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R E P O R T

ANNUAL REPORT AND WORKPLAN

REPORT NO. 17

New Delhi, India

April 16, 1990

Agricultural Management Support Services Contract

Contract No. 386-00000-C-00-5039-00

**WINROCK INTERNATIONAL
1611 North Kent St.
Arlington, VA 22209**

Annual Report and Workplan
Report No. 17

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(Contract No. 386-0000-C-00-5039-00)
Winrock International

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Introduction:

This is the Fourth Annual Report and Work Plan of the Management Support Services (MSS) contract. It comes at the end of four and one-half years following the signing of the contract between Winrock International and USAID. In addition to describing the current status of the contract it will give data on activities of the quarter ending March 31, 1990. In this regard it is the 17th quarterly report. Finally, it will deal with plans for the remaining half year of the contract; the period ending September 30, 1990.

I. The MSS contract.

As the contract moves into its final 6 months, it is appropriate to look at the work remaining to be done and to do so in the light of prior experience in lead time necessary for various activities. It behooves all concerned to look closely at schedules outlined previously and to plan on undertaking in this final period only such work as can be done creditably within the time available.

In subsequent sections we will report on activities that are currently in progress and discuss how they will be dealt with in light of previously posted time schedules. For general guidance we reproduce in Table 1 a schedule of activities that was included as Annex 2 in Quarterly Report No.15, covering the period ending September 30, 1989. While this schedule is not a hard and fast one, it does offer substantial guidance. If there is significant departure from it, it must be recognized that there will be more loose ends to deal with when September 30, 1990 arrives.

Both AGRE and Winrock are aware and concerned that there will be a number of purchasing "Task Orders" still pending on that date and we will discuss this aspect in a later section. But in addition to considering how delayed activities will be dealt with, we must avoid adding to the list of things that may still be pending. We should only undertake those new activities which can reasonably be expected to be completed before September 30, 1990. In the past the WI/Delhi office has had a policy of supporting each activity aggressively until the last possible moment before cancelling an opportunity. Thus, there have been some cases of last minute departures of participants or consultants with attendant problems

Table 1. Schedules and dates for MSS activities leading to an orderly termination of the contract on September 30, 1990. (Annex 2 from the 15th Quarterly Report, September 30, 1989).

Equipment

October	1, 1989	:	Deadline for final equipment lists for sea shipments.
October	1, 1989	:	Deadline for final equipment lists for air shipments.
December	1, 1989	:	Final specs to Sheladia for sea shipments.
February	1, 1990	:	Final specs to Sheladia for air shipments.
April	1, 1990	:	Final shipment by sea.
July	1, 1990	:	Final shipment by air.
August	1, 1990	:	Final date for delivery of equipment to end user.
September	1, 1990	:	Final installation of equipment.

Other Activities

August	15, 1990	:	Departure deadline for training and study tours.
August	15, 1990	:	Departure from India of final consultants.
August	30, 1990	:	Close books for all except re-fitting and close-out costs.
September	10, 1990	:	Transfer of MSS office equipment and furnishings to USAID.
September	30, 1990	:	Final substantive report to USAID.
September	30, 1990	:	Final accounting of local costs forwarded to WI/Washington.
After Sept.	30, 1990	:	Final financial accounting.

for one or more of the parties. It was our view that this was the best way to accomplish ARP objectives and make up for slow starts during initial years. It will not be an appropriate policy in the final months of the MSS, however, and could, in fact be detrimental. Instead we should follow a schedule which will allow an orderly closing down of the offices, transfer of property, separation of staff and so on.

Several things are clear from Table 1: (a) Task Orders for procurement made from the present onwards will only add to the overhang of undelivered equipment at project end, (b) all training and study tours should be initiated by or before August 15 and (c) all consultants should finish their work and depart for the U.S. by or before August 15. This is not an arbitrary date. It is expected that the Winrock offices will be in process of re-conversion and return to the owner starting September 10. This allows only about 3 weeks for report writing, record storing and similar matters. It allows only about 2 weeks to re-fit the offices and return the premises to the owners.

Financial

Table 2 gives results for the rupee costs of the MSS contract operations in India. The dollar costs which are accounted for by the Washington office are regularly reported through USAID Washington-based channels.

Table 2. USAID inputs into the MSS core contract through March, 1990 and projections for the period April through September, 1990. (as \$'000)

CORE COSTS	LOP	Cum Exp. ^{1/} thru Mar.'90	Progress Jan. thru Mar.'90	Plans Apr. thru Sept.'90
A.1 Salaries		108	14	34
A.4 Travel Transportation and Per Diem		13	-	13
A.5 Allowances		116	1	5
A.6 Other direct costs		220	8	30
A.7 Commodities		50	-	-
TOTAL (\$)	---	507	23	82
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^{1/} Consists of actual expenditure of WI/Delhi office only.

II. Agricultural Research Project (ARP)

A. Procurement, training and consultancies.

Status of Procurement.

The importance of obtaining equipment for all of the subprojects but particularly for the SPU and PHT has been emphasized in all reports prepared over the past year. One year ago when authority to procure equipment with project funds had just been granted it was expected that the equipment flow would start by October and that deliveries would scale up rapidly thereafter. Expectations were that by mid-1990 most, if not all, of the equipment would have been delivered. With each passing quarter it has become increasingly evident that our first estimates were far too optimistic. When the 16th Report was prepared at the end of December 31, 1989 quarter most of the real optimism had been replaced by a feeling that it was almost impossible to instill a sense of urgency into a procurement chain beset by as many variables as this one. At any rate it was noted that on December 31 there were goods amounting to a value of \$268,800 lying in the forwarders warehouse in Alexandria, Virginia. In spite of approval to air ship all these items, the first equipment arrived in India on February 2 and was placed in the hands of the end user on February 28, 1990. This was a full year from the time authority to procure was granted.

