

WINROCK INTERNATIONAL INSTITUTE
FOR AGRICULTURAL DEVELOPMENT
(WITH VIRGINIA STATE UNIVERSITY)

**AGRICULTURAL RESEARCH
AND
PRODUCTION PROJECT**

(367 - 0149)

WORK PLAN

ASSISTANCE TO
MINISTRY OF AGRICULTURE, HMG/NEPAL
DEPARTMENT OF AGRICULTURE
DEPARTMENT OF LIVESTOCK DEVELOPMENT AND
ANIMAL HEALTH
AGRICULTURE INPUTS CORPORATION

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WORK PLAN
FOR
WINROCK INTERNATIONAL INSTITUTE
FOR AGRICULTURAL DEVELOPMENT
(with Virginia State University)
SUPPORT FOR
IMPLEMENTATION OF THE
AGRICULTURAL RESEARCH AND
PRODUCTION PROJECT (367-0149)
ASSISTANCE TO
MINISTRY OF AGRICULTURE, HMG/N
DEPARTMENT OF AGRICULTURE, HMG/N
DEPARTMENT OF LIVESTOCK DEVELOPMENT AND
ANIMAL HEALTH, HMG/N
AGRICULTURE INPUTS CORPORATION

WINROCK/ARPP
(MAY 19, 1986)

A WORK PLAN DEVELOPED FOR CONTRACT NO. ASB - 0149-C-00-5171-00
BETWEEN WINROCK AND USAID/NEPAL.

Table of Contents

	<u>Page</u>
	i
	1
I	2
II	7
	7
	11
	15
III	17
IV	24
V	28
	28
	29
	30
	32
VI	33
VII	37
VIII	44
IX	54
	54
	59
	65
	68
	70
	72
	72
	72
X	75

GLOSSARY OF ACRONYMS

AA	Agricultural Assistant
ADB	Agriculture Development Bank (of Nepal)
ADO	(District) Agricultural Development Officer
A & E	Architect and Engineering (of AID/N)
AEP	Agricultural Extension Project
AIC	Agriculture Inputs Corporation
ARC	Agriculture and Resource Conservation
ARPP	Agricultural Research and Production Project
ARPECC	ARP Project Coordination Committee
CIMMYT	International Maize and Wheat Improvement Center
DDG	Deputy Director General
DIC	District Implementation Committee
DG	Director General
DGA	Department of Agriculture
DOLD/AF (DOL)	Department of Livestock Development and Animal Health
DSC	District Seed Committee
DTP	Development Training Project
FFT	Farmer's Field Trial
FNCP	Franco-Nepalese Cooperation Program
FSCC	Farming Systems Coordination Committee
FSSP	Farming Systems Support Project
FSR/DD (or FSRD)	Farming Systems Research and Development Division
FSRS	Farming Systems Research Site
GLDP	Grain Legume Development Program
GON	Government of Nepal (HMG/N)
GTZ	German Agency for Technical Cooperation
HCIP	Hill Crops Improvement Program
HMG/N	His Majesty's Government Nepal
HSP	Hill Seed Program
IAAS	Institute of Agriculture and Animal Science
IARC	International Agricultural Research Center
IBPGR	International Board of Plant Genetic Resources
ICP	Integrated Cereals Project
ICRAF	International Council for Research in Agro-Forestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics

IDRC	International Development Research Center
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
IRRI	International Rice Research Institute
ITP	Indian Training Program
JT	Junior Technician
JTA	Junior Technical Assistant
LAC	Lumle Agricultural Center
LSDG	(District) Livestock Development Officer
MOA	Ministry of Agriculture
MCF	Ministry of Finance
NARSC	National Agricultural Research Services Center
NFC	Nepal Food Corporation
NFY	Nepali Fiscal Year
NPC	National Planning Commission
NSDB	National Seed Development Board
PAC	Pakhribas Agricultural Center
PC	Project Coordination
PCV	Peace Corps Volunteer
PD	Project Director
PII	Project Implementation Letter
PIO/P	Project Implementation Order/Participants
PM	Person Months
PP	Project Paper
PPA	Production Program Area
PPP	Pilot Production Program
PPVT	Pre-Production Verification Trial
RAD	Rural Area Development
RCC	(National) Research Coordination Committee
SC	Short Course
SE/ERD	
(or SERD)	Socio-Economic and Extension Research Division
SMS	Subject Matter Specialist
SPISP	Seed Production and Input Storage Project
STIP	Seed Technology and Improvement Program
TA	Technical Assistance
USAID/N	United States Agency for International Development/Nepal
VSU	Virginia State University
WI	Winrock International Institute for Agricultural Development

INTRODUCTION

On May 8, 1985 USAID/N and HMG/N signed a Project Grant Agreement for the Agricultural Research and Production (ARP) Project No.367-0149. Details of the project are included in Annex I of the Grant Agreement and in the AID Project Paper, dated December 4, 1984. On September 30, 1985, AID and Winrock International signed a contract for technical assistance, training and commodity procurement to support the ARP project. This Work Plan specifically details plans for Winrock assistance to HMG/N programs under the ARP Project Contract. In addition, because of strong and essential linkages, details of other HMG/N and USAID project activities are also discussed.

In addition to the technical assistance, training, and procurement being provided by Winrock, USAID project funding will finance a construction program to be implemented by the USAID/N Engineering Office and partial funding for certain HMG/N operating costs. HMG/N provides staff and facilities for the project and the major share of operating costs for research, extension and seed programs being supported by the project.

The Work Plan provides specific details for project activities during the first full year of the contract (1986) and a more general frame work for activities in later years. The Work Plan may be revised and up-dated, as needed.

Project implementation will involve close coordination of various parties responsible, including HMG/N agencies, Winrock, and USAID. By its nature, the project is complex and involves several HMG/N agencies and programs. As coordination is so important, an attempt is made here to define the role and major responsibilities of the major parties involved in the project.

Relationship between the parties is set forth in Annex 2, Article B, Section B.1 of the USAID-HMG Project Grant Agreement. "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 on other matters relating to the Project."

This latter must be done with full respect for the designated roles of the three concerned organizations. Each bears the responsibility of its assigned tasks and will request needed assistance in accomplishing those tasks.

I. PROJECT ADMINISTRATION

A. Role of HMG/N

1. Project Director

HMG, through the office of the Director General of the Department of Agriculture, who has been named as Project Director, has primary responsibility for project implementation (Project Grant Agreement, HMG-USAID Annex 2, Article B.2. "Execution of Project"). The Project Director has overall responsibility for:

1. Development of work plans.
2. Bringing the agreed-upon HMG resources to the project.
3. Working with Winrock to schedule technical assistance and other inputs to meet project goals.
4. Working with USAID to plan construction, operating cost support and other inputs to meet project goals in a timely fashion.
5. Overall technical direction of the project.
6. Accomplishment of specified project goals.
7. Integration of the project into the overall HMG programs.

The Project Director is supported in these responsibilities by his regular staff and those of other HMG agencies involved with the project and by the Project Coordinator.

All parties to the project must keep the Project Director informed of project activities and status. The Project Director in turn is responsible for approval of plans for all major project inputs. For the Winrock contract this involves approval of: (a) long-term and short-term specialists and consultants; (b) training programs; (c) procurement for HMG/N and procurement of imported commodities for Winrock support; and (d) the over-all Work Plan. For direct USAID funding the Project Director will approve (a) construction plans and (b) annual project funding for the HMG/N budget.

2. Project Coordinator

The Project Coordinator serves under the authority of the Project Director. He provides liaison between the many HMG groups involved with the project and serves as a primary contact between HMG and WI and USAID for most administrative matters. He closely monitors project progress, following both technical progress and fiscal status. He works to bring additional support to specific project elements as needed. He works with the Director General in scheduling meetings of the ARP Project Committee.

The Project Coordinator maintains up-to-date records and information on the project for the Project Director. He has the major responsibility for preparing the Annual Project Progress Report (reference: Section 5.2 of Project Grant Agreement). He coordinates preparation of HMG/N budgets for ARPP and coordinates preparation and submission of expenditure reports.

3. HMG/N Line Agencies

The ARP Project provides support to various HMG/N agencies, including:

1. Research Coordination Committee of the MOA
2. National Agricultural Research and Services Center of the DOA
3. Farming Systems Research and Development Division
4. Socio-Economic and Extension Research Division
5. Grain Legume Improvement Program
6. Hill Crop Improvement Program
7. Forage and Fodder Research Program of DOLD/AH
8. Seed Technology and Improvement Program
9. Production Program District Agricultural Development Officers and directly related agencies
10. Production Program District Livestock Development Officers
11. Bio-Fertilizer Sub-project of the Soils Division.

In addition, other commodity programs and divisions and the Agriculture Inputs Corporation are involved with implementation of certain aspects of the project.

Coordination of project activities with these agencies will, to the extent possible, be through normal HMG/N channels. Agencies will submit requests for training and commodities, and annual operating budget requirements to the Project Director through normal channels. Responsible officers will generally approve terms of reference for consultants and construction designs prior to approval by the Project Director.

Concerned agencies and divisions will collaborate with Winrock staff and USAID staff in preparation of annual budgets and work plans.

B. Role of Winrock International

The technical assistance (TA) contractor, Winrock International (WI) has responsibility for identifying and bringing to the project, subject to HMG approval, international and local technical assistance as specified in the above mentioned contracts. WI will provide international procurement and training and will manage USAID provided funds for use in direct support of the project as agreed upon by the three parties. Winrock will submit annual reports on project commodities in its possession as per contract requirement.

Winrock inputs to the project are coordinated by the Chief of Party, in consultation with the Project Director and Project Coordinator. Winrock staff in the U.S. backstop the Chief of Party and visit the project as needed. Winrock's subcontractor Virginia State University will provide backstop support to its staff directly and through Winrock International.

Winrock long term staff will work as colleagues and working partners with HMG counterparts. They will participate as appropriate in planning and management functions but in most instances they will not assume administrative leadership roles. They are not to serve only as advisors but are also to participate actively in project implementation with their roles defined by the Project Director and Project Coordinator through discussion with the Winrock Chief of Party.

C. Role of USAID

USAID, as the donor agency, has a support and monitoring role in project implementation. In that role it exercises specific approval and control over certain aspects of the project as set forth in the project agreement with HMG and the contract with WI. It monitors the project and participates in the annual budget and planning process. USAID monitors project progress mainly through routine HMG/N and Winrock reports. In addition, with project funding, USAID will contract directly for construction, independent project evaluations and for audit reports on project accounts.

USAID has direct responsibility for managing the construction component of the project. This will be managed by the USAID Engineering Division in the Project Development and Implementation Support Office in consultation with the WI Experiment Station Management Specialist. Other project liaison is with a Project Officer in the Agriculture and Resource Conservation Office. The Director of USAID/N is ultimately responsible for USAID inputs to the project.

D. The ARP Project Coordination Committee.

This committee was established in January, 1986 and serves to make policy, review progress, resolve problems, approve project workplans and help concerned institutions coordinate project inputs. It is chaired by the Joint Secretary of the Planning Division in the MOA. A major function is to provide liaison and coordination between agencies outside the Department of Agriculture, the NARSC, the FSR/D Division, the Socioeconomic and Extension Research Division and the production program component. It is not to take the place of NARSC or of other permanent Ministry of Agriculture planning or coordination groups as they are formed. The committee does not have implementation responsibility for the project as a whole.

The Project Coordinating Committee and the positions of Committee members are given in Table 1.

Table 1. Structure of ARP Project Coordination Committee.

1. Joint Secretary (Planning) Ministry of Agriculture	-	Chairman
2. Director General, Department of Agriculture	-	Member
3. Director General, Department of Livestock Development and Animal Health	-	Member
4. Deputy Director General, Department of Agriculture (Research) and Chief of National Agriculture Research and Services Center	-	Member
5. Deputy Director General, Department of Agriculture (Planning)	-	Member
6. Deputy Chief Conservator, Ministry of Forest, Department of Forest	-	Member
7. General Manager, Agriculture Inputs Corporation	-	Member
8. Deputy Director General, Department of Agriculture (Agriculture Extension)	-	Member
9. Chief, ARC/USAID/Nepal	-	Member
10. ARP Project Officer, USAID/Nepal	-	Member
11. Winrock International, Chief of Party	-	Member
12. Chief, Farming Systems Division	-	Member
13. Project Coordinator, ARP Project	-	Member, Secretary

The ARP Project Coordination Committee should meet on an as needed basis, probably approximately three times per year. The first meeting should be to review and approve the project Work Plan. The Project Coordinator and Winrock Chief of Party will prepare an agenda and issues paper for circulation prior to each meeting. The Project Coordinator and MOA staff will prepare minutes for each meeting.

E. Schedule for Major Project Administration Actions

<u>Action</u>	<u>Responsible Party</u>	<u>Target Date</u>
Project Coordinator office established and staffed	Project Coordinator/ Winrock	2/86
Winrock Work Plan circulated in draft	Project Director/ Project Coordinator/ Winrock	3/86
Winrock contract amendment to provide logistic support for Project Office	AID/Winrock	5/86
First Meeting of Project Coordination Committee	Project Coordinator	5/86 (Subsequent meetings approximately every four months)
Project Work Plan completed and approved by Project Coordination Committee	Project Director/ Winrock	5/86
HMG/N Agency and Division Budget Preparation	HMG/N (consultation with USAID and Project Staff)	a) draft: January of each Year b) final: May of each year c) published in Red Book: July of each year d) USAID "Budget PIL": July of each year

II. RESEARCH ADMINISTRATION AND SUPPORT

The important thrust of support to research administration under the present project will be directed towards the development of a better system of management of research programs with clearer policies and strengthened monitoring and guiding bodies. The other criticism of the past efforts in research organization has been the lack of proper planning and effective coordination in the overall agricultural research activities. In order to overcome such weaknesses, strengthening and/or setting-up of several institutional organs are proposed in the project document. During the course of implementation, flexibility will be maintained in these institutional units so that effective models can be developed to serve the needs of research at the respective levels of operation. A brief outline of their functions and objectives are described hereunder so as to guide necessary modifications subsequently.

A. National Agricultural Research Coordination Committee (NARCC OR RCC)

RCC has been in existence at the MOA with the Secretary as its Chairman. It has been rather dormant except very briefly during the first two years of the Sixth Development Plan. Even with such a brief period of semi-active working experience, it was realized that unless a permanent secretariat, staffed with suitable experienced and capable manpower and operational facilities, is provided, activation of such a policy-level body to lead, review and evaluate agricultural research would be virtually impossible. Presently RCC is not active. The first step towards its revitalization will be to reconstitute the committee memberships under the chairmanship of the Secretary/MOA and establish the secretariat at the MOA level as soon as possible (within NFY 1986/1987).

The scope of the RCC will cover all agricultural research being undertaken within MOA agencies and will provide linkages interdepartmentally within the MOA and interministerially where research in other ministries is related to and needs to be coordinated with research in the MOA.

Major concerns of the RCC will be to develop strategies and priorities to guide agricultural research; evaluate research results and technologies in respect of national priorities and goals; allocate resources for research; adjust funding to meet priorities; ensure timely release of funds that are allocated; establish personnel policies to provide incentives and rewards for research; and guide research on policy issues such as pricing, land use, credit, subsidies, irrigation, and marketing.

