollars required by A.I.D. to obtain the local currency.

SECTION 7.3. Other Forms of Release. Releases of the Grant may also be made through such other means as the Parties may agree to in writing.

SECTION 7.4. Rate of Exchange. Except as may be more specifically provided under Section 7.2., if funds provided under the Grant are introduced into Nepal by A.I.D. or on behalf of A.I.D. by any public or private agency for purposes of carrying out obligations of A.I.D.

hereunder, HMG/N will make such arrangement as may be necessary so that such funds may be converted into currency of Nepal at the official rate of exchange at the time the conversion is made.

Article 8: Miscellaneous

SECTION 8.1. Communications. Any notice, request, document, or other communication submitted by either Party to the other under this Agreement will be in writing or by telegram or cable, and will be deemed duly given or sent when delivered to such Party at the following addresses:

To HMG/N:

Mail and Cable Address:

For Ministry of Finance

Joint Secretary
Foreign Aid & Programming
Division
Ministry of Finance
His Majesty's Government
Babar Mahal
Kathmandu, Nepal

For Department of Soil & Water Conservation

Director General
Department of Soil and Water Conservation
His Majesty's Government
Babar Mahal
Kathmandu, Nepal

To A.I.D.:

Mail and Cable Address:

Director
U.S. Agency for International
Development
c/o American Embassy
Kathmandu, Nepal

All such communications will be in English, unless the Parties otherwise agree in writing. Other addresses may be substituted for the above upon the giving of notice.

SECTION 8.2. Representatives. For purposes of implementing this Agreement, HMG/N will be represented by the Secretary, Ministry of Finance and A.I.D. will be represented by the Director, USAID/Nepal, each of whom by written notice, may designate additional representatives. The names of the representatives of HMG/N, with specimen signatures, will be provided to A.I.D., which may accept as duly authorized any instrument signed by such representatives in implementation of this Agreement, until receipt of written notice of revocation of their authority.

SECTION 8.3. Standard Provisions Annex 2. A Project Grant Standard Provisions Annex 2 is attached to and forms part of this Agreement.

IN WITNESS WHEREOF, HMG/N and the United States of America, each acting through its duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

On Behalf of His Majesty's Government
of Nepal

BY: Juraj K. Chaudhary

TITLE: Secretary
Ministry of Finance

On Behalf of The United States
of America

BY: Douglas J. Bennet, Jr.
Administrator

Amplified Description of Project
Agriculture Resource Inventory - Nepal

- I. Description: The Agriculture Resource Inventory Project - Nepal represents a collaborative effort between the HMG/N and AID to create a Remote Sensing Center in the Ministry of Forests, Department of Soil and Water Conservation. Remote sensing technology, which consists of acquiring, processing and interpreting aerial and satellite data, will be used to carry out a natural resource inventory in Nepal. The technical and data archives, which will be derived from that resource inventory, will assist the HMG/N, AID, and other donors in development planning. The Center will also be responsible for conducting an active in-country training program to increase the number of qualified users of remote sensing and disseminating the results of these efforts throughout the HMG/N. The Remote Sensing Center will serve as the official link between the HMG/N and other regional centers, specifically the Asian Regional Remote Sensing Training Center in Bangkok and the Indian LANDSAT Receiving Station in Hyderabad.
- II. Budget: The following table represents estimated costs of the project's inputs for AID, HMG/N and UNDP/FAO:

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

(\$000)