In January, based on a decision made at our headquarters, Winrock's own procurement group entered into the scene to try to coordinate and speed up actions of the various groups within the U.S. It was agreed that hence forward:

- 1) monitoring the procurement subcontractor's (Sheladia's) performance and ensuring that accurate and timely status reports are generated on a regular basis;
- 2) functioning as the principal communication link between Winrock and the subcontractor;
- 3) working with the subcontractor and Winrock/DC to resolve problems resulting from procedural issues; and
- 4) approving and/or obtaining necessary approvals for all supplier contracts including terms of payment and CLOCs.

The U.S. coordinator's office (WI/DC) would be responsible for the following:

- 1) developing equipment specifications;
- 2) approving any and all changes resulting from the market survey and the competitive bidding process;

- 3) processing through WI/HQ procurement task orders and instructions for procurement action to be taken by the procurement subcontractor;
- 4) communicating with the WI/Delhi to resolve issues pertaining to NMICs, waivers and RCO approvals. Copy the subcontractor and WI/HQ procurement as appropriate; and
- 5) approving supplier contracts when required and as submitted by WI/HQ procurement.

In actual practice Winrock/Delhi has increasingly dealt directly with Sheladia on issues of waivers, contract approvals and similar items which previously had sometimes seemed to have been stuck dead center.

The intervention of our own procurement office gives an indication of the concern of Winrock that acquisition of equipment be as rapid and efficient as possible. It is an especially noteworthy development, in view of the already large amount of time of Winrock personnel that has been going into procurement. As yet we are not sure how effective this intervention will be. However, the WI/Procurement Office is reviewing each and every item and says they will soon provide their first comprehensive status report including a time line for estimated completion dates. This review may have a date line in late March 1990 and may be available for inclusion in this report.

On February 22, 1990 the AGRE office wrote a memo to Winrock (see Annex 1) expressing their concern about delayed arrival of equipment. At that point it was apparent that the revised estimate was not realistic in respect of the time required from the moment a task order is issued to Sheladia until the time that the goods are in the hands of the end user. AGRE asked us to give an up-date on all task orders and to estimate which orders would be delivered after the end of the contract. They also asked that Sheladia give a statement as to how they would handle the shipment and delivery of goods after September 30, 1990. This is a logical question because it is recognized that Article II para B of the Sheladia subcontract states that "Sheladia shall be responsible for completion of all Task Orders which are issued prior to the ECD including Task Orders which require same services beyond the ECD". (The "ECD" is the estimated completion date, September 30, 1990).

Most, if not all, of the response to the AGRE inquiry might logically have come from Sheladia. The contract specifies that Sheladia shall provide a monthly status report for each Task Order which would provide the essence of the answer to these questions. To date Sheladia has taken a defensive attitude and more than a month after receiving a copy of the AGRE letter had not yet directly responded to any of the questions (see Annex 2 and 3).

In spite of their failure thus far to respond directly to the AGRE letter, Sheladia has provided us with data that help answer some of the questions raised. Based on this and other information we prepared a partial response to all but question "3". This is included in this report as Annex 4.

One question was, had all the Implementation Orders issued to Winrock by AGRE been acted upon by the issuance of Task Orders? Our response memo indicated that Task Orders amounting to an estimated \$ 5,055,000, including freight, had been issued. Task Orders had not been issued for items in I.O.s 18, 50 and 51. The first covered equipment requested by IVRI for the ETT subproject. It called for purchase of an electron microscope, but this was eventually turned down by AGRE/ICAR. It is not expected that any further action will be taken under the current MSS regarding alternative equipment for IVRI.

The second and third I.O.s (50 and 51) cover purchase of computers in India for Agrofor and Agromet subprojects and this is being done by Winrock/Delhi; so no T.O. is needed. (This action was taken because all parties concluded that Winrock/Delhi was better situated to handle the purchase than was Sheladia).

A number of miscellaneous items for ETT and SPU, with an estimated value of \$80,000, remain to have Task Orders issued. These are mostly small items or are proprietary and do not require advertising. The bottom line is that in answer to AGRE all items have been Task Ordered except for this amount; \$80,000.

It should be noted that the total value of equipment placed on Task Orders as given above exceeded funds available by an estimated \$990,000. This overrun was reduced on March 30, 1990 by an amendment to the Winrock contract which added incremental funding for Agrofor and Agromet. (This amendment is included here as Annex 5). There still remains an over-run of about \$220,000. This will be dealt with by dropping out items of lower priority from the procurement lists after firm quotes have been received but before a contract is signed with the supplier.

Sheladia provided some guide lines on how much time they estimated several significant steps would take in the procurement process. These are reproduced in Annex 6. Also reproduced as Annex 7 are similar data originating with Winrock/Delhi and presented in the 15th Report which was dated November 17, 1989. Our data were based on perceptions of how the system was working and we had since concluded that our estimates were generally too optimistic. Our revised schedule had led us to believe that substantial amounts of equipment would be in India by late December, 1989 but, as noted, none arrived until February 1990. Interestingly Sheladia's March 16, 1990 estimate is substantially more optimistic than was ours of last November. For the steps shown in Annex 6 Sheladia estimated that 210 days would be required. To cover more or less

the same set of actions we had estimated 313 days. While their comment that their schedule "assumes there will be no snags" we believe it should be substantially modified. Experience to date indicates that there will indeed be snags from time to time and that they are often compounded.

Although they have not yet responded specifically to what will arrive in India after September 30, 1990 and how it will be handled, Sheladia's detailed data indicate that Task Orders 22, 23, 24, 29 will not be arriving until November to December. Also, there are two T.O.s, 20 and 24, with projected September dates of arrival. In view of this rather optimistic estimated time schedule which they are apparently using, it seems likely that these might also come in somewhat later, possibly after the contract has ended. Certainly they will not be in time for orderly commissioning of the equipment before the contract expires. The estimated gross value (includes shipping costs and procurement fee) for T.O.s 22, 23, 24 and 29 is \$ 1,829,200. That of T.O.s 20 and 27 adds an additional \$ 473,492 to give an estimated total of late arriving equipment of \$ 2,303,192.