During NFY 1986/87, the RCC will be organized to enable it to begin to assume financial and administrative management (including allocation of funds), establish research priorities, and provide technical guidance and evaluation of research through its secretariat at the MOA

The process of revitalization of RCC will begin with the NFY 1985/86. The MOA has already submitted proposals for the establishment of an RCC secretariat at the Ministry level as a permanent institutional unit. The proposed permanent posts for its secretariat are as follows:

<u>Posts</u>	<u>Level</u>	<u>Number</u>
01. Additional or Jt. Secretary (Professional) MOA, Executive Officer, RCC	G. I	1
02. Agri. Economist (from Marketing)	G. II	1
03. Agronomist	G. II	1
04. Livestock Specialist	G. II	1
05. Food Research Officer	G. II	1
06. Assistant Food Research Officer	G. III	1
07. Rural Sociologist	G. II	1
08. Horticulturist	G. II	1
09. Under Secretary	G. II	1
10. Section Officer	G. III	1
11. Accountant	NG. I	1
12. Na. Su. (personal asst. to Secretary)	NG. I	1
13. Typist	NG. I	2
14. Peons	-	2

A multidisciplinary team will assist the secretariat in working with several disciplinary panels which will be constituted with expert members from related fields as the supporting organs to the main RCC. As one of the measures of revitalization of RCC, the committee will include members from outside the MOA umbrella, such as Institute of Agriculture and Animal Science (IAAS), Ministry of Forestry, Royal Nepal Academy of Science and Technology, and at least two farmers, one being from a hill farming community. The committee will meet at least 2 to 3 times a year to review progress and approve research proposals, budgets, policy documents and guidelines. The RCC will seriously

consider recommendations from studies on financial and personnel policies for agriculture research activities to be undertaken by periodic short term consultants provided by Winrock International. This will hopefully pave the way for initiating reformative measures for establishing better and more pragmatic fiscal and personnel policies (in conjunction with other concerned agencies such as the Ministries of Finance and Administrative Management) for the development of cadres of professionals committed to agricultural research.

The important initial activities of RCC will be along the following lines:

<u>Activities</u>	<u>Responsible Party</u>	<u>Target Date</u>
01. Establishment of RCC Secretariat	MOA/MOF/MO Adm. Mgt.	7/86
02. Reconstitution of RCC	MOA	9/86
03. Setting-up of Different Disciplinary Panels and Technical Comm.	NARSC/MOA/RCC	12/86
04. Formulation of Criteria for Research Project Selection	WI Research Mgt./RCC Secretariat/NARSC	2/87
05. Development of Research Evaluation Criteria/Establishment of Monitoring System	- ditto -	2/87
06. Establishment of Research Policies and Priorities worked out by Crops or Sub-Sectors such as Cash Crops, Cereals, Livestock, etc.	- ditto -	2/87
07. Technical Committee Meeting	RCC	3/87
08. RCC Meetings for Approval of Agricultural Research 1987-88 Activities	RCC/MOA	4/87
09. Consideration of Alternative Fiscal and Personnel Measures	RCC/MOA	10-12/87

- | | | |
|--|-----------------------------------|----------|
| 10. Dialogue with National Planning Commission (NPC), Ministry of Finance, and Ministry of Administrative Management (i.e. for consideration of Alternative Fiscal and Personnel Policies) | RCC/MOA/MOF/MO
Adm. Management | 11-12/87 |
| 11. Establish Detailed Lines of Actions after the fulfilment of the above activities | RCC/NARSC/Res.Mgt.
Consultants | 1-2/88 |

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- The sequence of annual activities will be synchronized with HMG budget preparation cycle and will begin with action and decision of working group prior to action by disciplinary panels and the technical interdisciplinary committees.

B. National Agricultural Research and Services Center (NARSC)

NARSC was established in the DOA in 1985 to improve management and support services to agricultural research. Staff will be assigned and full scale work will start in 1986. NARSC will be composed of six sections for (1) research monitoring and planning; (2) farm management support; (3) outreach; (4) library and information systems; (5) biometric services; and (6) international liaison.

1. Work has started on documentation of current research activities with the Rice, Wheat and Maize Commodity Programs. Pulses, Oilseeds, and Hill Crop Programs will be started soon and somewhat later Fisheries, Livestock, Fruit and Vegetable/Potato Programs will be documented. These project activities will be reviewed by the relevant disciplinary divisions, revised and submitted to the inter-disciplinary technical committees. Research proposals will be submitted to the Research Coordination Committee for approval and funding. After this initial organizing work NARSC will review new research program proposals and monitor progress of on-going research. As a basis for determining priorities for research a comprehensive summary of past research activities will be prepared by crop commodity coordinators and division heads. An annual report of 1985 - 86 research activities will also be prepared. These two documents will form the basis for a review of the existing recommendations and formulation of a new series of recommended packages of practices, cropping patterns and varieties.
2. In the area of Farm Management, NARSC will establish a team to inventory all HMG/N farms and stations. The team will review current staffing, facilities, programs and equipment. The ARPP Research Station Development Specialist will work with and assist this team by contracting local consultants to assist with detailed inventories.

The second phase of this work will be to provide detailed Farm Operational Plans for each farm and station and also detailed Farm Development Plans. The package of Farm Development Plans will be for developing and managing farms and facilities.

This second phase should also include a critical assessment of which farms and stations should be continued and what the primary and secondary roles of each farm/station should be. This assessment should also include recommendations as to which farms/stations should be phased out or turned over to other uses (such as private seed production farms).

The Khumaltar farm will be managed by NARSC beginning in NFY 2043/44 (1986/87). This will pull together farm management

functions previously spread out in several divisions. The unified management should result in greater efficiency and better use of resources.

3. Outreach activities of farms/stations, divisions and commodity programs will include; on-farm trials, service activities such as problem diagnosis for insects, diseases, and soils; soil analysis; seed purity and germination; and resource persons in training programs. In addition, experimental production involving new patterns, varieties or practices, or new methodologies for extension continue to involve research for determining acceptance or rejection and other criteria to determine effectiveness will be a part of outreach activities. Initially, an inventory is being taken of existing outreach activities by each farm/station, division and commodity program.
4. The library and information section of NARSC will begin in NFY 2043/44 (1986/87) and will initiate publication of research results in support of extension and outreach activities. In 1988 an FSR/D and Central Library Building will be opened and NARSC will assume responsibility for a central agricultural research library at Khumaitar. In 1988, NARSC will also assume direct responsibility for convening semi-annual crop workshops, farming systems workshops, livestock research workshops, and horticulture workshops. NARSC will also manage publications of research reports and technical papers from various divisions.
5. Biometric Services - NARSC will establish a biometrical service which will advise researchers on the design and analysis of experiments. This service is expected to begin to function with the research trials proposed for 1986/1987.
6. During the course of ARPP the linkages established by Winrock with the various IARC's will be assumed by NARSC who will assign a special officer to maintain files on agreements with international institutes and other national institutes and agencies. Types of support provided by those centers will be maintained on file.

Initial activities of NARSC are as follows:

<u>Action/Activities</u>	<u>Responsible/Party</u>	<u>Target Date</u>
1. Working groups activated	DOA/NARSC/Commodity Coordination	12/86*
2. Disciplinary panels activated	DOA/NARSC/Div.	1/87*
3. Interdisciplinary Technical Committee Activated	DOA/NARSC/RCC	5/86, 1/87*
4. Site for new construction at Khumaltar identified	DOA	1/86
5. Khumaltar Farm Management Plan	NARSC, WI	2/87
6. Monitoring plan proposed	DOA, WI Res.Mgt.Cons.	3/86
5. Nepal Agriculture Association Grant	AID/DOA/WI	5/86
8. Farm/Station inventory team established	DOA, WI	3/86
9. Planning component operational	NARSC, WI	4/86
10. Personnel, accounting study team report recommendation	DOA, DOL, WI	5/86
11. Farm/Station inventory completed	DOA, WI	7/86
12. Staff training plan	DOA/VSU/WI, GTZ	6/86
13. Develop priority list for 17 DOA, DOL STATIONS	DOA, DOL	8/86
14. Station staff development training	DOA, DOL, WI	8-9/86
15. Development plans for 7 stations	DOA, DOL, WI	9/87
16. Training programs	DOA, DOL, WI, GTZ	86-90
17. Preparation of annual report of research for 1984-85	NARSC/Local Cons.	6-7/86**
18. Preparation of long term research review	NARSC/Local Cons.	6-7/86**

19.	Finalization of reports	VSU/WI/NARSC/RCC	7-8/86**
20.	Briefing of personnel on budget preparation based on research programs	NARSC/WI/Res. Mgt. Cons.	11/86
21.	First RCC/NARSC Research Planning Meeting	RCC/NARSC/WI Res. Mgt. Cons.	1-2/87
22.	Information system designed, publication policies established	DOA/VSU/WI	3/87
23.	Workshop proceedings published (Winter), 1985	DOA, WI	3/86
24.	Workshop Proceedings published (Summer), 1986	DOA/WI	10/86
25.	NARSC Bulletins published	DOA/WI	1988 onwards
26.	Necessary Adjustments made in accounting procedures	DOA, DOL, WI	12/86
27.	Necessary Adjustments made in personnel policy	DOA, DOL, D. Adm. Mgt.	12/86
28.	Research Management Staff Training		
-	Top level -- Two weeks	DOA/DOL/WI	3/87
-	Mid level -- 2-4 weeks (in-country)	DOA/DOL/WI	6-8/87
-	Lower level -- 2-6 weeks (in-country)	DOA/DOL/WI	6-8/87

* - The process of research identification is already under way for NFY 1986/87. The NFY 1987/88 is the first opportunity for activities to fit the HMG budget development process.

** - See section X -- Project Monitoring and Evaluation for elaboration.

C. Research Administrative Support

Winrock will assist the DOA and DOLD/AH to improve administrative support to research programs. While administrative support to research is the primary objective, this can not be entirely dissociated from general administration and the activity will necessarily involve support to the general administration of the two departments.

The activity will proceed in three distinct phases. First, the research management consultant team will make an initial review and prepare detailed terms of reference for a team of management consultants. Second, the management consultants will, in one or two visits, complete a management study and analysis of administrative support systems of the two departments and identify areas for improvement. Third, Winrock will assist in implementing administrative improvements through (a) provision of limited quantities (\$50,000) of equipment to improve administration (i.e. mini computers, typewriters, office furniture and equipment, etc.); and (b) implementing a training program for approximately 280 administrative and support staff of the two departments. As part of the third phase, HMG/N will attempt to implement, to the extent possible, recommendations of the management consultants.

The key to this component of the project is the second phase - the management review. The management consultant team will consist of a financial systems analyst, a personnel management specialist, and one or two local administrative management consultants. The team will work with senior administrators of the DOA and DOLD/AH and divisional chiefs of these departments. The team will focus on current administrative policies and procedures; personnel policies; organization arrangements; management constraints; and special needs for administrative support of research and extension programs.

Analysis of personnel policies and procedures will not meet the need for a thorough review of this area, as envisioned by the World Bank Team, Agricultural Research Project Identification Mission Back-to-Office Report dated 4/1/1985, which detailed terms of reference for such a study. Rather, the management study team will assist HMG/N to refine a plan for carrying out such a comprehensive study. Winrock, USAID and ARPP will coordinate later activities with this comprehensive study to the extent possible.

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Visit of Research Management Consultant	WI	2-3/86
First Visit of Management Consultants	WI	3-4/86
Consultants Report, including Plans for Support Staff Training and Equipment Procurement	WI/HMG/N	12/86
Approval of Equipment Procurement for DOA & DOLD/AH Administration	HMG/N/ (DOL & DOA)	12/86
Sub-Contract Executed with Local Firm for Support Staff Training	WI	2/87
Support Staff Training Plan Completed and Training Begun	Sub-Contractor	4/87
Equipment Procurement for Administration Support completed	WI	4/87
Support Staff Training completed	Sub-contract/WI	7/88
Comprehensive Study of Personnel Policy and Procedures for Research Staff	HMG/N (RCC) WI	3-4/86 and 2-4/87

III. Farming Systems Research and Development Division

A. Introduction

It is now recognized by most people that agricultural research is an integral part of agricultural development and that a well-defined and expanded program of agricultural research is an essential ingredient of Nepal's agricultural development strategy. A key component of agricultural research in Nepal was successful implementation of the Cropping Systems Program started in 1977 with ICP support. On the basis of this experience, the ARP Project will assist in setting up a Farming Systems Program to include most major elements of agriculture including livestock, horticulture, agro-forestry, etc. The governing concept is to use a multidisciplinary approach to integrate the major related components of Nepalese farms in such a fashion that research programs can address needs on a whole-farm basis.

B. Operational Strategies for Developing the Farming Systems Research Program

The main objective of the Farming Systems Research and Development Program is to increase farm production by developing appropriate technology for the welfare of small and resource-poor farmers. The special significance of the farming systems approach is to generate low cost technologies right in farmers' fields.

The establishment of research sites at different agro-climatic regions will aim at generating adoptable technology suitable to similar areas. If disseminated through a well-organized extension process, the technology concerning field crops, fruits, vegetables, livestock rearing, agro-forestry, etc. will play a key role in improving socio-economic conditions of the farmers. The main thrust of the program will be in the hills for the benefit of small farmers.

It is expected that the judiciously coordinated involvement of inter-departmental and intra-departmental disciplines in the farming systems research and development program will not only promote the agriculture-based economy but also help in protecting ecological balance.

The components required in the program to enable it to run effectively include the following:

1. Farming Systems Coordinating Committee:

To strengthen inter-disciplinary coordination and to guide the program, a Farming Systems Coordinating Committee will be formed under the leadership of the Department of Agriculture. The committee will be composed of representatives of technical divisions, commodity programs and horticulture, livestock and forestry research programs. The Committee will meet 2-3 times per year to review work of the division, approve work plans and guide future programs. Winrock will provide support for these meetings/workshops at sites in Kathmandu or elsewhere in Nepal as appropriate.

2. Farming Systems Network

A Farming Systems Networking Group will also be formed. This group will implement the farming systems work, allow technical discussion of results, and prepare annual workplans for approval by NARSC (through the FS Coordinating Committee). Other externallyfunded projects with similar objectives and methodology to the FSRD, such as the ODA supported centers at Pakhribas and Lumle, and the proposed French Project in Gulmi/Arghakhanchi, will also participate in the Networking Group. This participation will promote linkages between FS activists in the country.

3. Farming Systems Research Sites:

Guided by the concept of integrating various components of agriculture, some of the potential sites out of the six existing cropping systems sites will be retained and developed into farming systems research sites and some will be phased out. (Three new sites will be identified in 1985/86 and programs there will be initiated in 1986/1987).

An additional number of sites up to a total of 14, or as appropriate, representing different agro-ecological regions of the country will be established by the end of the project period of five years. The main purpose of such research sites will be to generate technology adapted to farmers' agro-climatic and socio-economic conditions. A methodology will be developed to carry out the research program effectively. Effective linkages will be made between farming systems research, and extension and production programs.

4. Technical Support:

Besides coordination with research organizations at the central level, the concerned agricultural research stations and farms at the field level will provide technical support to the farming systems program carried out in their command areas. This support will be a part of their out-reach activities. Potential research stations will cooperate with the FSR/DD to launch an integrated farming systems program on a limited area of the farms.

5. Monitoring:

The FS coordinating committee is the monitoring and evaluation unit of the Farming Systems Division and will regularly monitor various activities of the program. The objective is to maintain progress by timely detecting and tackling problems.

6. Socio-Economic Study:

Field surveys and socio-economic studies will be carried out to thoroughly understand the prevailing systems of farming in target areas, prior to FSR site selection, to collect relevant information about the research sites and to evaluate the impact of technology to be disseminated in neighbouring areas.