SOURCE OF FUNDS

<u>Use of Funds</u>	<u>L.I.D.</u>		<u>HMG/N</u>		<u>UNDP/FAO</u>		<u>TOTAL</u>
	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	
<u>Technical Assistance:</u>							
Project Advisor/Consultant	\$565.0	\$35.0					\$600.0
Short-term Consultants	283.8	31.2					315.0
Contractor's Support Budget	107.8	6.0					113.8
Technical & Clerical Support	61.2						61.2
RSC Staff and Operational Support				\$114.0			114.0
<u>Participant Training:</u>							
10 Participants	169.5			12.0			181.5
<u>Commodities:</u>							
Laboratory equipment & Materials	455.8						455.8
Land,Supplies and Rental of Building				130.0			130.0
<u>Other Costs:</u>							
Furnishing Lab and aerial photos	59.0						59.0
Travel in Nepal				50.0			50.0
Construction of Laboratory					\$20	\$10	30.0
	<u>\$1702.1</u>	<u>\$72.2</u>	<u>\$306.0</u>	<u>\$306.0</u>	<u>\$20</u>	<u>\$10</u>	<u>\$2110.3</u>
Inflation, 10% per annum	299.4	12.5	60.6		-	-	372.5
	<u>\$2001.5</u>	<u>\$84.7</u>	<u>\$366.6</u>	<u>\$366.6</u>	<u>-</u>	<u>-</u>	<u>\$2482.8</u>
Contingency Factor of 15%	301.3	12.5	54.4		-	-	368.2
TOTAL	<u>\$2302.8</u>	<u>\$97.2</u>	<u>\$421.0</u>	<u>\$421.0</u>	<u>\$20</u>	<u>\$10</u>	<u>\$2851.0</u>

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Technical Assistance: Funds have been allocated for a project advisor (60 person months) at \$120,000 per year; 12 short-term consultants (totaling 26 person months) at \$10,500 per month plus \$3,500 each for travel; and \$175,000 for part-time home office project coordinator, including part-time home office technical and clerical support staff.

Participant Training: \$169,500 for a total of ten short-term and long-term U.S. trained participants. Training will start in the initial two years of the project and total 72 participant months consisting of 27 participant months (\$74,500) in FY 80 and in FY 81, 45 participant months, costing \$95,000.

Commodities: Virtually all of the equipment required for the laboratory facilities will be purchased in FY 80 (\$155,500) and FY 81 (\$195,000). In each of the remaining three years an average of \$35,100 will be expended for materials and supplies for the RSC.

Other Costs: A total of \$59,000 is budgeted for furnishing the interior of the UNDP/FAO financed laboratory (\$20,000) and to carry out aerial photography (\$39,000) during the life of the project.

HMG/N's contribution of \$421,000 (local currency equivalent) will consist of RSC staff salaries (\$114,000); participant's salaries and sharing travel cost (\$12,000); land, supplies and rental of temporary building for RSC (\$130,000); other costs (\$50,000); and 10 percent per

annum for inflation, plus a 15 percent contingency factor. UNDP/FLO will construct the RSC laboratory, estimated at \$30,000.

The budget figures cited above are those provided in the Project Paper's budget and should be considered estimates. Any or all of these figures may be altered as appropriate by Project Implementation Letters.

ANNEX 2

PROJECT GRANT AGREEMENT
BETWEEN A.I.D. AND
THE MINISTRY OF FINANCE,
AN AGENCY OF
HIS MAJESTY'S GOVERNMENT OF NEPAL

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Project Grant Standard

Provisions Annex

Definitions: As used in this Annex, the "Agreement" refers to the Project Grant Agreement. Terms used in this Annex have the same meaning or reference as in the Agreement.

Article A. Project Implementation Letters

To assist HMG/N in the Implementation of the Project, A.I.D., from time to time, will issue Project Implementation Letters that will furnish additional information about matters stated in this Agreement. The Parties may also use jointly agreed-upon Project Implementation Letters to confirm and record their mutual understanding on aspects of the implementation of this Agreement. Project Implementation Letters will not be used to amend the text of the Agreement, but can be used to record revisions or exceptions which are permitted by the Agreement, including the revision of elements of the amplified description of the Project in Annex 1.

Article B. General Covenants

SECTION B. 1. Consultation. The Parties will cooperate to assure that the purpose of this Agreement will be accomplished. To this end, the Parties, at the request of either, will exchange views on the progress of the Project, the performance of obligations under this Agreement, the performance of any consultants, contractors, or suppliers engaged on the Project, and other matters relating to the Project.