Status of training.

Much of the training being arranged under the ARP is specialized in nature and hence can theoretically be initiated more or less independently of the regular academic year. In practice, however, the professors have academic responsibilities and a tradition that tends to relate to the academic schedule. As a result, other things being equal, we have a lower flow of participants going abroad during the January-March quarter than at other times of the year. In addition to academic routines is the fact that the spring quarter is one where crops in the field tend to be at a minimum. By contrast the period of greatest activity in the placement of participants tends to be the quarter starting about September 1. Even though they may not be taking courses for credit, this schedule permits the participant to benefit by course work, seminars etc. that relate to the academic program of the institutions.

In the quarter ending March 30, 1990 we sent three people abroad for special 5-month training programs, totalling 15 person months. We had scheduled an additional 20 plus months of training in CBAW to be started during this quarter but due to failure to obtain clearances in time for specific activities we had to postpone until a later date.

It is expected that there will be a substantial increase in the departure rates in the remaining 2 quarters of the MSS. We will push very strongly to place people abroad before the cut-off date of August 15, 1990. The number projected to go abroad at that time amounts to some 50 people who will undertake training totalling 282 person months.

Table 3 summarizes training activities under the ARP from the time of its inception until the end of the January-March, 1990 quarter and gives projections for the period until the end of the MSS contract on September 30, 1990.

Table 3. Commitments^{1/} for Indian scientists going to the U.S. (Numbers of persons and person months and estimated costs) (\$'000)

Sub-project	To Dec'89		Jan'90 to Mar'90		Apr'90 to Jun'90		Jul'90 to Sep'90		Cummulative Total to Sep'90		
	No.	PM	No.	PM	No.	PM	No.	PM	No.	PM	Cost
PIU	14	6	-	-	1	1	4	4	19	11	112
SPU	19	53	-	-	9	18	-	-	28	71	405
PHT	30	111	-	-	-	-	4	12	34	123	699
ETT	12	13	-	-	-	-	6	27	18	40	268
CBAW	13	35	-	-	7	35	2	6	22	76	428
BLD/PRO	8	15	-	-	5	17	-	-	13	32	192
AGROFOR	10	79	1	5	-	-	14	148	25	232	901
AGROMET	7	22	2	10	2	10	4	20	15	63	437
PGR	11	17	-	-	-	-	-	-	11	17	122
PRE PROJ	-	-	-	-	-	-	9	7	9	7	50
FOR FAC	72	864	-	-	-	-	4	48	76	912	3559
Sub Total	196	1215	3	15	24	81	43	268	270	1584	7173
	===	=====	===	===	===	===	===	=====	=====	=====	=====

^{1/} All the months of training are included in the period in which the appointment was made even though the training might extend into the following periods.

Status of consultancies.

During the quarter ending March 30, 1990 consultancies were initiated which amounted to a total of 14.75 person months. This was the highest quarter since the inception of the ARP and represented about as much activity as in any prior full year.

The upsurge in consultant activity in this quarter was partially a result of the improved planning process of the ICA² as exemplified by the life-of-project plans. With these plans they were able to reach more timely decisions and place their requests with the

DEA on a better schedule. For its part, the DEA has tended to give prompt action on lists of several consultants and to allow a bit more latitude in timing for individual consultancies. This has made it possible to adjust to conflicting commitments which either the consultant or the host institution may have.

Because of this improved set of circumstances most of the sub-projects received more consultancy inputs than had been projected. The ICAR system is so large that it was easily able to absorb and utilize this level of input at the various institutions. In fact, if the equipment being procured under the project had been available even more consultants could have been effectively placed. Under the circumstances some were postponed pending arrival of the equipment.

Table 4 gives a summary of activity regarding U.S. scientists coming to India under the ARP from its beginning in 1986 until the end of the January-March, 1990 quarter. It also gives projected activity for the balance of the MSS contract period ending September 30, 1990.

Table 4. U.S. scientists going to India. (Numbers of persons and person months and estimated costs)

(\$'000)

Sub-project	To Dec '89		Jan '90 to Mar '90		Apr '90 to Jun '90		Jul '90 to Sep '90		Cummulative Total to Sep '90		
	No.	PM	No.	PM	No.	PM	No.	PM	No.	PM	Cost
PIU	29	30	2	1	-	-	-	-	31	31	453
SPU	2	3	3	3	3	3	2	3	10	12	190
PHT	6	7	2	3	1	2	5	12	15	24	369
ETT	6	3	-	-	-	-	3	2	9	5	115
CBAW	5	4	2	2	-	-	2	2	9	8	153
BLD/PRO	7	12	1	1	-	-	-	-	8	13	169
AGROFOR	4	3	4	3	-	-	-	-	8	6	95
AGROMET	7	-	2	1	2	2	-	-	5	3	66
PGR	10	5	-	-	-	-	-	-	10	5	60
PRE PROJ	-	-	-	-	-	-	-	-	-	-	-
Sub Total	70	67	16	14	6	7	13	19	105	107	1670
	===	=====	===	===	===	===	===	=====	=====	=====	=====

Financial

A summary of USAID inputs during the quarter given in Table 5 along with cumulative totals through March, 1990 and targets for the following quarter. Similar data for rupee expenditures are given in Table 6. It will be noted that there is considerable lag in the rupee reporting. In most cases these data are provided for one quarter earlier than for dollar expenditures. In some subprojects the lag time in reporting these data amounts to two quarters.

Table 5. USAID inputs to the ARP through March, 1990 and projections for the period April to September, 1990 (Thousands of Dollars).