7. Training:

Different levels of short term and long-term training will be provided to the staff working for the Farming Systems Program. In addition, training will also be given to farmers to acquaint them with various aspects of farming systems technology in both research and production phases.

C. Farming Systems Research and Development Division

A major thrust of the ARP Project is to help establish an effective FSR/D Division within the DOA. The core staff positions assigned to this Division, to be headquartered at Khumaltar, are set out in Table 2.

Table 2. Farming System Research and Development Division
Approved Temporary Posts*

	<u>Post</u>	<u>Class</u>	<u>Number</u>
1.	Division Chief	Gazetted II	1

	<u>Post</u>	<u>Class</u>	<u>Number</u>
2.	Agronomist	Gazetted II	2 (for Agri. Station/ Farm)
3.	Asst. Agronomist	" III	1
4.	Asst. Plant Protection Officer	" "	1
5.	Asst. Soil Scientist	" "	1
6.	Asst. Forage Dev. Officer	" "	1
7.	J.T.	Non-Gazetted I	14 (12 posts for research sites)
8.	Field Assistant	" III	6 (all for sites)
9.	Administrative Assistant	" I	1
10.	Accountant	" I	1
11.	Typist	As per speed	1
12.	Driver	Light vehicle driver	2

* Additional posts required will be created on a permanent basis to carry out the work in subsequent years.

The work plan for 1985/86 is outlined in the following table. Annual work plans will be prepared each year as part of the HMG/N budget process. A long term work plan for the Division will be prepared in 1986.

Table 3. Farming Systems Research and Development Division Program for FY 1985-86

Program Description	Annual Target	Four Monthly Target		
		I	II	III
Establishment of Research Sites	7	7	-	-
Cropping Pattern Trial	24	-	-	24
Researcher Managed Trial	60	15	10	35
Socio-Economic Study of FS	4	-	-	4
Study of Forage Development Potential	4	-	2	2
FS Training on Technology & Management (for farmers)	4	-	2	2
Survey for new Sites	3	1	1	1

In 1985/86 two surveys for new FSR sites have been completed and one more is to be done. In 1986/87 an additional three sites will be surveyed and three new sites established. Many sites will continue to emphasize cropping systems work, but horticulture and agro-forestry research will be started and at least one new site will likely focus on livestock and forage research. The long term Work Plan to be done in 1986 will include plans for new site establishment. The Project Paper indicated fourteen possible sites but this will have to be further reviewed. The FSR Division will also promote linkages to the Pakhribas Agricultural Center, the Lumle Agricultural Center and a proposed French supported center in Gulmi/Arghakhanchi. These programs will coordinate development of annual workplans.

Table 4. Tentative Program for FY 1986-87: Farming Systems Research & Development Division (FSR Division at Khumaltar & 8 Farming Systems Research Sites)

Sr. No.	Description	Annual Physical Target
1.	Establishment of FSR Sites	10
2.	Cropping Pattern Trials	25
3.	Component Technology Trials	15
4.	Comparative Study of Experimental Productions (Local Crop Cuttings)	5
5.	Minikit Distribution & Study	6
6.	Study on Vegetable Production Technology	6
7.	Study on Pasture Development	6
8.	Study on Organic Manure Preparation & Its use	6
9.	Socio-economic Studies on FSR	5
10	Training on Farming Systems Technology (to the farmers of research sites)	5
11	Pre-Production Demonstration	5
12	Survey for Selection of New FSR Site	3

Work at FSR/D sites, especially at new sites, will generally follow the progression of:

- initial site survey (reconnaissance);
- site selection;
- baseline survey/ rapid rural appraisal;
- research trials, and surveys and farm monitoring (several years);
- pre-production demonstrations;
- PPVT's at other sites with similar FSR site characteristics;
- support to ADO/LSDO extension programs.

Work of the FSR/D Division will be reported in semi-annual reports on "Summer Season Research and Progress" and "Winter Season Research and Progress." Annual work plans will also be printed. Winrock will assist with printing reports for the first three years of the project, after which report publication will be undertaken by the Division or by WARSC.

The ARP Project will support the FSR/D Division by a percentage of the Division's budget to be supplied by USAID and technical assistance from Winrock. A Farming Systems Agronomist will be based full-time in the Division and a Socio Economist, Livestock Research Specialist, and Agro-Forester will work half time with the Division. A FSR Planning Specialist will visit in 1986 to assist with elaboration of a long-term Division work plan.

<u>Activities</u>	<u>Responsible Party</u>	<u>Target Date</u>
FSR/D Division Staffed	Project Director	2/86
FSR Agronomist Arrives	Winrock	2/86
FSR/D Coordination Committee Established and meets for First time	FSRD/WI	8/86
FSR/D Planning Consultant Arrives	Winrock	9/86
FSR/D Receives permanent status	HMG/N	6/86
FSR/D Long-Term Work Plan completed	FSRD	10/86
Conceptual outlines for development directions accomplished for each established site	FSRD; Winrock	12/86

IV. SOCIO-ECONOMIC RESEARCH DIVISION (SERD)

A. Introduction

The Socio-Economic Research Division (SERD) is a newly created division in the DOA. The division will concentrate on farm level socio-economic problems. In collaboration with the FSRD, and as a part of the team in farming systems research, the division will participate in multidisciplinary site surveys and formulation of site research activities; use economic criteria to evaluate agronomic trials conducted in farmers' fields; study constraints to adoption by farmers of different components of production packages; and evaluate the impact of production programs.

Different extension methodologies have been used in Nepal. Efforts will be made to evaluate the relative value of these different methods.

Seed continues to be a major factor in spread and utilization of new varieties and other technologies. Studies will be conducted on the various economic and management problems of seed houses and other seed enterprises in the hills.

Minikits are an important seed dissemination system in Nepal. The program has not been evaluated since 1980. Another such study appears justified.

To accomplish these objectives, GON and ARPP have agreed to staff such a unit with permanent (gazetted) positions. The head of the SERD will be selected by HMG during early 1986. The ARPP socio-economist will act as counterpart to the head of SERD.

B. SERD Project General Workplan

Baseline survey instruments have been designed based on ICP experiences. ARPP and SERD socio-economists, complemented by an agronomist and 13 JT's and/or JTA's in the districts of Myagdi, Baglung and Parbat, will complete the first round of baseline data collection by mid-May 1986. Initially emphasis is being placed on lower elevation - higher potential, mostly irrigable khet (lowland) areas in the 2800' - 4000' elevation range, but cropping, pattern, livestock pattern and fodder availability and usage information is also being collected on mid and/or higher-hill farms. This information will identify areas for production using the technologies already identified in preproduction verification trials and other areas for FSR.

Summary, synthesis and use of baseline information will be in two sequential phases. Phase one will summarize only cropping pattern information immediately relevant to the DOA and AKPP personnel in planning research and production trials/programs for summer, 1986. Phase two will summarize and report on the entire baseline survey activity.

The chief of SERD will be approved and appointed by HMG early in 1986. The Winrock counterpart to the chief of SERD will arrive on-site in the summer of 1986. By the end of the year, SERD will include about 16 employees consisting of one class-I officer as chief, three class-II officers as agricultural economists and/or rural sociologists, four class-III officers serving as research officers, a statistician, five research assistants and two typists.

The major activities of the SERD for 1986 and beyond are summarized in Table 4. While certain completion dates can be assigned to SERD actions in 1986 and early 1987, it is obviously impossible to specify completion dates or details of many anticipated SERD activities. The latter category of activities includes (1) possible assistance to DOA/DOL with economic analyses of trials or proposed production programs, (2) possible assistance to RCC and/or other (technical) planning committees, (3) follow-up surveys on important selected topics in either FFT's or production programs, (4) assisting the FSR Division in FFT/production program monitoring, (5) potential liaison relationships with the Department of Food and Agricultural Marketing Services, (6) possible assistance in training and supervision of ADO's/JT-JTA's/PCV's selected to work with on-farm research or production program, (7) assisting the FSR Division to plan, implement, monitor, analyze, revise and redesign FFT's and/or production programs, and (8) the development, testing, verification, documentation and dissemination of improved (and DOA approved) socio-economic methods of design, monitoring and analysis.

It is expected that SERD will support, assist and strengthen the Lumle Agricultural Centre Planning Unit and help support FSR methodology that Lumle has developed. In addition, SERD will continue to use, build upon and modify the socio-economic methodology inherited from the ICP. It is also anticipated that SERD will interact with, and exchange methodologies and ideas with French Technical Assistance in the Western Region of Nepal, as well as drawing upon relevant socio-economic experiences from Pakhribas Agricultural Center and international experiences (especially IRRI, CIMMYT, ICRISAT, ILCA and the FSSP). SERD will be responsible for synthesis of its experiences with those of others, with the goal of identifying appropriate research-extension methodological linkages most appropriate for (1) the lower elevation, high potential, mostly irrigable (khet) land crop-livestock-fodder systems, and (2) the mid-to-high hills major/minor crops-livestock-fodder-agro-forestry systems.

The Division will also assist the Extension and Training Department within the DOA to conduct research on selected topics of relevance to improving extension approaches in Nepal, particularly in the mid-high hill areas. Research advice will be provided by one or more short-term consultants with skills in rural sociology and extension research.

Table 5. Schedule for Major Socio-Economic Research Division Actions

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Design baseline survey instrument	ARPP socio-economists	2/86
Select initial Panchayats for baseline survey in Myagdi, Baglung & Parbat Districts	ARPP socio-economists/ agronomist/Winrock consultant	2/86
Conduct initial baseline survey	ARPP socio-economists/ SERD/ Selected JT/JTA's	2-3/86
Selected summary of baseline data (for trial/production program design/use)	ARPP socio-economists/ SERD	5/86
Participate in trial/production program design process	ARPP socio-economists/ SERD/FSR division	4-6/86
Final summary/report on initial baseline survey	ARPP socio-economists/ SERD	4-12/86
SERD Long Term Work Plan Developed	SERD/Winrock	12/86
Conduct second round, baseline (or rapid rural appraisal) surveys (if necessary)	ARPP socio-economists/ SERD/selected JT/ JTA's/PCV's	10/86-4/87
Assist DOA/DOLD/AH with economic analysis (given sufficient forward planning)	SERD/ARPP socio- economists	As needed
Conduct topic-specific follow-up surveys	SERD/ARPP socio- economists/selected JT/JTA's/PCV's	As needed
Assist in FFT/production program trial monitoring	SERD/ARPP socio- economists/selected JT/JTA's/PCV's	As needed

Liaison with Food and Agricultural Marketing Services Department	SERD Chief/Winrock counterpart	As needed
Assist in training of ADO's/JT-JTA's/PCV's	SERD/ARPP socio-economists Winrock counterpart	As needed
Participate in FSR division planning and field implementation and work	SERD/ARPP socio-economists Winrock counterpart	Each crop/livestock cycle
Development, testing, verification documentation and dissemination of improved and DOA approved extension methodology	SERD/ARPP socio-economists/Winrock counterpart	As appropriate
Conduct tailored surveys for seed program	SERD/ARPP socio-economists/PCV's/appropriate Winrock long-term staff	As needed

In addition to its general responsiveness to DOA (FSR Division) DOLD/AH requests for analyses and interactions, SERD will support and assist the seed program to analyze impact of seed storage units and other parts of the seed program farmer production strategy as needed

Adequate training of candidates in agricultural economics and rural sociology should occur early in the project so as to eventually allow complete staffing of SERD with trained staff to act effectively, on a permanent basis, in those major activities summarized in the previous schedule. The chief of SERD should be an individual with training in agricultural economics at the PhD. level. Women should be selected as candidates for further training and employment in SERD, given their unique abilities to interact with female farmer household members. SERD should eventually employ one or two anthropologists and/or rural sociologists to assist in analysis of intrahousehold relations and linkages in the lower to upper hills of Nepal.

V. SUPPORT TO COMMODITY PROGRAMS

Project support to commodity programs will, in some senses, be mostly indirect, as in the case of Winrock assistance directed towards improvement of research management. In addition, the Research Station Development Specialist will work with stations, probably beginning with the major commodity stations, to develop Operational Plans and Development Plans. These Station Development Plans will be used in securing future financing for station infrastructure and human resource development.

The training component and a very limited equipment procurement budget will also provide some support to specific commodity programs listed below:

A. Grain Legume Development Program

The Grain Legume Development Program (GLDP) has been established at Khumultar with a sub-center at Rampur. A long range work plan for the program has been prepared and work is underway. The program receives limited support from an IDRC grant which is for three years and for which there is good likelihood of extension for an additional three years.

The ARP Project will provide assistance to the GLDP for construction of facilities for a sub-center. Winrock will also provide some technical assistance and limited equipment procurement.

Winrock will provide full time services of a Minor Crops Agronomist, for approximately six months during 1986. This person will work at least half time with GLDP in research planning and monitoring. Following this period, Winrock believes that it would be desirable to continue this full-time position, but does not have sufficient contract funding to do so. If additional funds cannot be provided, technical support to GLDP will be provided by recurrent visits of a short term consultant.

A schedule of activities is given below:

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Implement GLDP	Agronomy Div; IDRC; Winrock	1/86
GLDP Working Group Meeting	Working group executive, IDRC/ Winrock	2/86

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Contract A&E Consultant for Construction Design	USAID/N	3/86
Complete Initial Design Drawings	A & E Consultant	5/86
Decide on Construction Program Priorities	Agronomy Div; Winrock; USAID/N	7/86
Begin Construction Work	USAID/N	1/87

B. Hill Crops Improvement Program

An intensified Hill Crops Improvement Program (HCIP) is to be established under the Agricultural Botany Division. This program is in response to the recognition of the importance of crops, such as finger millet, buckwheat, amaranthus, and barley, in certain areas of the country. The basic technology developed by this program will be of major importance to on-farm work of the FSR/D Division and to the hill production program.

Following several years of experience with the program, the DOA will evaluate the potential and need for separating this activity as an independent program based at a hill research station. IDRC is expected to provide partial funding for operating costs of this program. ARPP will fund construction and improvement of facilities at a hill research station or at selected stations to support the program. Winrock will provide technical assistance and limited equipment for the program (Comments on the Minor Crops Agronomist position in the previous section also apply to the HCIP). An active role for PCV's is also envisaged for this program (Section IX B below).

The schedule of activities is given in Table 6.

Table 6. Schedule of activities for Hill Crops Improvement Program

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Draft Long-Term Work Plan for HCIP	Agr. Botany Div.; IDRC; Local Consultant	4/86

Research Planning Consultant	Winrock	4/86
Complete Long-Term Work Plan for HCIP and IDRC Funding proposal	Agri. Botany Division; IDRC	5/86
Assistance from Minor Crops Research Agronomist	Winrock	4-9/86
Approval IDRC Funding	IDRC	9/86
Initiation of IDRC Support	IDRC; HMG/N	11/86
Contracting A&E Consultant for Hill Station	USAID/N	12/86
Develop Initial Construction Plans and Cost Estimates	A&E Consultant	3/87
Decide on Construction Plan	NAPSC; Agr. Botany Div.; Winrock; USAID/N	4/87
Begin Construction	USAID/N	11/88
Review Progress on HCIP and Decide Future Plans for Program	RCC; NAREC; Agri. Botany Div.; Winrock	11/89

C. Livestock Research Program

As noted in the 1983 FAO Cooperative Programme "Nepal Agricultural Research Review" livestock research to-date has been limited. The ARP Project will provide support to livestock research activities and help the DOLD/AH to develop the base for future expansion of this work. The aim is to help develop a better balance of research between crop and livestock agriculture and a better balance within livestock research.