SECTION B. 2. Execution of Project. HMG/N will:

(a) carry out the Project or cause it to be carried out with due diligence and efficiency, in conformity with sound technical, financial, and management practices, and in conformity with those documents, plans specifications, contracts, schedules or other arrangements, and with any modifications therein, mutually approved by the Parties pursuant to this Agreement; and

(b) provide qualified and experienced management for, and train such staff as may be appropriate for the maintenance and operation of the Project, and, as applicable for continuing activities, cause the Project to be operated and maintained in such manner as to assure the continuing and successful achievement of the purposes of the Project.

SECTION B. 3. Utilization of Goods and Services

(a) Any resources financed under the Grant will, unless otherwise agreed in writing by A.I.D., be devoted to the Project until the completion of the Project, and thereafter will be used so as to further the objectives sought in carrying out the Project.

(b) Goods or services financed under the Grant, except as A.I.D. may otherwise agree in writing, will not be used to promote or assist a foreign aid project or activity associated with or financed by a country not included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time of such use.

SECTION B. 4. Taxation

(a) This Agreement and the Grant will be free from any taxation or fees imposed under laws in effect in the territory of HMG/N.

(b) To the extent that (1) any contractor, including any consulting firm, any personnel of such contractor financed under the Grant, and any property or transaction relating to such contracts and (2) any commodity procurement transaction financed under the Grant, are not exempt from identifiable taxes, tariffs, duties or other levies imposed under laws in effect in the territory of HMG/N, HMG/N will, as and to the extent provided in and pursuant to Project Implementation Letters, pay or reimburse the same with funds other than those provided under the Grant.

SECTION B. 5. Reports, Records, Inspections, Audit. HMG/N will:

(a) furnish A.I.D. such information and reports relating to the Project and to this Agreement as A.I.D. may reasonably request;

(b) maintain or cause to be maintained, in accordance with generally accepted accounting principles and practices consistently applied, books and records relating to the Project and to this Agreement, adequate to show, the receipt and use of goods and services acquired under the Grant. Such books and records will be audited regularly, in accordance with generally accepted auditing standards, and maintained for three years after the date of last release of funds by A.I.D.; such books and records will also be adequate to show the basis of solicitation and award of contracts and orders, and

the overall progress of the Project toward completion; and

(c) afford authorized representatives of a Party the opportunity at all reasonable times to inspect the Project, the utilization of goods and services financed by such Party, and books, records, and other documents relating to the Project and the Grant.

SECTION B. 6. Completeness of Information. HMG/N confirms:

(a) that the facts and circumstances of which it has informed A.I.D., in the course of reaching agreement with A.I.D. on the Grant, are accurate and complete, and include all facts and circumstances that might materially affect the Project and the discharge of responsibilities under this Agreement;

(b) that it will inform A.I.D. in timely fashion of any subsequent facts and circumstances that might materially affect the Project or the discharge of responsibilities under this Agreement.

SECTION B. 7. Other Payments. HMG/N affirms that no payments have been or will be received by any official of HMG/N in connection with the procurement of goods or services financed under the Grant, except fees, taxes, or similar payments legally established in the country of HMG/N.

SECTION B. 8. Information. HMG/N will bring out information concerning the Project and identify the Project site and Project commodities as part of a program jointly financed by HMG/N and A.I.D., as described in Project Implementation Letters.

Article C. Procurement Provisions

SECTION C. 1. Special Rules

(a) The source and origin of ocean and air shipping will be deemed to be the ocean vessel's or aircraft's country of registry at the time of shipment.

(b) Premiums for marine insurance placed in the territory of HMG/N will be deemed an eligible Foreign Exchange Cost, if otherwise eligible under Section C.7(a).

(c) Any motor vehicles financed under the Grant will be of United States manufacture, except as A.I.D. may otherwise agree in writing.

(d) Transportation by air, financed under the Grant, of property or persons, will be on carriers holding United States certification, to the extent service by such carriers is available or on other carriers as mutually agreed. Details on this requirement will be described in a Project Implementation Letter.

SECTION C. 2. Eligibility Date. No goods or services may be financed under the Grant which are procured pursuant to orders or contracts firmly placed or entered into prior to the date of this Agreement, except as the Parties may otherwise agree in writing.