Subproject	LOP Target	Cum Total ^{1/} thru Mar '90	Progress ^{1/} Jan-Mar '90	Plans Apr-Sept '90
PIU	751 ^{2/}	526	11	50
SPU	1,988	1,158	202	556
PHT-FV	3,834	1,769	158	1,046
EMB TRANS	1,186	275	76	260
CBAW	1,139	308	37	745
BLD PRO	1,372	263	20	509
FOR TRNG	3,400	3,359 ^{3/}	-	200
AGROFOR	1,894	421	81	669
AGROMET	1,635	193	57	674
PG RESOURCES	150	182	-	-
MSS CORE COST		507 ^{4/}	23	82
PRE PROJ	150 ^{5/}	-	-	50
TOTAL	<u>17,499</u> =====	<u>8,961</u> =====	<u>665</u> =====	<u>4,841</u> =====

^{1/} Consists of actual expenditures under on-going D.O.s and I.O.s plus reimbursement to ICAR for approved rupee expenditures.

^{2/} Includes \$150,000 for scientists exchange program approved through PIL No.23, issued on September 28, 1988.

^{3/} Includes \$167,000 non-ARP funds provided under D.O. #41 for 1987-88 group of forestry faculty training.

^{4/} Consists of actual expenditure of Delhi office only for the period covering January, 1986 through March, 1990.

^{5/} Total USAID input for 6 preproject activities is \$900,000. However, only \$150,000 is included in the Winrock contract covering thru preproject activities (\$100,000 for technical assistance and \$50,000 for training).

Table 6. GOI inputs to the ARP through December, 1989 and projections for the period January to March, 1990. (Thousands of Rupees)

Subproject	LOP Target	Cum Total thru Dec. '89	Progress Oct-Dec. '89	Plans Jan-Mar. '90
PIU	2,927	841	214	?
SPU	5,310	6,945 ^{1/}	354	1,302
PHT-FV	16,773	9,920	715	?
EMB TRANS	10,190	6,115	420	280
BW WASTE	11,762	4,706 ^{1/}	414	910
BLD PRO	9,535	4,912	309	1,858
AGROFOR	29,223	-	-	?
AGROMET	7,000	4,835	489	571
PG RESOURCES	?	-	-	?
TOTAL	92,720 =====	38,274 =====	2,915 =====	4,921 =====

^{1/} Cumulative expenditure of SPU subproject as of December, 1989 is lower as compared the cumulative expenditure as of September, 1989 because of higher provisions estimated in July-September, 1989 report, whereas the actual expenditure is much less. Similarly, the cumulative expenditure under the BW Waste subproject has come down considerably as the amount under the line item contingencies has been changed from Rs.2,982,000 to Rs.1,323,000 as per the report received from ICAR.

B. Subprojects

1. Project Implementation Unit (PIU).

Quarterly Meeting. The second quarterly meeting under the new terms of reference for the PIU (MSS Report No.14) was held January 16, 1990 under the chairmanship of Dr. R.S. Paroda who provides supervision to the ARP. Discussions generally followed the outline given in Report 15 in which it was noted that areas of concern dealt with:

- (a) recruitment of staff
- (b) construction of buildings
- (c) procurement of equipment
- (d) training of Indian scientists in the U.S.
- (e) technical assistance.

The first two subjects lie largely within the ICAR purview while the latter three are ones where it is largely up to Winrock to supply information.

Minutes of the meeting are included in this report as Annex 8. It will be noted that detailed information was not included although for subjects such as procurement current status reports such as Annex 2 of report 16 were distributed at the meeting. As regards recruitment the impression was gained that most subprojects are in fairly good shape although specific problems remain as noted in the minutes. A more thorough analysis is needed of the status of constructions called for under the ARP.

Scientist Exchange. During the quarter two U.S. scientists came to India under the scientist exchange feature of the ARP. There were Dr. David Mears of Rutgers University and Dr. Franklin D. Schales of the University of Maryland. Both of these scientists came to attend an International Conference on use of Plastics in Agriculture. As participating scientists in this meeting they were not consultants and hence were unpaid. The evidence was that they took leadership positions at the meetings and made significant contributions.

Financial

Financial activities of the PIU through March 31, 1990 are shown in Table 7 for USAID expenditures. They are shown for ICAR rupee expenditures in Table 8.

Table 7. USAID inputs into the Project Implementation Unit through March, 1990 and projections for period April to September, 1990 as \$ '000 and Rs. '000)

(Exchange rate used \$1 = Rs.9.50)

Component	LOP Target		Cum Total ^{1/} thru Mar.'90		Progress ^{1/} Jan.-Mar.'90		Plans Apr-Sept'90	
	\$	Rs.	\$	Rs.	\$	Rs.	\$	Rs.
U.S. Scientists to India	536	-	453 ^{2/}	-	11	-	-	-
Indian Scientists to U.S.	33	-	12	-	-	-	-	-
Equip:Imported	26	-	-	-	-	-	-	-
Local	-	57	-	96	-	-	-	-
Scientist Exch	150	-	51	-	-	-	50	-
	<u>745</u>	<u>57</u>	<u>516</u>	<u>96</u>	<u>11</u>	<u>-</u>	<u>50</u>	<u>-</u>
TOTAL (\$)	745	6	516	10	11	-	50	-
	=====		=====		=====		=====	
Combined (\$)	751		526		11		50	

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported), plus reimbursement to ICAR for approved rupee expenditures.

^{2/} Includes \$9,000 for Agrometeorology design, \$48,038 for Animal Science design.

Table 8. GOI inputs into the Project Implementation Unit through March 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec. '89	Progress Oct-Dec. '89	Plans Jan.-Mar'90
Building & facilities	103	-	-	?
Office Equip-ment Supplies	517	125	-	?
Vehicles	-	-	-	?
Maintenance: - Office Equip.	-	-	-	?
Staff Salaries	1,567	691	208	?
In-country travel	310	15	-	?
Contingencies	430	10	6	?
TOTAL	<u>2,927</u> =====	<u>841</u> ===	<u>214</u> ===	<u>?</u> ===

2. Soybean Processing and Utilization

This subproject was scheduled to terminate March 31, 1990 but both ICAR and USAID have agreed in principle that it will be extended until March 31, 1991. Formal action to authorize this was not taken during the quarter because of certain technicalities. As a result of prior planning the SPU group was poised for accelerated action leading to a closing date at the end of the quarter. Due to the expected extension they re-adjusted certain activities but nonetheless operated at a fast pace during the quarter with particular regard to consultancies.