As current livestock research activities are limited, Winrock efforts to provide technical and financial assistance must be well focused on a few specific problems identified by the Farming Systems Research group, working in collaboration with DOLD/AH staff. Experience of the ICP group and DOLD/AH staff indicates that the long-term efforts must focus on establishing technically viable and economically sound forage/fodder programs

for small farms. Complementary improvements of breeds, animal health, management and marketing can then follow. Relatively little research will be needed in these latter areas; rather Winrock will attempt to provide technical assistance in these areas through short-term training in areas such as A.I., routine animal health, animal traction, composting, and product processing. This would be accomplished through local and expatriate short-term consultants working closely with PCV's and DOLD/AH field staff.

In 1986/87 the ARP Project will provide partial funding for operation of an expanded forage and fodder research program. Winrock will provide technical assistance and training. Station development planning and research administration assistance will also be available to DOLD/AH through NARSC.

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Expanded Fodder and Forage Research Program Initiated	DOLD/AH	7/86
Short-term training for DOLD/AH staff at ILCA to give access and knowledge of ILCA germplasm of forage/fodder crops to collection	DOLD/AH; Winrock	9/86
Long Term Livestock Research Specialist Assigned	Winrock; DOLD/AH	10/86*
Long Term Fodder and Forage Research Plan Completed	DOLD/AH; Winrock	1/87
Workshop on Livestock Research Activities and Needs	DOLD/AH; Winrock	7/87
Review Paper on Livestock Research Needs	Winrock; DOLD/AH	12/87
Short-term consultancies in specific technical areas	Winrock; DOLD/AH	1987/88/89

* Depends on availability of funds to enable Winrock to move this position forward by one year.

D. Rice, Maize, Wheat Commodity Programs

Recognizing the progress made by these "major" cereal crop commodity programs with support from the ICP project and the established linkages with IRRI and CIMMYT, the ARP Project has not targeted a large amount of support to these programs. Improvements in research administration should help the programs and direct support will be provided for development of research station operating and development plans. The project will also provide directly some training and some equipment, through NARSC, to support the program. In addition, it is expected that the research grant fund will provide a number of small, but important, research grants to expedite work of the commodity programs.

The importance of these programs, in support of the FSR Division and production programs is recognized and it is expected that, as an HMG/N contribution to this project, funding for the major commodity programs will be maintained or increased.

The posting of a CIMMYT Regional Representative to Kathmandu and the office-sharing arrangement with Winrock/ARPP should help HMG maintain strong linkages with CIMMYT and should help provide access to barley germplasm for the HCIP as well as providing expertise in plant pathology for the barley and buckwheat research efforts and field trials. This will also help maintain the close relationship between the National Wheat and Maize Development Programs and CIMMYT and short-term visits by CIMMYT scientists will help the overall objectives of ARPP. Close linkages with the IRRI Asian Farming Systems Network will also be maintained and strengthened as more FSR sites are added in Nepal. Close cooperation with the IRRI rice programs will also continue.

VI PRODUCTION (EXTENSION) PROGRAMS

The major thrust of support towards production programs will have three major dimensions:

- a) Intensive production campaigns in three hill districts;
- b) Training and assistance with planning production programs in other areas; and
- c) Pilot production programs at the farming systems research sites.

Production programs have expanded more slowly in the hills than in the terai and inner terai. Although high yielding varieties of rice, maize and wheat are becoming available for the hills, there is a need both to look in-depth at the policy constraints as well as to test technologies and extension methodologies before planning large scale production campaigns in the hills.

A. Intensive Production Campaign

The primary purpose of the intensive production programs in three hill districts (Baglung, Myagdi and Parbat) is to provide an opportunity to test production program methodologies for the hills. The proposed methodology will be based on "production blocks". This block approach may be modified based on experience during the project. The production program will be implemented by district ADO offices with the assistance of production agronomists to plan production programs and to develop extension information. Technology to feed the production extension efforts will come from work at the Lumle Agricultural Centre and the Pumdi Bhumdi Farming Systems Research site and the PPVT's conducted in Myagdi district. Livestock extension efforts will focus on fodder and forage production initially. Crop work will focus on cereal grain production and fruit trees. The hill production program will eventually reach at least 11,000 farmers in three districts covering a total of 10,500 hectares.

Minimum staff requirements for such a production program in each district will be for two officer level staff, one administrative/accountant officer and nine junior technicians. Production programs will include use of female extension agents and agricultural assistants (AAs) to disseminate extension methods.

Winrock will provide female extension staff on a trial basis the first two years of the project.

In 1986/87 the program will continue support to current ADO programs. Additional pre-production verification trials (PPVT's) will be established as early as possible, especially in the Baglung and Parbat districts. Myagdi district has already conducted PPVT's in several areas. Following successful PPVT's, pilot production programs will be implemented at the sites of the PPVT's. These pilot production programs will be based on a production block model.

The project will use demonstration days to focus community attention on the production blocks. Farmer training will be held at district sub-centers and mini-kits will provide for widespread testing and diffusion of new varieties.

In the target districts, HMG/W will form district implementation committees headed by the ADO with AIC and ADB managers, a cooperative representative, irrigation/water management officers, production block officers and a NFC representative as committee members. ARPP will assist the Regional Director and the Deputy Director General for Extension to backstop the production program. A major emphasis will be on surveys and studies to determine appropriateness of technologies and effectiveness of extension programs.

B. Training and Assistance with Planning Hill Production Programs

ARPP will conduct training programs and workshops on hill extension program methodologies. Winrock will help to develop a strategy and plans for an expanded minikit program. Minikits of seed or planting material or breeding stock of new varieties or breeds will be provided to participating farmers to influence production on 20,000 ha. of land in the hills. Major activity in this component will begin following arrival of the Winrock Extension Specialist.

C. Pilot Production Programs at the Farming Systems Research Sites

The project will also conduct pilot production programs at farming systems sites to disseminate newly tested methodologies. These will likely include technologies for livestock, forage, and agro-forestry production and will require special planning to disseminate multi-disciplinary technologies in an extension program. By the end of the project 4,000 ha at seven hill sites will be covered by production programs.

Work Schedule/Hill Production Program

Activity	Responsible Party	Target Date
- Baseline Survey of Production Program Areas in Three Districts	DOA/WI	4/86
- Technologies Package for Production Program Prepared	DOA/WI	5/86
- Assign Additional Staff Required for program	DOA	5/86
- Assign Female Extension Personnel to Production Program Districts	DOA/ADO/WI	6/86
- District Implementation Committee Formed	ADO	5/86
- Complete Revised Plan for Implementation of first year of Production Programs	DOA/WI/DOL	6/86
- Trainers Training on Extension Methodology and Farming Systems Methodology to SMS & JTs of Production Blocks	WI/DOA/DOL	7/86
- Production Agronomist arrival	WI	7/86
- Complete Training Plan & Schedule for Production Programs	WI/DOA/DOL	7/86
- Conduct Seminars on Methodologies for Production Programs	WI/DOA/DOL	12/86
- Complete Paper Detailing Strategy and Plan for Production Program	DOA/WI	12/86
- Develop Plan/Strategy for Minikit Program	DOA/WI	1/87

- Complete Final Baseline Survey of Production Program of 3 Districts	WI/DOA	5/87
- Complete Evaluation of Effectiveness of Current Extension Techniques and Methods	WI/DOA	10/87
- Baseline Survey of Production Program of the Fourth District	WI/DOA	10/87
- Consultant Review of Policy Constraints to Production Increases	AID	2/88
- Follow-up Impact Survey of Production Program Area	WI/DOA	4/89
- Follow-up Impact Survey of Production Program Area	WI/DOA	12/90

VII. SEED PROGRAM

A. Purpose

The primary purpose of the ARPP seed program is to assist DOA and AIC in implementing programs aimed at enhancing hill farmers' access to improved seed. Breeder and foundation seed improvement constitutes another vital area of concern. In addition, training needs relevant to these goals are to be addressed. The project will also strengthen the DOA's Seed Technology and Improvement program.

E. Objectives

For achieving the said purpose, four different but related objectives will be pursued. These are to:

- a) assist in the establishment of a functional National Seed Development Board (NSDB).
- b) assist DOA in achieving self-sufficiency in seed in selected hill districts through a localized system based on private producer-sellers and thereby improve the existing farmer-to-farmer seed dissemination.
- c) assist in improving supplies and quality of breeder and foundation seed of rice, maize, wheat, pulses, fodders and green manure crops; and seed of minor crops as improved varieties become available.
- d) provide continued support to mini-seedhouses whereby they provide source seed to producer-sellers, organize farmers' training and help them with supply of fertilizer, pesticides, metal bins, etc.

C. Operational Strategy

1. Seed Technology and Improvement Program (STIP)

The activities covered by the Seed Technology and Improvement Program of DOA include breeder and foundation seed improvement, satellite seed program in the hills, seed research, seed testing and quality control services. It also serves as the secretariate for NSDB. Therefore, it is pertinent for STIP to assume a leadership role in seed program development.

The ARPP seed component will lend support to STIP in the relevant areas with organization, training, equipment, and vehicles. Winrock International will provide two seed technologists and an engineer to assist in monitoring and implementation. For breeder seed, STIP will work closely with NARSC and the Project Coordination Committee to ensure linkages with research programs. Technical assistance in foundation seed production will help in streamlining working procedures and evolving standard methodologies. Equipment needs will receive particular attention as will training in equipment operation, maintenance and repair.

2. Hill Seed Program

The ultimate aim of the HSP is to build upon and expand the mini-seedhouse system in each district where they exist to achieve self-sufficiency in seed. In this new role, the mini-seedhouses will be used to create a satellite seed system based on private producer-sellers located in outlying Panchayats. While STIP coordinates, the extension wing of DOA executes this program through District Agricultural Development Officers. Project support includes supply of metal bins to selected producer-sellers, staff and farmer training, technical assistance and support to mini-seedhouse operation. The hill seed program will be implemented in a phased manner. It will cover 4-5 districts in the first year.

3. Mini-Seedhouses

The experienced seed growers around the mini-seedhouses will be encouraged to form private Seed Growers Associations and produce seed for local use. They will also multiply foundation seed for supply of source seed to producer-sellers. It is expected that AIC will also multiply foundation seed for supply of source seed phase out supply of Tarai-produced seed to the hills. Of the 20 mini-seedhouses sites in the hills, some are no longer remote as roads are opening. DOA has launched a private producer-sellers program in eight districts namely Dhankuta, Sankhuwasabha, Nuwakot, Lamjung, Gorkha, Baglung, Palpa, and Gulmi. During the NFY 043/044, ARPP support will cover Nuwakot, Parbat, Myagdi and Baglung. Certain other projects in districts such as Dolkha, Panchtar and Baitadi are also helping farmers with the supply of seed. Consequently the AIC - run program is likely to operate in only nine districts including Doti, Dailekh, Pyuthan, Okhaldhunga, Khotang, Bhojpur, Terathum and Dhading.

For the purpose of ARPP support to AIC mini-seedhouses, five districts may need assistance because of remoteness and potential for seed production. These are Bhojpur, Terathum, Okhaldhunga, Pyuthan, and Rukum. They will be the focus of technical assistance, operational support and training. In addition, AIC will be assisted in supplying foundation seed for the hill seed program. Actual needs of the said activities are proposed to be addressed on an annual basis. The Doti, Dailekh, Khotang, Panchtar, and Dhading seed houses will be run by AIC, essentially as small warehouses.

In-country training of seed growers will continue. In addition, any need for the training of AIC seed staff can also be accommodated. To facilitate foundation seed and packaging material supply to project sites and movement of small quantities of other inputs, two pick-up vehicles have been provided. A maintenance supervisor will assist the Seed Division of AIC in optimum utilization of mini-seedhouse equipment.

4. Major Elements of Strategy

In implementing the program of STIP, the Hill Seed Program and Mini-seedhouses the following approaches will be used by the ARPP:

a. Pilot Program:

Given the complexities of a seed system in the hills, learning through trial and error is inevitable. There may be several different ideas to be tested before they can be applied with a degree of confidence. For this purpose, certain areas will be identified to serve as a trial ground in addition to carrying out the regular program of seed production. The satellite seed program will initially concentrate on 4 districts to achieve an impact while providing possible support to other districts under DOA.

b. Involving Women Farmers:

Traditionally, women in Nepal are known for taking an active part in farming operations, particularly those involving seeds. They are eminently suited to activities such as seed selection, cleaning, handling, storage and selling. Thus, even without a serious effort, a large number of producer-sellers under the district seed program are likely to be women farmers. It will serve a useful purpose to encourage women participation in the metal bin program and make it a predominantly women-oriented activity in agricultural development. The best way to do so is to give priority in training to

women and make seed production an income-generating venture for them to pursue. The program districts will include a place where special emphasis can be given to women in seed production.

c. Research Support:

The coordinated commodity programs in conjunction with the FSRD program will develop, test and release appropriate varieties. Foundation seed of the recommended varieties will be produced by the designated farms under DOA and from there the required quantities of foundation seed will be carried to the mini-seedhouses for multiplication. In this endeavour, hill-based research is expected to generate new varieties in the years to come. To have strong linkages, PCV's and JT's working for the seed program will be encouraged to monitor FFT's of new varieties to try them in the immediate area of the seedhouses.

d. Extension Support:

A unique feature of the district seed program is its full integration with agriculture extension. ADOs will have responsibility for both seed and extension and in these functions farmers themselves will be directly involved. The extension service will popularize new varieties and practices. For launching production programs, there will be requisite seed available on the spot instead of waiting for Tarai-produced seed to arrive. Extension will also provide feedback to research regarding variety performance and provide technical guidance and support to producer-sellers.

e. District Seed Committees (DSC's):

The hill seed program will be administered by DOA/AIC under the guidance of the NSDB and DSC's which are planned to be established in each district. Establishment of the committees conforms with HMG's policy of progressive decentralization. A DSC may be headed by the district Panchayat Chairman or his designee with the ADC as member-secretary. Other members will include AIC Branch Manager, local representative of the Department of Food and Agricultural Marketing Service, ADB, NFC, Department of Cooperatives and a representative of the district seed producers. The District Seed Committee will oversee and guide program implementation, keep a watch over seed prices, satisfy targets and operational plans and ensure upkeep and maintenance of mini-seedhouse plant and machines.

f. Sub-Committee for Seed:

In order to achieve ARP goals, it will be useful to constitute a working group on seed to routinely address problems and constraints, monitor progress and continually evaluate field implementation of the seed component. The following are proposed to serve on the seed sub-committee:

1. DDG (Crop Sciences)
2. DDG (Extension)
3. Chief, STIP
4. ARP team leader
5. USAID Project Officer
6. Chief, AIC Seed Division
7. ARP Seed Specialist.
8. Chief, Botany Division

g. Responsible Institutions/Officers:

For effective implementation, and counterpart participation, the seed component will need to involve several cooperators, including the following:

1. Chairman, NSDB - for seed policy issues
2. DG, DOA - Hill seed program
3. GM, AIC - AIC-run mini-seedhouses
4. Chief, NARSC - for breeder seed
5. Chief, STIP - Coordination and foundation seed
6. DDG (Extension) for district seed program execution.

h. Peace Corps Volunteers (PCV's):

In addition to the current volunteers working with the SPIS Project, new PCV's are expected to join. They will work with different facets of the seed program. In the Tarai PCVs assistance is required for foundation seed improvement while in the hills the volunteers will be involved with multifarious activities such as seed multiplication and handling, mini-seedhouse management, varietal testing, FSR trials, seed usage/feedback information and other related functions. Being a part of the seed component team, the PCVs will be able to attend training sessions and program meetings along with the JT's at specified intervals. PCV's made a laudable contribution to the SPIS Project and their role in ARPP will provide continuity of the same essential input.