SECTION C. 3. Plans, Specifications, and Contracts. In order for there to be mutual agreement on the following matters, and except

as the Parties may otherwise agree in writing:

(a) HMG/N will furnish to A.I.D. upon request and upon preparation, including material modification,

(1) any plans, specifications, procurement or construction schedules, contracts, or other documentation relating to goods or services to be financed under the Grant, including documentation relating to the prequalification and selection of contractors and to the solicitation of bids and proposals.

(2) such documentation will also be furnished to A.I.D., upon preparation, relating to any goods or services, which, though not financed under the Grant, are deemed by A.I.D. to be of major importance to the Project. Aspects of the Project involving matters under this subsection (a) (2) will be identified in Project Implementation Letters;

(b) Documents related to the prequalification of contractors, and to the solicitation of bids or proposals for goods and services financed under the Grant will be approved by HMG/N with prior agreement of A.I.D., prior to their issuance, and where applicable, their terms will include United States standards and measurements;

(c) Contracts and contractors financed under the Grant for engineering and other professional services, for construction services, and for such other services, equipment or materials as may be specified in Project Implementation Letters, will be approved by HMG/N with

prior agreement of A.I.D., prior to execution of the contract. Material modifications in such contracts will also be approved in writing by A.I.D. prior to execution; and

(d) Consulting firms used by HMG/N for the Project but not financed under the Grant, the scope of their services and such of their personnel assigned to the Project as A.I.D. may specify, and construction contractors used by HMG/N for the Project but not financed under the Grant, shall be acceptable to A.I.D.

SECTION C. 4. Reasonable Price. No more than reasonable prices will be paid for any goods or services financed, in whole or in part, under the Grant. Such items will be procured on a fair and, to the maximum extent practicable, on a competitive basis.

SECTION C. 5. Notification to Potential Suppliers. To permit United States firms to have the opportunity to participate in furnishing goods and services to be financed under the Grant, HMG/N will furnish A.I.D. such information with regard thereto, and at such times, as A.I.D. may request in Project Implementation Letters.

SECTION C. 6. Shipping

(a) Goods which are to be transported to the territory of HMG/N may not be financed under the Grant if transported either: (1) on an ocean vessel or aircraft under the flag of a country which is not included in A.I.D. Geographic Code 935 as in effect at the time of shipment, or (2) on an ocean vessel which A.I.D., by written notice

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to HMG/N has designated as ineligible; or (3) under an ocean or air charter which has not received prior A.I.D. approval.

(b) Costs of ocean or air transportation (of goods or persons) and related delivery services may not be financed under the Grant, if such goods or persons are carried: (1) on an ocean vessel under the flag of a country not, at the time of shipment, identified under the paragraph of the Agreement entitled "Procurement Source: Foreign Exchange Costs," without prior written A.I.D. approval; or (2) on an ocean vessel which A.I.D., by written notice to HMG/N, has designated as ineligible; or (3) under an ocean vessel or air charter which has not received prior A.I.D. approval.

(c) Unless A.I.D. determines that privately owned United States-flag commercial ocean vessels are not available at fair and reasonable rates for such vessels, (1) at least fifty percent (50%) of the gross tonnage of all goods (computed separately for dry bulk carriers, dry cargo liners and tankers) financed by A.I.D. which may be transported on ocean vessels will be transported on privately owned United States-flag commercial vessels, and (2) at least fifty percent (50%) of the gross freight revenue generated by all shipments financed by A.I.D. and transported to the territory of HMG/N on dry cargo liners shall be paid to or for the benefit of privately owned United States-flag commercial vessels. Compliance with the requirements of (1) and (2) of this subsection must be achieved with respect to both any cargo

transported from U.S. ports and any cargo transported from non-U.S. ports, computed separately.