Dr. Mark H. Love spent six weeks in India as a consultant on (a) standards of wholesomeness and quality for soy foods and (b) formulation of soy foods/and soy extended products. He ended his consultancy on January 13, 1990. In reference to standards Dr. Love and his Indian counterparts reviewed standards for soy foods as currently existing under the regulations of official Indian agencies. It was found that many such regulations had been adopted in the 1960's and 1970's. Only for two products, soy paneer and tempeh, was it necessary to develop new standards for use in India. They concluded that for a host of products, real or potential, the regulations are on the books and they are adequate. For these they further concluded that the principal need was to develop standards and process control procedures, that would ensure adequate quality for simpler processes which are being developed for use at the village level.

Dr. Love and his Indian colleagues concluded that the Hazard Analysis Critical Control Point (HACCP) Procedure was the appropriate route to take in dealing with quality control at the level of the village. They then proceeded to analyse the processes for making various products, identifying hazards and critical points for use in the village.

Dr. L.S. Wei spent a 6-weeks consultancy which dealt with a wide range of practical problems of soybean utilization. In some instances the equipment was not available for full scale trials and he demonstrated principles by using modified versions and unpublished procedures. This was true for soy milk and soy paneer (tofu). This included regular pressed tofu, silken tofu, bagged or cup tofu, fried tofu and semi-dried and dried flavored tofu. He provided advice on storage and handling of tofu. He discussed and demonstrated frozen deserts (ice-cream and sherbet) that can be made from soymilk. Soy yogurt and tempeh (an Indonesian product now popular in the U.S.) were demonstrated and discussed. He introduced and discussed hydrolyzed vegetable protein (HVP) that can be prepared from the sludge produced during tofu preparation.

In addition he reviewed and commented upon the programs underway by various CIAE researchers.

Dr. Charles E. Walker worked with the SPU engineers to investigate the milling problems inherent in milling full-fat soy flour and helped them to design a mill capable of producing such flour. An SPU goal is to be able to do this at the village level. A modified pin mill was developed along with an air separation procedure to segregate into flour-size particles. These procedures are necessary because the oil content of full-fat soy is so high that plugging or clogging of many mills is a problem. It was also demonstrated that very low moisture content of whole beans enhanced the milling results.

Ronald E. Triplehorn, a specialist in the extrusion of soy foods was a consultant for most of March, 1990. He gave lectures and discussions on the principles and use of the extrusion process in soy foods and gave practical training in the use of the Insta-pro and Wenger extruders. Raw materials were whole soybean, whole flint corn, white sorghum and wheat. Raw material ratios ran from 20 per cent soy and 80 per cent another grain up to 100 per cent soy. It was possible to develop some very acceptable snack food items from these and from other tests that were done on the available equipment. Observations and recommendations were given regarding wiring of the experimented area, tools needed, the water system and sanitation procedures.

Financial

The financial results in terms of USAID expenditures for the SPU project during the January to March period, with projections, are given in Table 9. GOI expenditures for the previous quarter (October - December, 1989) are given in Table 10.

Table 9. USAID inputs into Soybean Processing and Utilization through March 1990 and projections for the period April to September, 1990. (\$ '000 and Rs. '000).

(Exchange rate used \$1 = Rs.9.50)

Component	LOP Target		Cum Total ^{1/} thru Mar. '90		Progress ^{1/} Jan.-Mar. '90		Plans Apr-Sept '90	
	\$	Rs.	\$	Rs. ^{2/}	\$	Rs. ^{2/}	\$	Rs. ^{3/}
U.S. Scientists to India	225	-	93	-	50	-	97	-
Indian Scientists to U.S.	413	-	280	-	-	-	125	-
Workshop, etc. in India	-	228	-	79	-	-	-	16
Workshops, Conferences outside India	14	-	-	-	-	-	-	-
Equip: Imported	544	-	312	-	140	-	245	-
Local	-	2456	-	1670	-	-	-	600
Op. Research	-	943	-	196	-	-	-	30
Staff Salaries	-	1998	-	2268	-	118	-	150
Mtc. of Res. equipment	-	1898	-	284	-	-	-	50
	<u>1196</u>	<u>7523</u>	<u>685</u>	<u>4497</u>	<u>190</u>	<u>118</u>	<u>467</u>	<u>846</u>
TOTAL (\$)	1196	792	685	473	190	12	467	89
Combined (\$)	=====	=====	=====	=====	=====	=====	=====	=====
	1988		1158		202		556	

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported), plus reimbursement to ICAR for approved rupee expenditures.

^{2/} Rupee expenditure is as of December 31 '89 as per Quarterly Report received from ICAR.

^{3/} Plans for April-September, '90(\$); Plans for Jan.-March, '90 (Rs.)

Table 10. GOI inputs into Soybean Processing and Utilization through December 1989 and projections for the period January-March, 1990. (Rupees '000)

Component	LOP Target	Cum Total thru Dec'89	Progress Oct-Dec.'89	Plans Jan.-Mar'90
Building facilities	1666	2761	-	825
Office Equipment Supplies	760	495	-	50
Vehicles	265	168	-	-
Maintenance:				
- Office Equip.	285	14	-	12
- Vehicle	265	5	-	20
Staff Salaries	1786	3328	354	375
In-country travel	283	174	-	20
Contingencies	-	-	-	-
TOTAL	<u>5310</u> =====	<u>6945</u> ===	<u>354</u> ===	<u>1302</u> ===

3. Post Harvest Technology.

The post harvest technology project was expected to reach completion on March 31, 1990 but, as noted earlier, it is now planned to be extended for one more year. In light of this expected extension the intensive schedule of consultancies that had been planned for the January to March quarter was scaled back. This will allow the equipment to be delivered before the consultants report to India.