D. Equipment and Construction Requirements

Equipment needs will be identified following discussion with the organizations concerned and will include equipment for STIP/NSDB facilities, the STIP/Breeding and Foundation seed programs, and the AIC mini-seedhouses program.

In addition, assistance to the Pulse Development Program will be through STIP and this may require equipment for seed handling and storage at the site of the Program headquarters and perhaps at one sub-station..

E. Work Schedule for Seed Component

Table 7 sets out the proposed work schedule for the seed component.

Table 7. Work Schedule for Seed Component of ARPP

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
1. Work place provision & counterparts for seed activities	STIP & AIC	12/85
2. Metal bin production & supply arrangements with Rural Save Grain Program	STIP	1/86
3. Satellite seed program orientation for ADO's (8 districts)	STIP	1/86
4. Breeder/foundation seed Improvement plan	STIP/WI	5/86
5. Breeder/Foundation seed training	NARSC/STIP/WI	9/86
6. Initiate satellite seed program (4 districts)	STIP/ADO's	9/86
7. Baseline survey for mini-seedhouses	ARPP/AIC	11-12/86

8.	Import of equipment for STIP & AIC	ARPP/WI	2/87
9.	Improve equipment status of seed labs	ARPP/STIP	6/87
10.	Training sessions for producer- sellers	ARPP/WI	Early 86, 87, & 88
11.	Seed processing/storage facilities and equipment installation for legume seed	DOA/ARPP	3/88
12.	Standardizing foundation seed methodology	NSDB/foundation seed personnel	5/88
13.	Improve AIC-run system (4-5 districts)	AIC/WI	Continuous
14.	Develop private producer- sellers for district seed sufficiency	ADO's/WI/STIP	Continuous
15.	Follow-up baseline surveys	DOA/AIC/WI	11-12/83

VIII. TRAINING PLAN

A. Degree Training Programs

Winrock will administer the training program for 13 advanced degree candidates and for 56 short courses. The advanced degrees program will be for programs identified in the Project Paper.

B. Short-term Training and Monitoring Tours

Short-term training will include short courses, monitoring tours, workshops and professional meetings. The purpose of short-term training is to enhance the research capabilities of HMG staff; develop additional capabilities in research management, including personnel and financial management procedures used in other national agricultural research systems; provide training in FSR and socioeconomic research methods; training in research information management, including library sciences, research data base management procedures, publications, and preparation of audio-visual materials; and help HMG staff maintain linkages with the International Centers for Agricultural Research. The tentative training schedule for both long and short-term trainees is shown in Table 8.

Table 8. Tentative Training Schedule for ARPP Participants

<u>Training Schedule</u>	<u>Number</u>	<u>Agency</u>
<u>1986 Program</u>		
M.A. Rural Sociology	1	DOA (SERD)
M.A. Agricultural Economics	1	DOA (SERD)
M.Sc. Agro-Forestry	1	DOA (Hort. Div.)
M.Sc. Forage Production	1	DOLD/AH
S.C. (Short Courses) Commodity Research	6	*
S.C. ILCA Visit	1	DOLD/AH
S.C. Farming Systems Work	5	**
S.C. Seed Technology	1	STIP/AIC
<u>1987 Program</u>		
M.A. Resource Economics	1	DOA (SERD)
M.A. Agricultural Economics	1	DOA (FSRD)
M.A. Rural Sociology	1	DOA (SERD)
M.A. Agricultural Economics	1	DOLD/AH
M.Sc. Agronomy/Plant Breeding (Hill Crops)	1	Agri.Botany Div.
M.Sc. Livestock Production (Hill Systems)	1	DOLD/AH
S.C. Commodity Research	6	*
S.C. Farming Systems	6	**
S.C. Research Management	2	RCC; NARSC
S.C. Library Science	1	NARSC
S.C. Socio Economic Research	2	SERD

1988 Program

M.A. Agricultural Economics	1	DOA (SERD)
M.Sc. Agro Forestry	1	DOA (FSRD)
M.Sc. Agronomy/Breeding (Hill Crops)	1	DOA (HCIP)
S.C. Commodity Research	6	*
S.C. Farming Systems	6	*
S.C. Research Management	2	RCC; DOLD/AH
S.C. Library Science	1	NARSC
S.C. Socio Economic Research	2	DOLD/AH; SERD
S.C. Seed Technology	1	STIP

1989 Program

S.C. Farming Systems	4	**
S.C. Commodity Research	4	*
	<u>13</u>	degree; 56 short-courses

Subject to the availability of funds the contract will also fund the following programs:

1989 Additional Program

S.C. Library Science	1	NARSC
S.C. Research Management	3	RCC; NARSC(2)
S.C. Socio Economic Research	2	SERD

1990 Additional Program

S.C. Farming Systems	<u>6</u>	**
Total including additional	13 degrees;	68 short-courses

* Includes one participant each from : Livestock, (Fodder and Forage); Grain Legume; Rice; Maize; Wheat; and Hill Crop Research Programs. Depending on experience of average cost per participant, beginning in 1987 one participant per year (alternatively from DOA and DOLD/AH) will be sent to an Agro. Forestry Program.

** Includes participants on IRRI FSR Monitoring Tours and Short Courses; preference will be given to scientists presenting papers; one half of these participants will be from the FSR/DD and one half from the FSR Coordination Committee.

C. Candidate Selection Procedures

The selection/nomination process for project training programs will follow normal procedures for USAID funded projects. Annual nominations will be consolidated to simplify administration and provide adequate time for placement of nominees. The process will involve the following steps:

1. In October-November (except for the 1986 program) the Project Director and Winrock Chief-of-Party, assisted by the Winrock Training Specialist and other Specialists, will determine the specific training requirements of the departments and divisions involved. In the case of programs with linkages to IARC's (ie. IRRI, CIMMYT, ILCA and ICRISAT) this will involve: (a) determining training needs; (b) determining which programs will be funded directly by the IARC; and (c) determining the "residual" training requiring funding.
2. In November or in advance, as appropriate, the Winrock Chief-of-Party with the concurrence from the Project Director will notify the USAID/ARP Project Officer, by letter, of the training programs to be funded by the project the next year. This training list should include: subject, length of training and the line agency or department for which the training may be offered. If known and appropriate, the list can also contain date and location of training and the date nomination is required.
3. As soon as the USAID/ARP Project Officer has received the letter from the Chief-of-Party of Winrock International asking for nomination of candidate(s) for appropriate subjects, USAID will write a letter to the HMG Ministry of Finance requesting nominations. Copies of this letter will go to concerned Ministries, Departments, the Project Director and the Project Coordinator. Immediately upon receipt of the USAID/N letter requesting nominees for the specific subject matter area, the concerned Departments will initiate HMG/N clearance and nominations for all participants to be funded that year. Nominations must clear regular HMG/N channels and be made to USAID/N by letter from the Ministry of Finance. Nominations for degree courses should include a nominee and an alternate. Alternates are also recommended for short course programs.
4. USAID/N will process a PIO/P for each training program. The Winrock Training Specialist will provide a draft of the unfunded PIO/P which must be cleared prior to the participant's departure.

5. Winrock will forward nominations and supporting documentation (manuscripts, recommendations, etc.) to the Winrock regional office for placement. The Winrock regional office will locate relevant training programs and place the nominees. To the extent possible, participants will be placed in training programs within the region.
6. In cases in which nominations are delayed or Winrock cannot locate an appropriate training program, placement will be delayed until the following year.
7. Participants must meet the following criteria for selection for training:
 - be nominated by HMG/N
 - be working in the concerned HMG/N division, department, program or unit for which the training is designed
 - have worked in the concerned unit for at least six months for short-term training and one year for long term training
 - sign a bond to return to their assigned position for a period at least equal to the period of training
 - meet entrance requirements for the training, including an acceptable score for an English language test.

At least ten percent of the participants must be women. If, by 1988, no women have been selected for degree programs, two degree programs will be set aside for women candidates. The DOA (Project Director) will advertise the availability of these programs and select two participants from open competition. Priority can be given to employees of MOA and for training in fields specified, but failing to locate such candidates, private applicants will be nominated.

For short term training also, after selection for the 1988 program, the Project Director will determine the number of women participants which must be included in the 1989 program to meet the minimum quota of six women participants for short courses. If necessary, women participants will be selected from open competition to meet the quota.

The Project Paper indicated that A.I.D. would attempt to provide additional participant training from other projects to complement ARPP funded training. The India Training Program (ITP) has ended with the FY 85 program and, consequently, provision of this additional training is not assured. However, to the extent possible A.I.D. will attempt to provide additional training, as proposed in the PP, under the Development Training Project (DTP). Current status of this complementary training is as follows:

<u>Program</u>	<u>Funding</u>	<u>Status</u>
M.S. Agronomy (finger millet)/DOA	ITP	R. N. Devkota*
M.S. Extension/DOA	ITP	M. Giri*

M.S. Agr. Engineering/DOA	ITP	R. N. Jha (8/85)
Ph.D. Public-Administration/ DOA	ITP	Cancelled for lack of nominee
M.A. Public Administration/DOA	ITP	R. R. Upadhaya*
M.S. Pasture/Fodder/DOLDAH	ITP	S. K. Singh
M.A. Public Administration/ DOLDAH	ITP	P. N. Ojha
M.S. Agronomy (hill crops) (HCIP)	DTP	Pending FY 86 nomination
M.S. Livestock Nutrition/ Fodder Trees (DOLD/AH)	DTP	Pending FY 86 nomination
M.S. Agricultural Economics (DFAMS)	DTP	"
M.S. Agronomy (pulses) (DOA)	DTP	"
M.A. Agricultural Extension (DOL/AH)	DTP	"

* Placement and departure pending.

Other proposed training is still pending and includes the following programs:

- S.C. Executive Management/MOA, DOA & DOLDAH (5)
- M.S. Agro-Forestry/DOA
- M.S. Bio-Fertilizer/DOA
- M.A. Rural Sociology/DOA
- M.A. Agricultural Economics/DOLDAH & DOA (2)
- M.A. Entomology (Biological Control)/DOA
- M.A. Horticulture (Coffee/Agro-Forestry)/DOA
- M.S. Plant Breeding (Maize)/DOA
- M.Sc. Agronomy (pulses)/DOA
- M.Sc. Agronomy (hill crops)/DOA
- M.Sc. Entomology (Biological Control)/DOA
- Ph.D. Livestock Nutrition/Fodder Prod./DOLDAH
- M.Sc. Agro-Forestry/DOA
- M.Sc. Livestock Management (hills)/DOLDAH
- M.A. Agricultural Economics/DOA
- Ph.D. Agronomy (hill crop)/DOA
- M.Sc. Agronomy (pulses/breeding)/DOA

D. In-Country Training Programs, Workshops and Meetings

The project will fund an extensive program of in-country training. Costs for farmer training under the hill extension (production program) component of the project will be covered by the HMG/N budget. Costs of other in-country training will be borne by Winrock. For all training programs, trainee

allowances and HMG/N training staff honoraria will conform to USAID Policy (Local Notice No. 85-32, dated September 13, 1985).

1. Management Training

In 1987 a special two week Management Course will be presented at a location outside of Kathmandu for top-level HMG/N and Winrock staff involved with the project. The course will be presented by two short term consultants and will be for approximately 25 HMG/N research administrators and five Winrock staff members.

2. Support Staff Training

The project is to provide training to approximately 270 administrative and support staff of the DOA and DOLD/AH. The Research Administrative Management Specialists and Research Station Development Specialist will work with the DOA and DOLD/AH to identify specific training needs. Winrock will sub-contract with a local firm to manage this training. The trainees will include: accountants from departments, divisions, farms and stations, and production program districts (approx. 70 participants); P.A.'s and secretaries from departments, divisions, farms and stations (approx 40); mechanics from farms and stations (approx. 40); lab technicians from Khumaltar and farms and stations (approx. 40); computer operators from departments, MOA, and divisions (approx. 10); seed plant mechanics (approx. 20); and maintenance supervisory staff from farms and stations (approx. 50).

3. Research Methods Training

The Research Station Development Specialist will plan this training in conjunction with DOA and DOLD/AH staff. The purpose of the training will be to improve research design and implementation. There will be three levels of training: one course will be presented by Winrock staff and consultants for managers of farms and stations (approx. 30); a second series of five courses will be presented by Winrock and HMG/N officer-level staff for officer level researchers designing and conducting on-station and on-farm trials (approx. 125); and a third series of five courses will be presented by HMG/N and Winrock staff for JT level staff carrying out research trials (approx. 125).

4. Farming Systems Related Training

- a) Winrock will support logistical costs of the FSR Division Coordination Committee meetings of one to two days duration up to four times per year. Costs will be limited, but will cover supplies, subsistence allowances (or needs) and travel costs, as appropriate.
- b) The FSR/D Division through the FSR Networking Group will hold training sessions cum organizational- planning meetings for field staff approximately three times per year. Again costs will be limited but Winrock will assist with planning and presentations and may support minor costs of such training.
- c) The FSR/D Division will present short seminar/workshop sessions for other programs and divisions to acquaint them with FSR/DD procedures and to evaluate its program. This will involve approximately two two-day sessions per year for about 20 participants each. Support by Winrock will cover minor costs of such seminars/workshops.

<u>Course</u>	<u>Participants</u>	<u>Time</u>
First Network Group meeting	FSRD	7/86
First FSR Coordination Committee Meeting	FSRD	8/86
First FSR Site planning and Training	FSRD	6/86
First FSR Network Review Meeting	FSRD	1/87
First ADO/LSDO Training	DOA	7/87
Seminar/Workshop on Hill Extension Methods	Winrock/SERD	1988

5. Production Program Training

Winrock will assist with organization and implementation of training for HMG/N staff working with production programs. This will involve probably two three-day sessions per year for 16 officer level staff (ADO's, SMS's, LSDO's) and 30 three day programs in the districts for JT/JTA and AA level staff.

6. Seed Program Training Workplan

a) Staff Training

Winrock will support limited costs for the seed program training components. Training in this area will focus on applied aspects. The training schedule is shown below:

<u>Course</u>	<u>Participants</u>	<u>Time</u>
Seed technology for producer sellers	JT's and other extension staff of satellite seed program	2/86
Breeder & Foundation seed production	Personnel of commodity centers and research stations	9/86
Seed Improvement workshop	Satellite seed program ADO's, AIC Managers, ADB & PCV's	11/86
Seed technology for Producer-sellers	District extension JT's/JTA's (4 districts)	12/86
" "	"	1/87
Seed Handling, Storage and Marketing	AIC Field Staff	3/87
Technicians' Training	DOA/AIC Plant Technicians	4/87
Seed Improvement Workshop	Satellite seed program ADO's, ADB AIC Managers and PCV's	11/87
Seed Technology for Producer-sellers	District Extension JT's/JTA's (4 districts)	12/87
" "	"	1/88
" "	"	2/88

Second course in breeder & foundation seed production	Personnel of commodity centers & research stations	4/88
Seed Improvement Workshop	Satellite seed program ADO's, AIC Managers, ADB and PCV's.	11/88

b) Program meetings

Twice a year seed program meetings will be arranged with ADO's, AIC Branch Managers, PCV's and others concerned to review progress, address constraints and deliberate on strategies that may evolve from working experience. In 1988, assistance may be extended to the second seed symposium, if possible.

c) Farmers' training

Seed growers and producer-sellers in the hill seed program will be trained in basic aspects of seed production, processing, handling, storage and marketing. For this purpose, in each district, about 35 farmers will be brought to the mini-seedhouse for a one-day orientation. The training will be organized by the ADO or AIC Branch Manager as the case may be, with the technical assistance of local staff of DOA, AIC, ADB and other relevant agencies. Each site should conduct two sessions which will also provide an excellent opportunity to discuss program implementation with the farmers. This training should be carried out every year.