SECTION C. 7. Insurance

(a) Marine insurance on goods financed by A.I.D. which are to be transported to the territory of HMG/N may be financed as a Foreign Exchange Cost under this Agreement provided (1) such insurance is placed at the lowest available competitive rate, and (2) claims thereunder are payable in the currency in which such goods were financed or in any freely convertible currency. If HMG/N, by statute, decree, rule, regulation, or practice discriminates with respect to A.I.D.-financed procurement against any marine insurance company authorized to do business in any State of the United States, then all goods shipped to the territory of HMG/N financed by A.I.D. hereunder will be insured against marine risks and such insurance will be placed in the United States with a company or companies authorized to do a marine insurance business in a State of the United States.

(b) Except as A.I.D. may otherwise agree in writing, HMG/N will insure, or cause to be insured, goods financed under the Grant imported for the Project against risks incident to their transit to the point of their use in the Project; such insurance will be issued on terms and conditions consistent with sound commercial practice and will insure the full value of the goods. Any indemnification received by HMG/N under such insurance will be used to replace or repair any material damage or any loss of the goods insured or will be used to reimburse

HMG/N for the replacement or repair of such goods. Any such replacements will be of source and origin of countries listed in A.I.D. Geographic Code 935 as in effect at the time of replacement, and, except as the Parties may agree in writing, will be otherwise subject to the provisions of the Agreement.

SECTION C. 8. U.S. Government-Owned Excess Property. Wherever practicable, United States Government-owned excess property, in lieu of new items financed under the Grant, should be utilized. Funds under the Grant may be used to finance the costs of obtaining such property for the Project.

Article D. Termination; Remedies

SECTION D. 1. Termination. Either Party may terminate this Agreement by giving the other Party 30 days written notice. Termination of this Agreement will terminate any obligations of the Parties to provide financial or other resources to the Project pursuant to this Agreement, except for payment which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the termination of this Agreement. In addition, upon such termination A.I.D. may, at A.I.D.'s expense, direct that title to goods financed under the Grant be transferred to A.I.D. if the goods are from a source outside Nepal, are in a deliverable state and have not been offloaded in ports of entry of Nepal.

SECTION D. 2. Refunds

(a) In the case of any release which is not supported by valid documentation in accordance with this Agreement, or which is not made or used in accordance with this Agreement, or which was for goods or services not used in accordance with this Agreement, A.I.D., notwithstanding the availability or exercise of any other remedies under this Agreement, may require HMG/N to refund the amount of such release in U.S. Dollars to A.I.D. within sixty (60) days after receipt of a request therefor.

(b) If the failure of HMG/N to comply with any of its obligations under this Agreement has the result that goods or services financed under the Grant are not used effectively in accordance with this Agreement, A.I.D. may require HMG/N to refund all or any part of the amount of the releases under this Agreement for such goods or services in U.S. Dollars to A.I.D. within sixty days after receipt of a request therefor.

(c) The right under subsection (a) or (b) to require a refund of a release will continue, notwithstanding any other provision of this Agreement, for three years from the date of the last release under this Agreement.

(d) (1) Any refund under subsection (a) or (b); or

(2) Any refund to A.I.D. from a contractor, supplier, bank or other third party with respect to goods or services financed under

the Grant, which refund relates to an unreasonable price for or erroneous invoicing of goods or services, or to goods that did not conform to specifications, or to services that were inadequate, will (A) be made available first for the cost of goods and services required for the Project, to the extent justified, and (B) the remainder, if any, will be applied to reduce the amount of the Grant.

(e) Any interest or other earnings on Grant funds released by A.I.D. to HMG/N under this Agreement prior to the authorized use of such funds for the Project will be returned to A.I.D. in U.S. Dollars by HMG/N.

SECTION D. 3. Nonwaiver of Remedies. No delay in exercising any right or remedy accruing to a Party in connection with its financing under this Agreement will be construed as a waiver of such right or remedy.

SECTION D. 4. Power of Attorney. HMG/N agrees, upon request, to execute a power of attorney to A.I.D. of any cause of action which may accrue to HMG/N in connection with or arising out of the contractual performance or breach of performance by a party to a direct U.S. Dollar contract with A.I.D. financed in whole or in part out of funds granted by A.I.D. under this Agreement.