The present plan for consultants calls for six of them to come to India during the third quarter for a total of 12 person months. It may be necessary to alter this plan so that they come earlier or postpone until after September 30. As noted earlier in order for the MSS contract to be terminated by that date it will be necessary that all consultants will have departed by or before August 15.

Dr. Don Splittstoesser, a consultant in microbiology, spent a period of about 7 weeks in India during the quarter. He devoted substantial periods of time to each of the four cooperating centers, Bangalore, Nagpur, Lucknow and IARI, Delhi and reviewed the work in microbiology at each site. He also visited private sector food processing enterprises at several places. He commented favorably on the appropriateness of the microbiology research at the various centers and recommended that the one center, Nagpur, not presently working in the field add microbiology capability. He emphasized the need for linkages between the microbiology group and those doing research on food processing per se.

Dr. Splittstoesser urged that there be closer linkages between private sector food processors and the microbiologists of ICAR institutions. He noted that most of the private sector companies do not have microbiologists on their staffs. It would be mutually advantageous for the ICAR scientists to work with them in solving practical problems. In discussing this, the consultant pointed out that commonly used processing procedures are inadequate to destroy heat resistant molds and some spoilage may be occurring because of this. He recommended that ICAR scientists survey orchards for the occurrence of these molds. If, as he suspects, these are fairly wide spread changes in processing procedures would be indicated.

This consultant commented favorably on the professional status of the microbiology group but pointed out that all laboratories were short on equipment. He noted that some of the things needed are not very costly and are locally available. In addition to these general comments he made specific recommendations for each center's program.

Financial

Expenditures of USAID funds for the PHT project during January to

March, are given in Table 11. ICAR's rupee expenditures for the October to December, 1989 are given in Table 12.

Table 11. USAID inputs in Post Harvest Technology through March 1990 and projections for the period April to September, 1990. (\$ '000 and Rs. '000). (Exchange rate used \$1 = Rs.9.50)

Component	LOP Target		Cum Total ^{1/} thru Mar. '90		Progress ^{1/} Jan.-Mar. '90		Plans Apr-Sept '90	
	\$	Rs.	\$	Rs. ^{4/}	\$	Rs. ^{4/}	\$	Rs. ^{5/}
U.S. Scientists to India	422	-	177	-	73	-	192	-
Indian Scientists to U.S.		1026	639	-	-	-	60	-
Workshop, etc. in India	-	798	-	3	-	-	-	?
Workshops, Conferences outside India	-	-	-	-	-	-	-	-
Equip:								
- Imported	1020 ^{2/}	-	329	-	52	-	794	-
- Local	-	5377	-	2640	-	105	-	?
Op. Research	-	532	-	638 ^{3/}	-	-	-	?
Staff Salaries	-	2281	-	2647	-	207	-	?
Mtc. of Res.	311	1036	-	3	-	-	?	?
	<u>2779</u>	<u>10024</u>	<u>1145</u>	<u>5931</u>	<u>125</u>	<u>312</u>	<u>1046</u>	<u>-</u>
TOTAL (\$)	2779	1055	1145	624	125	33	1046	-
Combined (\$)	3834		1769		158		1046	

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported), plus reimbursement to ICAR for approved rupee expenditures.

^{2/} Includes \$35,000 for office equipment.

^{3/} USAID funding is only Rs.532,000 (\$56,000) for this line item. Any expenditure exceeding this funding will not be reimbursed.

^{4/} Rupee expenditure is as September 30, '90 as per the Quarterly Report received from ICAR.

^{5/} Plans for April- September, 1990 (\$); Plans for Jan.-March, 1990 (Rs.)

Table 12. GOI inputs into Post Harvest Technology through December 1989 with projections for the period January to March, 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec '89	Progress Oct-Dec. 89	Plans ^{1/} Jan.-Mar '90
Building facilities	9642	2541	27	?
Office Equipment Supplies	1321	1020	-	?
Vehicles	1036	475	41	?
Maintenance:				
- Office Equip.	342	42	4	?
- Vehicle	247	41	9	?
Staff Salaries	3425	5407	620	?
In-country travel	760	394	14	?
Contingencies	-	-	-	?
TOTAL	<u>16773</u> =====	<u>9920</u> ===	<u>715</u> ===	<u>?</u> ===

^{1/} Plans for January-March, 1990 not available.

4. Embryo transfer technology.

As noted in Report No.16 a lead consultant, Dr. D.S. Dhindsa, was appointed to provide continuing input into this project. He came to India on December 20, 1989, followed a very intensive program, and turned in a report on January 8, 1990.

The report systematically reviewed the status of ETT at each station with regard to work in progress and as regards training and equipment. In respect to training he noted that there have been enough successful embryo transfers at Indian institutions to demonstrate that the technology is understood and usable. However, the conception rate is lower than that routinely achieved in western countries where it is now widely used. He noted that it is even lower in buffaloes. Regarding cattle, Dr. Dhindsa recommended that training emphasis be on increasing conception rate by better application of known principles. He noted that such basic training can be given by Indian scientists but he recommended that one or two U.S. consultants be present to participate in offering courses of this type. He mentioned that these consultants should come from private sector institutions where high output is essential and where such expertise is most plentiful. He outlined special courses which he felt should be developed in the U.S. to deal with more specialized and sophisticated aspects of ETT.

Of all the ARP projects none has suffered as much from delayed arrival of equipment and supplies as has ETT. The basic kits which had been specified to be supplied to cooperating centers included the necessary hormones to induce ovulation as well as the specialized items of equipment which are key to successful ETT. Special efforts were made to have these kits delivered to each center. In fact 5 out of 6 kits arrived in India in late March 1990. It was clearing customs on March 31 for delivery to the end users in early April. One unit was delayed because of the expiry of the pass book at one center.

Financial

Expenditures of USAID funds for ETT are shown in Table 13 for the quarter ending March 31, 1990. In Table 14, rupee expenditures of ICAR are summarized for the quarter ending December, 1989.