7. Tentative Program for Training in Agricultural Research Management Topics.

The overall management plan for training is set out below. The plan for training in administrative and support staff as well as research station management staff is also shown. It should be noted that much of the training for support staff will be of a continuous nature and will focus on enhancing staff skills in the use of microcomputers and related software to support project activities such as report preparation, publications, data processing, project management, personnel records, and financial management.

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Provide details on 1986 Overseas Training Program to Project Director	Winrock	5/86
Plan Administrative and Support Staff Training Plan	Administrative Consultants; Research Station Dev. Specl.	5/86
HMG/N Nominates Candidates for 1986 Program	Project Director; Departments; MOA; MOF	7/86
Present First Course on Research Design and Methods	NARSC, Research Station Dev. Specl.	9/86
Present First Course on Research Trial Implementation	NARSC: Research Station Development Specialist	9/86
Sub Contract for Administrative & Support Staff Training	Winrock	11/86
Present Course for Research Station Managers	Research Station Dev. Specialist	12/86
Conduct Senior Management Training Course	Winrock	4/87

IX. PROJECT SUPPORT ELEMENTS

The ARP Project supports many institutions through many different types of support mechanisms. In many ways, Winrock International acts not only as the prime technical assistance contractor but also serves a catalytic role vis a vis other donor and research agencies. Examples of Winrock providing general administrative support to CIMMYT and IDRC projects in Nepal were cited earlier. Some of the specific components of project support are now set out.

A. Technical Assistance Staff Schedule

The project technical assistance contractor, Winrock International jointly with Virginia State University (sub-contractor), will provide approximately 25 person-years of long-term technical assistance, 30 person-months of short-term consultancy services and 25 person-years of local services to assist with implementation of project activities.

Technical assistance personnel will work with HMG staff on the development, planning and implementation of HMG programs receiving support under this project. Resident specialists will live in Kathmandu but will be expected to travel extensively, especially in the hill areas which are the focus of project activities. In addition to participating as project implementors, technical assistance personnel will cooperate in presenting an extensive agenda of in-country training programs, assist in designing research trials and evaluating research results; help to plan and implement hill production programs and seed production programs; and develop baseline data and follow-up information and data to monitor project impact. Technical assistance personnel will emphasize a practical, hands-on approach over theory and basic research. Low-cost, appropriate technology will be used to the extent possible.

In the development of all project supported programs and the implementation of the various project activities, Winrock will ensure that technologies, institutions, equipment, buildings and training conform to Nepalese conditions, constraints and potentials. Long-term technical assistance personnel will be encouraged to learn Nepali. Relevant project technical assistance reports will be translated into Nepali.

Project activities will be directed toward the broad goals of institution building, research system development and training. Under the broad goal of training, project activities will involve junior level scientists and technicians in rigorous research, production and seed production activities, thus giving qualified counterparts experience working on successful programs adapted to the realities of Nepal.

The contractors, advisors and consultants will work with HMG counterparts in all project activities. Due to the need to augment HMG manpower in new programs and to monitor dispersed field locations and the broad range of activities, Winrock will employ approximately ten Nepalese technical staff to assist with project implementation. This will include agricultural and socio-economic personnel. The number of technical staff may be increased on a temporary basis as necessary.

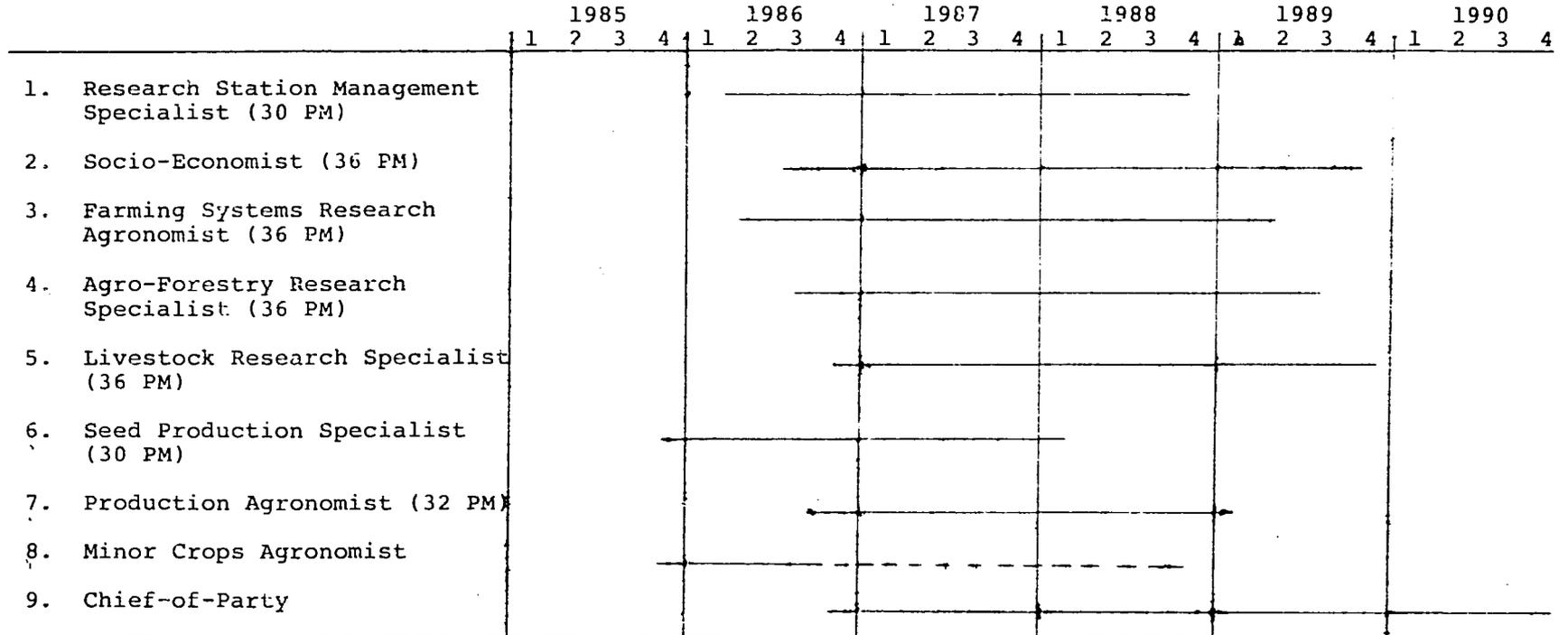
1. Long-Term Technical Assistance (Resident Staff)

Terms of reference for the long-term specialists are included in the Project Paper and the USAID/WI contract. One change to this plan is the inclusion of a full-time Chief of Party from mid-June 1986 to the end of the contract.

- (a) Research Station Management Specialist (30 PM). Dr. Rene Q. Lacsina arrived in Nepal in mid-February 1986. Dr. Lacsina represents VSU (sub-contractor) on the project through the contractor Winrock International.
- (b) Socio-Economist (36 PM). Dr. Daniel Galt is expected to arrive in Nepal as a long-term resident in July 1986. Dr. Galt served as a short-term consultant from February 2 to 20, 1986.
- (c) Farming Systems Research Agronomist (36 PM). Dr. Richard C. Hawkins arrived in Nepal in mid-February 1986.
- (d) Agro-Forestry Research Specialist (36 PM). The Agro-Forester is expected to arrive in early August 1986.
- (e) Livestock Research Specialist (36 PM). The Livestock Specialist is expected to arrive on or about October 1, 1986. Original plans were for the Livestock Specialist to arrive at the beginning of the 3rd year. This schedule will be brought forward by one year if possible.
- (f) Seed Production Specialist and Deputy Team Leader (30 PM). Mr. S. S. Bal was Project Supervisor of the SPIS Project and was already in Nepal when the ARP Project started on September 30, 1985.
- (g) Production Agronomist (32 PM). The person recruited for this position decided not to accept the long-term assignment and another person is being recruited. It is estimated that the Production Agronomist will be on the job by about July 1, 1986.

- (h) Minor Crops Agronomist (36PM) and Team Leader (27 PM) (for a Total of 63 PM). Dr. Carl N. Hittle is presently Minor Crops Agronomist and Team Leader but a separate team leader is being recruited. When the new team leader takes over, estimated to be June 25, 1986, Dr. Hittle will spend full time as Minor Crops Agronomist and the other person will spend full time as Chief of Party. The long-term technical assistance inputs to the minor crops program will be decided upon by Winrock/USAID/N and HMG during 1986.
- (i) Chief of Party, Dr. A. John De Boer, Deputy Director of the Technical Cooperation Division at Winrock International, has accepted this position subject to HMG and USAID/N approval. The Chief of Party will assist in the process of making the RCC and NARSC effective bodies, provide overall guidance and coordination to the WI technical assistance team, manage local support services, provide overall management of the training program, maintain links with the International Agricultural Research Centers and other international research and donor agencies, coordinate short-term consultants from WI and Virginia State University and local consultants, and backstop technical support to the Farming Systems Research and Development Division and the Socio-Economic and Extension Research Division.

Figure 1. Long-Term Technical Assistance Staff Schedule



PM = Person Months

---- Short Term Consultant Services

2. Specific Short-Term Consultants

(1) Senior Research Planning Specialist.

Dr. Wayne H. Freeman has been identified to provide as much as 6 or 7 months (over the course of the project) counsel on research planning. He arrived in Nepal on February 6, 1986 and will remain through March 1986.

(2) Administrative Management Specialists.

Through arrangements with the widely recognized Philippine accounting and management firm of Sycip, Gorres, Velayo and Co., consultants will be provided in personnel policy and financial management. After an initial consultancy in 1986, an additional follow-up consultancy will be scheduled in 1987.

(3) Production Agronomy - Dr. L. Dale Haws was in Nepal from November 7 to December 14, 1985.

(4) Assistance with Project Implementation - Dr. R. R. Harwood from November 18 to December 1, 1985.

(5) Assistance in setting up appropriate accounting and office management procedures - Mr. Edward Rosentel from December 1 to 5, 1985.

(6) Commodity Research Specialists (Tentative). Arrangements will be made with specific international agricultural research centers and related sources of expertise to provide consultants two or three times a year, in addition to their regular visits to Nepal. The target schedule is as follows:

CIMMYT - (maize and wheat) -- one scientist/year for each crop - 10 visits

ILCA - (livestock) -- two scientists/year - 10 visits

ICRISAT - (pulses) -- three scientists/year - 15 visits

IRRI - (rice) -- two scientists/year - 10 visits

(cropping systems) -- one scientist/year - 5 visits

ICRAF - (agroforestry) -- one scientist - 1 visit

Winrock - (livestock) -- one scientist/year - 5 visits

(7) Other Short-Term Specialists (Tentative).

The other specialists to be provided may include:

Hill Crops Research: Dr. K. O. Rachie, 1.0 month April 1986.

Maize Research: Dr. Earnest Sprague, 1 month (two trips)

Tree nurseries: Dr. Melvin Larson, 1 month

Forage seed production: Dr. B. R. Watkin, 1 month

Roots and tubers: Dr. John Bouwkamp, 1 month

Biological nitrogen fixation: Through association with the Bangkok regional office of NIFTAL

Extension materials: Dr. Winfrey Clark, VSU

Library science and information systems:
Mrs. Mary Bailey, VSU

Adjustment will be made within the plans for these specialists and those from international centers to provide sufficient support for major crops research and development work.

3. Locally Recruited Consultants - long-Term

Twenty-five person years of local services to assist with implementation of project activities will be obtained. It is intended to hire as many women professionals as possible for these posts to achieve a desired staff balance. Such needed supplemental skills may include, but are not limited to, the following fields of specialization:

- Farming systems - staff in economics, agronomy, livestock, agroforestry and research site coordination
- Seed production technologies
- Plant breeding/agronomy of minor crops
- Sociological research specialist
- Engineering

B. Peace Corps

Background

In Nepal the Peace Corps Volunteers have enjoyed an enviable reputation. In most cases PCV's have been assigned to projects and have been integrated into a system. The majority of the Volunteers have significantly assisted and strengthened the programs with which they have been associated.

In the Integrated Cereals Project the volunteers served at cropping systems sites and made valuable contributions as volunteers, and as scientists, in implementing the on-farm research activities of cropping systems and later in the production phase of the program. The PCV's services have been vital to the whole gamut of cropping systems technology development and the creation of methodologies of technology transfer. Of the 16 PCV's associated with ICP, three were women.

The Seed Production and Input Storage Project (SPISP) was also greatly benefited by PCV's. In general, most sites served by volunteers made rapid progress because of the combined efforts of JT's and Peace Corps Volunteers. The volunteers contributed an enthusiasm and willingness to work. They brought a broader perspective and served the role of a catalyst, trouble shooter, change agent and innovator. When combined with the practical knowledge and experience of the JT they contributed greatly to project implementation. Of the 14 PCV's associated with the SPIS project, two were women. All fourteen of the volunteers served at seed production sites.

For the ARP Project for the next 5 years approximately 118 person - years of Peace Corps Volunteer services are scheduled to support station and field activities in women's extension programs, socio-economic research and survey work, seed production activities, agricultural engineering, livestock/forage technology, agronomic research, agro-forestry and horticulture, and appropriate technology in other areas. Peace Corps support to the project will be subject to the availability of volunteers and Peace Corps - GON agreements on placement. The volunteers will be assigned only when GON counterparts are available.

For 1986, approximately 13 PCV's will be assigned to this project. The workplan for this initial group of volunteers to be assigned to ARPP is given below (Section 2). A critical component in making the volunteers as effective as possible in the project will be to provide them with as much orientation and training as possible prior to their assignment to field sites. The long-term plan for placing additional PCV's in the project follows in Section 3.

2. Tentative Assignments and Terms of Reference for March 1986 PCV's assigned to ARP Project

(a) Position

- (1) Agricultural Engineer: Year 1 - Assigned to Khumaltar Farm, Kathmandu, to assist Dr. Rene O. Lacsina in conducting an inventory of DOA Research Farms and Stations and in drawing up development plans for the hill research stations, that will receive construction and equipment inputs from the ARPP, and the new National Grain Legumes research program headquarters. During the 2nd half of the tour, the volunteer would spend most of his time at the above stations assisting with utility and equipment installation, start up and training of HMG staff in equipment operation, maintenance and repair.
- (2) Crops Technician: Provide technical assistance for the hill crops research program by helping set up finger millet coordinated research trials on 4 stations above and in setting up FFT's and PPVT's of promising varieties on farmers fields. In addition, the volunteer would assess promising varieties under a variety of environments, cropping patterns (particularly intercropped with maize) and cultural practices. In the 2nd year, the volunteer will assist with the finger millet component of the summer crops production program in Baglung, Parbat and Myagdi districts.
- (3) Livestock Technicians:
 - a. Volunteer with farming background - This volunteer will assist with setting up the livestock component of the Farming Systems Program in one or more of the FSR/D sites. This would include assistance with forage production, crop by-product preservation and utilization, calf rearing, introduction of a Jersey bull (if possible) into the breeding program and monitoring of production levels. This volunteer's wife, assigned to the Agricultural Extension component, would set up an extension program for hill livestock production focusing on women, who have a major role in livestock feeding, milking and care. She would set the stage for a production program in livestock for the surrounding areas and would help coordinate

inputs and technical assistance needed for such an effort. Khandbari is suggested as a potential FSR site.

b. Volunteer with B.A. - This volunteer will specialize in sheep/goat production in another of the FSR sites where these species are important. The volunteer will assist with fodder and forage tree establishment, improve animal health, design and help build better housing for semi-or full-confinement housing systems, and monitor the impact of these interventions. Alternative is to assign volunteer to Western Regional Agricultural Directorate, Pokhara.