Table 13. USAID inputs in Embryo Transfer Technology subproject through March, 1990 and projections for the period April to September, 1990. (\$ '000)

Component	LOP Target	Cum Total ^{1/} thru Mar.'90	Progress ^{1/} Jan.-Mar.'90	Plans Apr-Sept'90
U.S. Scientists to India	175	67	-	48
Indian Scientists to U.S.	316	126	-	142
Workshop, etc. in India	32	-	-	-
Workshops, Conferences outside India	-	-	-	-
Equip: Imported	638	82	76	70
Op. Research	-	-	-	-
Staff Salaries	-	-	-	-
Mtc. of Res. equipment	25	-	-	-
TOTAL (\$)	<u>1186</u> =====	<u>275</u> =====	<u>76</u> =====	<u>260</u> =====

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported), plus reimbursement to ICAR for approved rupee expenditures.

Table 14. GOI inputs in Embryo Transfer Technology through December 1989 and projections for the period January to March, 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec.'89	Progress Oct-Dec.'89	Plans Jan.-Mar'90
Staff Salaries	5310	2484	250	250
Vehicle	513	580	-	-
In-country travel	219	88	10	10
Workshops, etc.	252	80	-	?
Res. Equip.	523	600	-	?
Maintenance:				
- Res. Equip.	-	198	20	20
- Office Equip.	-	-	-	-
Op. Research	2870	1340	140	?
Contingencies	503	745	-	-
TOTAL	<u>10190</u> =====	<u>6115</u> =====	<u>420</u> =====	<u>280</u> =====

5. Conversion of biodegradable animal wastes.

Two consultants came to India for a period of one month. While they dealt with different subjects they travelled together and interacted with one another. These were Dr. J.P. Fontenot and John H. Gerken of V.P.I. Dr. Fontenot is an animal nutritionist and has been the lead consultant to the CBAW subproject since its inception. Dr. Gerken is an extension specialist with a wealth of experience in helping farmers and private enterprize to make use of biodegradable animal wastes.

These consultancies started off with attendance at the CBAW workshop and the visitors then proceeded to each of the cooperating centers. As a result Dr. Fontenot was able in his report to summarize or comment upon the work at each center. Also, Dr. Gerken was able to identify advances in technology that are likely to soon be available for testing by farmers and private sector business. While it would not be correct to say that the work he reported upon is fully a result of this Indo-US subproject it is correct to say that the subproject had a part in most or all of the work. The following comments extracted from his reports convey a sense of the direction the work is taking.

Progress is continuing at Bombay Veterinary College in research on slaughterhouse waste. During the past year efforts were concentrated on the chemical composition of rumen contents of cattle, sheep and goats at different times, on ensiling of slaughterhouse wastes, and on urea treatment of rumen contents. Experiments are planned for 1990 which will deal further with ensiling of rumen contents, blood and paddy straw and on urea and molasses treatment of rumen contents. Chemical analyses and in situ digestibility measurements will be made on all the ensiled mixtures.

At the Kerala Agricultural University it is intended that the work will focus on the use of prawn waste as animal feed. Only limited progress was made in 1989. This was attributed by the scientist in charge to lack, of personnel assigned to the project. Fish and prawn processing centers around Cochin and Kakkazham have been contacted for a supply of prawn waste for chemical analyses, microbial studies and ensilings. Screening of fish and prawn waste for pathogens has been started by the microbiologists. Microbial load, including clostridia and salmonella is being assessed. Work has started on chemical composition of the wastes. Planned experiments for 1990 include determination of presence of pathogenic bacteria in prawn waste, measurement of microbial degradation of prawn waste, chemical composition of prawn waste and on ensiling of prawn waste with paddy straw or rice bran.

At the newly established Central Toxicological Laboratory, Hisar, progress has been made during the past year in getting the laboratory operational. Two scientists, a toxicologist and a

nutritionist, have been added. Several equipment items have been secured from ICAR funds. Work has been initiated on pesticide and aflatoxin analyses. Plans for work in 1990 include screening for pesticide residues in large animal waste silages, development and standardization of procedures to measure medicinal drugs in animal wastes, measurement of heavy metal residues in prawn wastes and search for pesticide and aflatoxin residues in slaughterhouse waste.

At the Haryana Agricultural University work was conducted during the past year on ensiling of cattle waste, urea-treatment of cattle waste/wheat straw and on the effect of certain minerals on the growth of ruminal cellulolytic bacteria. During 1990 experiments are planned to be carried out on feeding of urea treated cattle waste/straw silage, on the laboratory ensiling of cattle and buffalo waste, on the palatability and digestibility of ensiled buffalo waste, straw and green fodder, on the degradation of waste silages by ruminal cellulolytic bacteria, on the isolation of pure culture ruminal cellulolytic bacteria and on the measurement of volatile fatty acids in waste silages.

At the Punjab Agricultural University experiments were conducted during the past year on characteristics of poultry litter at monthly intervals, laboratory stacking of poultry litter and wheat straw, deep stacking of poultry litter alone, conversion of poultry droppings by fungi, genetic engineering of ruminal cellulolytic bacteria and utilization of deep stacked and ensiled broiler litter. During the coming year work is planned on feeding deep stacked and ensiled poultry litter, on processing methods for deep layer litter, on pathogenic bacteria and fungi in poultry litter, on changes in poultry litter by genetically engineered microorganisms, on solid state fermentation with Caprinus and on the isolation of actinomyces and bacteria.

Dr. Gerken the extension specialist, observed the status of technology development at each cooperating center with the view of assessing the potential for its application by farmers and private sector institutions. He identified technologies that offered potential near term application at each center. These included the use of ensiled rumen contents and blood as feed for cattle and buffaloes with particular regard to the Bombay abattoir, the use of ensiled prawn waste silage as feed for ruminants in coastal areas where prawn processing is conducted and the use of ensiled cattle waste in Haryana, especially on larger dairy farms. Concluding that some of the results are ready for immediate use by farmers he said that, "The use of poultry wastes from an expanding broiler and layer industry offers immediate opportunities for technology transfer. While important research remains to be done at PAU, certain aspects of broiler and layer waste utilization are ready for immediate implementation at the farm level. Teams of Extension scientists should be encouraged to move ahead in this area and to develop links with the poultry and dairy industries so

that the benefits of research results already available can be exploited."