(4) Socio-economists: These PCV's will be assigned on a full-time basis to the FSR/D sites. Duties would include data collection and analysis for site description, cropping pattern analysis, role of livestock, FTT's and support to the production programs as far as defining production blocks and gathering baseline data from the production blocks prior to initiation of the production programs.

(5) Agricultural Extension: All PCV's in this area will have a primary role in helping set up FTT's, seed selection and production, setting up the production programs and, where possible, assisting the women's extension program. We would like volunteers placed in Parbat, Baglung and Myagdi districts to start setting up the winter crops (1986/87) production program.

3. Placement Plan for Peace Corps Volunteers in ARPP, 1986-1990

a. Background: The ARP Project Paper and workplan calls for approximately 59 volunteers to work on various aspects of the project for a total of 118 person-years. Since most of the current group of 7 volunteers that were initially assigned to SPIS and ICP will have worked under the ARP Project for only 6 months or so before returning to the USA, we are basing our projections on 118 person-years less four person-years from current group of volunteers, or 114 person years remaining or 57 PCV's available to ARPP. At this stage, we will have 13 volunteers assigned to work with us starting in March 1986. The plan presented below thus assumes a total of 44 volunteers remaining to be assigned to the project over years 1987-1989 in a total of three incoming groups.

- b. Proposed Staffing Schedule: Using the categories outlined by Larry Paulson in his February 24 memo, the ARP Project would be best served with the following allocations by category:

<u>Category</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>Year Totals</u>
Crop and livestock researchers	2	2	2	6
Socio-economists	3	3	3	9
Outreach technicians/Seed Program	4	4	4	12
Extensionists	3	3	3	9
Women's Extensionists	2	3	3	8
	<hr/>	<hr/>	<hr/>	<hr/>
Total	14	15	15	44

- c. Proposed Specialities, Areas of Support to ARPP and Location of volunteers:

(A) 1987 Volunteers

1. Researchers: One position in wheat and one position in barley/buckwheat would provide additional research support at the hill research stations that ARPP will strengthen, namely Kavre, Doti, Marpha and Dhunche. The two stations which are selected to work on wheat and barley/buckwheat should be the logical locations at which to post the volunteers.
2. Socio-economics: Similar position descriptions and postings as for the 1986 PCV's in this field. The 3 volunteers would be posted in additional FSR sites developed in 1987.
3. Outreach technicians: These PCV's would be stationed in districts with small seed houses and would be involved in setting up FFT's, seed production, processing and storage; PPVT's, and component technology trials. They would be heavily involved in seed activities but would also backstop trials and outreach activities of HMG/N farms and stations.

4. Extensionists: Support production block programs started with assistance of 1986 PCV's and expand the program to other blocks in the target districts. These extensionists would also work on extending specific practices found to work on the FSR sites such as seed storage, enhancing biological-based soil fertility, etc. Farmer training would also be part of these volunteers role.
5. Women's Extensionists: Serve a parallel role as (4) above but focusing on training Nepali women extension workers to assume the roles called for in (4) above as well as focusing more on women's role in household and agricultural production and how these roles could be used to strengthen adoption of the practices in the production programs.

(B) 1988 Volunteers

1. Researchers: Priorities would be in maize and livestock production/forage production. The maize specialist should be assigned to one of the hill stations working on maize while the livestock specialist should be assigned to one of the higher altitude livestock stations to work on technologies appropriate for the high hills.
2. Socio-economists: Similar to A.2 above. The inclusion of one or two PCV's with skills in Rural Sociology or Anthropology would be useful at this stage to help assess non-economic factors that are impeding progress in introducing new packages of seeds and supporting inputs to hill farms.
3. Outreach Technicians: Similar to A.3 above. The group should include people with skills in agro-forestry, agricultural engineering to assist with seed house maintenance and, if possible, a person with interest or skills in animal draft power and animal drawn tools.
- 4&5. Similar to A.4 and A.5 above. More specific roles will be defined in 1987 when we more clearly see the progress and problems in the production program.

(C) 1989 Volunteers

1. Researchers: Anticipated needs include a specialist in finger millet to replace the 1986 volunteer and a livestock production specialist (preferably sheep and goats) to continue support to these research areas. The finger millet specialist should be placed at the hill research station (probably Kavre or Dhunche) where this research is being carried out while the livestock researcher could be placed at the Central Region Directorate in Pokhara or at the Bhandipur goat farm.
 2. Socio-economics: Roles will be similar to A.2. These PCV's will help expand the program to all FSR sites where Peace Corps Socio-Economics staff have not yet been resident.
 3. Outreach Technicians: Same as A. 3 and B. 3 with specific technical areas needed by these technicians to be identified by ARPF staff in late 1988.
- 4&5. Same as E.4 and B.5.

C. Procurement Plan

Due to the phased funding for the contract, procurement activities must also be phased. Winrock will serve as procurement agent for HMG/N for equipment and commodities to support programs identified in the Project Paper. This Work Plan will not identify commodities to be procured but will set out the procedures to be used in procurement planning and preparation of specific lists of equipment and materials to be procured.

The total value of equipment and materials to be procured by Winrock including transportation and procurement service fee, is \$635,000. Procurement service fee will not be charged for locally procured furniture, equipment and materials. The breakdown by year for funding of procurement for various programs is as follows (\$000):

<u>Program/Commodity</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>Total</u>
R.C.C/Furniture & Office equipment	-	10	-	-	10
NARSC/Vehicle Furniture & Office Equipment	10	10	10	10	40

<u>Program/Commodity</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>Total</u>
DOA & DOLD/A /Vehicles, Furniture and Office Equipment	10	40	-	-	50
NARSC/Library Furniture and Equipment	-	-	40	70	110
SERD Vehicle, Furniture and Office Equipment	5	10	15	10	40
FSR/DD Vehicle, Furniture & Office Equipment	5	15	15	30	65
GLDP Furniture & Equipment, Including Seed Equipment	-	20	20	20	60
NARSC & Agr. Botany Div/Equip- ment and Materials for Hill Farms	-	10	10	30	50
DOLD/AH/Equipment & Materials for Hill Research Farms	-	10	-	20	30
NARSC/Equipment for Commodity Programs and Division	-	-	20	20	40
DOA/Equipment & Materials for Production Program	10	5	10	10	35
DOLD/AH/Equipment & Materials for Production Program	-	-	20	5	25
STIP/Equipment & Materials Including Supplies for Hill Seed Program	-	-	40	-	40
STIP/Equipment for Farms & Stations for Production of Breeder & Foundation Seed	-	-	40	-	40
Total	40	130	240	225	635

Procedures for Determining Procurement Needs

Due to the number of programs, divisions, and units for which procurement is to be done, the following steps will be used in arriving at an approved list of materials to be procured.

1. At the beginning of each Project Fiscal Year (October 1), the Winrock Chief of Party will advise the Project Director/Project Coordinator of the availability of funding for procurement for the various HMG/N offices.
2. The Project Director will then request each of the concerned offices to send to Winrock and the Project Coordinator a list of procurement requirements ranked by priority.
3. The concerned offices will prepare their list of requirements and forward to Winrock. As and when possible Winrock specialists and consultants should assist with preparation of these lists.
4. Winrock, in consultation with the Project Coordinator, will refine cost estimates for each item and determine how much of the requirements of each office can be procured. The procurement plans for each unit will be determined on the basis of available funding and these plans submitted to the Project Director for approval.
5. Following approval by the Project Director, Winrock will request USAID/N approval of the procurement, including requests for any necessary waivers. Winrock will then advise each HMG/N office of the approved procurement plan for that office.
6. Winrock will then initiate procurement actions by (a) requesting the Winrock home office to order imported equipment and (b) procuring locally available items following approved procedures for competitive procurement.
7. Upon arrival of equipment and materials Winrock will ensure that these goods are delivered directly to the concerned office and entered on the HMG/N inventory and will furnish a list to the concerned departments. When goods are turned over Winrock will get a copy of the store entry (estore dakhila) form.
8. Winrock's Procurement Specialist will on a routine basis - once or twice a year - prepare End Use Verification Forms for USAID for equipment and materials provided by the project.

The above procedures are to be used for procurement by Winrock for HMG/N programs. Equipment, materials and furniture procured by

Winrock for support of Winrock staff and operations will be separately accounted for and kept on up-to-date inventory. At the end of the project all equipment and materials remaining on this inventory will be disposed of with approval of the Project Director or turned over to the Project Director for use by HMG/N offices supported by this project.

The Action Plan Supporting procurement is shown below:

<u>Action</u>	<u>Responsible Party</u>	<u>Target Date</u>
Advise Project Director of Funding Available for 1986 and 1987 Procurement	Winrock	7/86
Prepare Procurement Requirements for 1986 and 1987	Project Director; concerned offices	9/86
Prepare Final Procurement Plan for 1986 and 1987	Winrock; Project Coordinator; Project Director	10/86
Initiate Procurement for 1986 and 1987	Winrock	10/86
Review Procurement Plan and Allocation of Funding	Project Director/ Winrock	12/87
Advise Project Director of Funding Available for 1988 Procurement	Winrock	1/88

D. Construction Plan

USAID/N will manage the project funded construction program.

1. Construction for HMG/N Farms and Stations

Construction design and supervision will be done by an A&E consultant (M. L. Kayastha) under a contract with USAID/N. Construction will be managed in three phases with the following time table.

- a. The Central Agricultural Research Building at Khumaltar will provide space for NARSC, the Farming Systems Research and Development Division, the Socio-Economic Research Division, and the Khumaltar Central Library. (estimated cost \$550,000).

<u>Action</u>	<u>Responsible Party</u>	<u>Target Date</u>
Complete Design	AID, A&E	1/86
Contract Construction	AID	6/86
Complete Construction	AID	10/87

- b. The Rampur Grain Legume Station construction will include basic infrastructure to enable the station to serve as a sub-center for the Grain Legume Program. Facilities constructed will fit into an over-all plan for development of the station to serve as the central station for the Grain Legume Program. Construction is expected to include two duplex quarters, an office/lab. and a warehouse/field lab. (estimated cost \$270,000).

<u>Action</u>	<u>Responsible Party</u>	<u>Target Date</u>
Contract A&E	AID	3/86
Survey and Master Plan	A&E	5/86
Determine Priority Construction Requirements	NARSC/WI	6/86
Complete Design	A&E	10/86
Contract Construction	AID	1/87
Complete Construction	AID/Contractor	6/88

- c. The Hill Research Station construction will improve facilities at as yet to be determined hill farms and stations. (Khumaltar irrigation work will be completed by 6/86 as a separate activity). Construction may include staff housing, office/labs, warehouses, irrigation, etc. (estimated cost \$270,000).

<u>Action</u>	<u>Responsible Party</u>	<u>Target Date</u>
Identify Priority Construction Needs	NARSC/WI	2/87
Contract A&E	AID	4/87

Complete Design	A&E	10/87
Contract Construction	AID	2/88
Complete Construction	AID/Contractor	6/89

2. Small Seed Plants

Pending evaluation of operations of small seed plants consideration will be given to constructing up to five additional small seed plants. If decision on construction is positive, Winrock will collaborate with STIP on completing baseline surveys for new sites. Winrock will also develop construction designs-using appropriate, low-cost local construction - and provide these to USAID/N for contracting seed plant construction work.

<u>Action</u>	<u>Reponsible Party</u>	<u>Target Date</u>
Exploratory Survey of Proposed Districts	STIP/AIC/WI	6/87
Baseline Surveys Completed and Sites Approved	STIP/AIC/WI	12/87
Complete Design	WI	12/87
Contract Construction	AID	6/88
Complete Construction	AID/Contractor	6/89

E. Operational Support Funding

1. Winrock Support Funding

In order to facilitate rapid start-up of project activities and to provide necessary flexibility for project management and operations, a modest amount of funding will be put into the contract for operational support for HMG/N. The activities involved are to be strictly limited due to budgetary limitations, the need to institutionalize programs in the HMG/N system and the need to limit Winrock administrative costs. The specific activities being supported are listed below:

1. Logistic support to the HMG/N ARP Project Office.
2. Publication during the first two years of Research Reports from Workshops for Maize, Wheat, Rice, Livestock, and Horticulture/Agro-Forestry.

3. Grants for Publication of the Nepalese Journal of Agriculture and/or Journal of Animal Science.
 4. Small research grants to encourage excellence in research. A Research Award Committee will manage this program. The committee will include two representatives of Winrock and one each from the DOLD/AH, NARSC, the FSR/D Division, the Agronomy Division, and the Socio-Economic and Extension Research Division. The committee will identify topics for research grants and Winrock will advertise to solicit research proposals. Award of grants will be determined by the committee.
 5. Field assistants for FSR/D sites for 18 months (18 field assistants) and women extension agents for production program districts (estimated 12 JT's and 3 extension specialists for 24 months).
2. HMG/N Budget

HMG/N funds most project supported programs as a part of its regular budget. This operating support is HMG/N's major financial contribution to the project.

In addition the USAID/N project grant will partially fund operating budget costs for some newly established units or units assuming expanded or revised activities. USAID/N funding is proposed at the following proportions of total budget for the concerned units: NFY 2042/43 - 50% ; NFY 2043/44 - 50% ; NFY 2044/45 - 40% ; NFY 2045/46 - 30% ; and NFY 2046/47 - 20%.

The HMG/N programs receiving this project grant funding include:

RCC
 NARSC
 FSR/DD
 SERD
 DOLD/AH - Fodder & Forage Program Khumaltar
 STIP - (for hill seed self-sufficiency program only)
 Soils Division (Bio-Fertilizer Program only)
 Production Program in Myagdi, Parbat, Baglung and another district to be identified later. - ADO, LSDO
 Hill Crops Improvement Program (NFY 2043/44 only)

The specific proportion of funding, programs to be supported and level of funding is dependent on availability of funds to USAID and agreement between USAID and the Ministry of Finance.

F. Linkages to International Centers/Programs

The SPIS Project and the ICP had strong linkages with many of the IARC's (International Agricultural Research Centers). The ARP Project will help the DOA and the DOLD/AH to maintain these close linkages, especially with the International Rice Research Institute (IRRI), International Maize and Wheat Improvement Center (CIMMYT), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Center for Agricultural Research in the Dry Areas (ICARDA), International Institute of Tropical Agriculture (IITA), International Board for Plant Genetic Resources (IBPGR) and International livestock Center for Africa (ILCA).

The Department of Agriculture (DOA) has, within the past year, developed Memorandums of Understanding with CIMMYT and IRRI which will result in increased activities of these two centers in Nepal. CIMMYT has placed a regional pathologist/geneticist in Nepal who will work closely with the ARP Project.

G. Linkages to Other Projects/Programs in Nepal

The Cropping Systems Program of the Integrated Cereals Project (ICP) and the SPIS Project established linkages with many other projects and organizations. The ARP Project, with emphasis on farming systems and commodity research, intensive production programs and hill seed production, will continue to strengthen many of the associations and will establish additional linkages.

It is anticipated that the project will work closely with the following groups:

1. Lumle Agricultural Center (LAC): - Detailed discussions among personnel from DOA, LAC, ARPP and USAID have paved the way for strong cooperative efforts. LAC will join the network of HMG/N research stations currently being planned by NARSC and to be implemented by HMG/N. LAC will cooperate with FSR sites to be set up under the FSR/D Division. LAC will provide full support to ARPP's production program in the form of seed, extension, research and planning plus training in Parbat and Myagdi (and perhaps Baglung) Districts. LAC's seed program will be integrated with that of STIP. LAC will provide information and collaboration to ARPP's program from its experience in hill crop technologies, FSR methodology, extension, training and seed production.
2. Pakhribas Agricultural Center (PAC): - For some time now PAC has had a substantial on-farm crop trials program throughout the Koshi Hills. The initiative for this program came from

the Koshi Hill Area Rural Development Program (KHARDEP), which had identified a need for the verification of PAC's crop recommendations throughout the Koshi Hills. PAC's recommendations would then form the research base for future agricultural programs within the Koshi Hills. The original design of the district outreach program, in the four Koshi Hill districts (Bhojpur, Dhankuta, Terhathum and Sankhuwasabha), drew heavily on the experience and methodologies of the ICP Cropping Systems Program. PAC is now joining forces with the ARP Project and other projects/programs that are involved in cropping systems/farming systems activities.

3. Franco-Nepalese Cooperation Program (FNCP): - The FNCP had activities in the Dhading District and was giving emphasis to an "Agrarian Systems" approach, which has many similarities to Farming Systems. FNCP, for the past two years, has been closely associated with the Cropping Systems Program of the ICP and has had a Socio-Economist posted at Pumdi Bhumdi assisting with monitoring and with shifting from a Cropping Systems to a Farming Systems approach. FNCP has submitted a proposal for a SFDP (Small Farmers Development Program) and a Farming Systems Program in the Gulmi and Arghakhanchi Districts. The FNCP team intends to work in close collaboration with the ARP Project and the newly created Divisions for Farming Systems Research and Development and Socio-Economic and Extension Research. It is anticipated that a Farming Systems site will be established in the project area.
4. Institute of Agriculture and Animal Sciences (IAAS): - A goal of ARPP is to draw on some of the strengths of IAAS in Rampur for assistance with specific problem solving areas, potential participation in the FSR program and cooperation with the RCC and perhaps with the small grants program for research projects.
5. International Development Research Center, Canada (IDRC): - The ARP Project and Winrock International are working closely with IDRC on the Nepal Grain Legume Project and, in the near future, will be cooperating with IDRC on the Hill Crops Improvement Program. The Winrock/ARPP office provides a limited amount of support to these efforts and assists IDRC funding for Nepali researchers.
6. Agricultural Extension Project, AEP (formerly Agr. Ext. and Research Project, AERP) and Hill Food Production Project, (HFPP): - Linkages were forged between ICP and these two projects. These links will continue and ARPP will assist, to the extent possible, with preparation of a new World Bank proposal for strengthening agricultural research in Nepal.

7. Rural Area Development (RAD), Rapti Zone: - ICP provided considerable assistance to the Rapti Zone Project. Personnel who had been assigned to ICP were subsequently recruited by PADCO to work in the Rapti Zone. ARPP will continue to strengthen the linkages with the USAID supported activities in the Rapti Zone.

X. PROJECT MONITORING AND EVALUATION

Monitoring and evaluation of project activities and HMG/N programs will be an important component of the ARP Project. HMG/N project implementors, assisted by Winrock staff, will continuously monitor, evaluate and modify HMG/N research, production and seed programs. Special emphasis will be given to monitoring research activities and evaluating potential for moving into production programs.

The Project Coordinator will develop a system for monitoring project progress and will use this to track project administration and accomplishment. A formal forum for this monitoring will be the annual HMG/N Project Progress Report and the Annual Internal Project Review in September of each year.

Three additional monitoring and evaluation tools are described below:

A. Project Impact Monitoring Plan

Project impact is difficult to measure in the short-term, but HMG and donors rightfully recognize that projects must demonstrate impact if they are to be supported. Winrock will monitor project impact according to the following monitoring plan and will report on indicators in Semi Annual Progress Reports. The Project surveys described in the next section will support this impact monitoring plan. The monitoring plan and targets for accomplishment are as follows:

1. Agricultural Research:

Monitoring the impact of research activities is difficult due to the long lead time frequently involved in the development of new technology. However, much of the emphasis of the project research component is on improving the management and productivity of the research system and indicators of quantity and quality of research activities will be used to monitor research improvement. The Agricultural Research Planning Specialist has developed a plan for measurement of project impact during his annual visits to Nepal. Baseline data is not now available, but will be developed by the Chief-of-Party based on Research Reviews to be completed by October, 1986. The Specialist will quantify GON research activities, develop quantitative indicators of research activity relevance and quality and establish targets for improvement.

The project seeks to develop adoptable technologies which will include new varieties (especially for the Hills) of the major cereals, grain legumes, oilseeds and the minor crops which ARPP is specifically supporting. In addition to varieties, component technologies in the package, and cropping patterns that show productivity increases and are economical, are to be considered in measuring research productivity.

Initially, the baseline information will have to deal with numbers of trials, as these numbers are now being created to satisfy targets of the Planning Commission. The research review to be prepared will determine the relevance of the existing numbers when compared to research objectives, not targets.

As a base for monitoring and evaluation of agricultural research the following activities will provide opportunity for developing a sound agricultural research perspective from which the RCC can begin to operate effectively at the Ministry level; NARSC can assume a significant implementing role; and the various programs and divisions can have research that addresses national objectives both short-term and long-term.

(A) - Research review - Each commodity program, division, station or farm where independent research was or is conducted will provide a comprehensive review of research over the past years since agricultural research was initiated in Nepal. There was a previous review by principal crop commodity coordinators but the total review of agricultural research in the Ministry has never been attempted. This review would highlight accomplishments and identify those which have relevance to farmer situations.

(B) - An annual report will also be prepared for the last full financial year (or relevant crop year). This report will provide cumulative data (not just the current year) on relevant selections, varieties, cropping patterns or practices which have merit for consideration as an addition to or modification of a package of practices (including variety replacement or addition). From these reports a draft national agricultural research plan can be developed. Subsequent reports will provide basis for measuring annual indicators of impact.

(C) - The RCC and NARSC would then convene a workshop to review the status of agricultural research and develop a national plan for agricultural research in which

objectives would be established; resources needed would be identified; an appraisal made of budgets available; and guidelines provided which would enable research units (programs, divisions, stations or farms) to design line projects consistent with national (and farmer) objectives.

In addition to trials of particular relevance in varietal improvement is the number of new crosses, the number of F2 populations and the magnitude of each and the numbers of new acquisitions for trial. The latter are particularly relevant in programs where bonafide breeding is not possible because of limitations in staff or for other reasons. Even breeding lines may not be a fair criterion if comparisons are attempted between crops. The baseline must be carefully established.

Adoption is the ultimate measure of the value of technology to farmers. Because of a long time of 5 to 8 years from the time research begins until they reach farmers, measures beyond research activities will be instituted so that these types of feedback can have relevance in modifying or redirecting research. Measures of adoption used now will measure adoption of technologies developed in previous projects and over previous Plan periods.

Thirty two varieties of the cereal crops and other crops were released during the ICP project period. Evidence exists that these varieties have not spread extensively and areas covered by all improved varieties of maize and rice may be no more than 30% of the areas planted to these crops. Research will be designed to provide information as to constraints to spread whatever the reasons.

Minikits of these and other varieties have been distributed to many farmers over the past eight years. An earlier APROSC study evaluated this program but varietal spread was not accurately determined. Further surveys will be conducted to more accurately assess spread from these primary loci of potential spread.

Impact production blocks have been used for several years. What are the practices and productivity levels of these farmers who were in the program and then were discouraged by subsequent depressed prices of wheat and switched to other crop patterns or changes in levels of impact? Are the features of impact Block Production that produced the original impact sustained or not and what are the effects? Baseline studies are available with which future studies can be compared so that not only adoption can be measured but also the value of the extension methodology used. These three farmer studies will provide

information on adoption and provide valuable feedback to research and policy makers as well.

These various measures are summarized in the following table 9.

Table 9. Various Measures of Agricultural Research and its Impact

<u>Criteria</u>	Unit	1986	1987	1988	1989	1990
1. Working Group Meetings	No.	4	5	6	7	7
2. Annual Reports of Programs Submitted in time	No.	7	4	5	6	7
3. Workshop papers						
(a) Total	No.	60	60	65	70	80
(b) Technical Papers (not summaries)	No.	50	50	55	60	65
(c) Papers rated Good or Better	No.	20	25	30	35	40
(d) Papers submitted for technical journals	No.	10	20	30	40	40
4. New Varieties Released	No.	2	2	2	2	2
5. New Var. for Hills (all crops)	No.	-	-	-	1	1

2. Production Program:

The impact of production programs will be measured by numbers of hectares under the production program and by the percentage of production increase resulting from program participation. The target will be for at least a ten percent production increase for participating farmers and for participation under the programs to increase from 60 ha. in year one to 270 ha. in year two, 1,430 ha. in year three, 5,750 ha. in year four, and 14,000 ha. in year five. These targets are less than total program area

coverage targets as production increases may not be achieved on all land under the program. The target for the fifth year represents approximately 40 percent of cropland in the target districts.

Annual reports on the project production program will include data on farmer participation, hectares under the program and yield data as obtained from crop cuttings. In addition, as a further check on project impact, Winrock will arrange for baseline surveys of production program districts and farming systems sites during the first year of the project. The surveys will estimate current yields of major crops, areas under various cropping patterns, and use of improved varieties and technologies. Follow-up surveys in 1989 and 1990 will measure project impact. The production program targets are shown below:

<u>Target</u>	<u>Unit</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Impact Production Blocks	No.	5	15	30	60	140
Production Increase for Farmer Participants	%	10	10	10	10	10
Area Under Production Programs	ha	60	270	1430	5750	14000
Farmers Participating in Program	No.	120	540	2860	11500	28000

3. Seed Program:

Production and sales of improved seed at small seed plants and metal bin sites will be an indicator of impact of the seed program. The satellite seed program will be implemented by DOA concentrating in a few hill districts to begin with. The change in administration justifies relatively modest targets of seed production. Seed production is estimated to be 400 MT. the first year of the project, increasing to 500 MT. the second year, 600 MT. the third year, 700 MT. the fourth and 800 MT. in the fifth year. These impact targets seem realistic though below the GON targets included in the seed production implementation plan of the PP and reflect more conservative estimates on rate of area expansion and reversion of seed due to weather damage. Data will be available in STIP reports on the seed production program.

A second indicator of impact of the hill seed program will be the percentage of farmers using improved varieties of rice, wheat and maize. Baseline data is contained in the baseline surveys of SPIS project sites. In year three of the project Winrock will arrange follow-up surveys of small seed plant sites. The surveys will estimate area under different varieties and farmers' current sources of seed. The project target will be an increase of thirty percent for area under improved varieties of rice and maize and ten percent for area under improved varieties of wheat.

<u>Target</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Metal Bins Sold (and Farmer Seed Producers Trained)	200	400	500	500	500
Mini Seed Plant Seed Production (MT)	300	300	300	300	300
Improved Seed Production in Hills (MT)	300	400	500	600	700
Area Under Improved Varieties at Mini-Seed Plant Sites:					
Rice	X*	-	X+30%	-	-
Maize	Y*	-	Y+30%	-	-
Wheat	Z*	-	Z+10%	-	-

(*From SPIS baseline Surveys)

B. Project Survey Schedule/Plan

Winrock will assist HMG/N with strengthening its capability to carry out needed survey work and will conduct (or contract) additional surveys necessary for implementation and monitoring of project activities. Major responsibility for planning, implementation and reporting on survey work will be with the Winrock expatriate and Nepali socio-economic specialists.

1. Production Program Baseline and Follow-up Surveys

Baseline and follow-up surveys in production program districts will be essential to measure progress and

impact of extension efforts. Winrock staff and staff from ADO offices will conduct baseline surveys in early 1986 in 20 target areas sites for PPVT's in Baglung, Parbat and Myagdi districts. Similar surveys in 1987 in an additional 30 target areas sites in these districts will enable the project to estimate current production status throughout each district. Similar methodology will be used for a fourth production program district to be added in 1987.

The baseline surveys will estimate current yields of major crops, area under various cropping patterns, extent of use of improved varieties and practices, extent of forage and fodder plantings, and current livestock production and nutritional status of livestock. Baseline surveys will provide vital information for planning extension programs and provide an indication of current status of use of improved practices.

Follow-up surveys in 1989 and 1990 will measure impact of extension/production programs.

2. Mini-Seed Plant Follow-up Surveys

The SPIS Project completed baseline surveys of each mini-seed plant site. These surveys estimated current yields, use of improved varieties, use of improved seed, and area under various cropping patterns. In 1988 Winrock staff will conduct follow-up surveys measuring the same variables at each of the mini-seed plant sites. The results of this follow-up survey will be an indication of impact of the mini-seed plants.

Winrock will also conduct baseline surveys of sites for establishment of any new seed programs in the hills.

3. Farming Systems Research Sites

Surveys will be an important aspect of work at farming systems research sites. Main responsibility for this work will be with the FSR/DD, but Winrock will provide major support, especially during the initial years of establishment of the FSR/DD.

For new FSR sites, extensive baseline data surveys will detail current practices and production at each site. This will serve as a baseline for measuring changes in farming practices and production and help in planning research studies.

During the course of FSR work at all sites, surveys and monitoring will be a principal activity in helping to identify and test new technologies.

In 1990 it may be appropriate to conduct extensive follow-up surveys to identify changes in farmer practices at the sites. Alternatively, if appropriate technology is identified earlier and pilot production programs launched, surveys will be used to measure impact of these programs.

4. Socio-Economic and Extension Research Division

The SERD will carry responsibility for surveys and studies on the impact of various extension methods and approaches. Winrock will provide major assistance for this, especially during the early years of formation of the division.

Two specific activities of the SERD will support other elements of the ARP Project. These are studies of the impact of metal seed bins and impact of various extension methodologies. The study of the metal bin program and its impact on farmers' use of improved seed will be done in 1988/89. Studies on efficiency of various extension methods (including mini-kits, PPVT's, result demonstrations, farmer field days, etc.) will begin in 1987 and continue throughout the life of the project. This work deserves high priority as it holds promise to assist HMG/N make decisions on reducing costs and increasing impact of extension programs.

<u>Activity</u>	<u>Responsible Party</u>	<u>Target Date</u>
Complete Initial Baseline Survey for Three Production Districts	Winrock; ADO's	4/86
Initial Impact Monitoring Report	Winrock	7/86
First Project Implementation Monitoring Report	Project Coordinator	9/86
Complete Final Baseline Survey Work of Three Production Program Districts	Winrock; ADO's	5/87
Complete Baseline Surveys for Initial & New FSR Sites	FSR/DD; Winrock	5/87

Begin Work on Effectiveness of Extension Methods	SERD; Winrock	12/86
Complete Follow-up Surveys at Mini Seed Plant Sites	Winrock	6/88
Initial Follow-up Surveys of Production Program Districts	Winrock	2/89

C. External Project Evaluation

Two external evaluations are scheduled for the project in March 1988 and January 1990. Plans for the evaluation are included in the Project Paper. USAID/N will contract external consultants to conduct the evaluations.

In addition to issues listed in the Project Paper, the evaluation teams should also address the following questions:

- How effective are current extension methods for increasing production in the hills and how effective has the project been in improving extension methods?
- How effective is the metal bin program for local production of seed in the hills?
- What is the potential for expanding livestock research and extension activities, especially with regard to breed improvement?