Financial

Table 15 shows financial developments in the CBAW subproject during the period ending March 30, 1990 as regards USAID expenditures. Rupee expenditures through December 1989 are shown in Table 16.

Table 15. USAID inputs into Conversion of Biodegradable Animal Wastes subproject through March, 1990 and projection for the period April to June, 1990. (\$ '000)

Component	LOP Target	Cum Total ^{1/} thru Mar. '90	Progress ^{1/} Jan.-Mar. '90	Plans Apr-Sept '90
U.S. Scient. ^{2/} to India	180	113	37	40
Indian Scientists to U.S.	415	195	-	233
Workshop, Conferences outside India	35	-	-	-
Equip:Imported	484	-	-	472
Op. Research	-	-	-	-
Staff Salaries	-	-	-	-
Mtc. of Res. equipment	25	-	-	-
TOTAL (\$)	1139	308	37	745
	====	====	====	===

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported), plus reimbursement to ICAR for approved rupee expenditures.

^{2/} Includes consultants to workshops in India.

Table 16. GOI inputs in CBAW through December, 1989 and projections for the period January-March, 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec.'89	Progress Oct-Dec.'89	Plans Jan.-Mar'90
Building facilities	-	-	-	
Vehicles	300	-	-	300
Maintenance				
-Research Equip.	50	10	2	-
-Office Equip.	35	17	-	3
-Vehicles	50	25	-	5
Staff salaries	7067	2637	278	295
In-country travel	505	147	28	39
Op. Research	300	35	30	
Office Equip. and Supplies	2225	1345	76	58
Workshops	250	25	-	
Res. Equip.	980	465	-	210
TOTAL	<u>11762</u> =====	<u>4706</u> =====	<u>414</u> =====	<u>910</u> =====

6. Intracellular blood protista.

This subproject is aimed at developing vaccines and diagnostic methods for the control of several wide-spread tick borne blood protistan diseases of cattle, buffaloes, horses and certain other species. Technology for the control of two major diseases in the group, anaplasmosis and babesiosis, have been developed in the United States and this project aims to transfer the technology to India. These diseases affect not only cattle but also horses, mules and donkeys and even dogs can be affected by certain strains.

The project is taking a leading role in research on theileriosis, a tick borne disease which in India widely affects cattle of European or mixed breeds. In this research ICAR institutions are taking a pioneering role which will benefit cattle producers in other parts of the world.

During the quarter ending March 31, 1990 Dr. Miodrag Ristic, who is lead consultant to this project spent a period of about one month in India discussing results, work being planned, training to be done and other aspects of the project. In this connection he travelled to all cooperating centers and attended the annual workshop at which the work was reviewed. It is recognized that not all this work was due to the Indo-U.S. subproject but it is fair to say that it generally benefitted by association with the subproject and with Dr. Ristic and his research.

Dr. Ristic reported on two major developments in the research being done on theileria. First the Government of India has issued a provisional licence to NDDB for production and commercial marketing of a theileria vaccine. This vaccine represents the 150th passage of in vitro propagated T. annulata shizonts. The vaccine is manufactured at Hyderabad by a subsidiary of NDDB. Some 100,000 doses of the vaccine have been sold thus far. Dr. Ristic talked with farmer-users who expressed satisfaction with the results obtained with this vaccine. It is of interest to note that the vaccine is inexpensive to make but is fragile and quickly deteriorates if not stored at liquid nitrogen temperatures. Fortunately NDDB has a system in place to distribute frozen semen under liquid nitrogen conditions and is thus able to handle and distribute the vaccine.

Secondly, scientists at PAU have developed DOT-ELISA a field applicable serological test for detection and titration of serum antibodies to T. annulata. This will be an important tool for epidemiological studies of theileriosis and a follow-up of vaccination trials.

Dr. Ristic counsels active continuation of the theileria work with vaccination studies at laboratory and field levels at the cooperating centers. If results continue to be encouraging he recommends initiating mass vaccination programs in their respective states.

With favorable results now coming up for theileria Dr. Ristic recommends that all four cooperating centers intensify their work on babesiosis and anaplasmosis. He urges that DOT-ELISA tests be developed for these two diseases and that they be combined with DOT-ELISA as developed for theileria. He feels that cooperation among centers is a key to rapid progress.

He recommends that work be initiated on inter-relationships between the tick Vector and the theileria parasite.

As regards training, plans were laid for three more scientists to undergo training programs in Dr. Ristic's laboratory for periods of about 5 months. Beyond that he recommends that training of this type be offered in India under the direction of the returned participants plus technical persons from Ristic's laboratory. This should not only be less costly but should enable the trainees to develop research programs under Indian conditions as they go along.

Financial

The expenditures of USAID during the quarter ending March 31, 1990 are shown in Table 17 for the Blood Protista subproject. Rupee expenditure of ICAR for this subproject are shown in Table 18.

Table 17. USAID inputs into Blood Protista through March, 1990 and projections for the period April to September, 1990. (\$ '000)

<u>Component</u>	<u>LOP Target</u>	<u>Cum Total ^{1/} thru Mar. '90</u>	<u>Progress ^{1/} Jan.-Mar. '90</u>	<u>Plans Apr-Sept '90</u>
U.S. Scient. ^{2/} to India	192	169	20	-
Indian Scientists to U.S.	313	94	-	98
Workshop in India	32	-	-	-
Equip.:				
- Imported	810	-	-	411
Maintenance of Res.Equip.	25	-	-	-
TOTAL (\$)	<u>1372</u>	<u>263</u>	<u>20</u>	<u>509</u>
	====	====	====	===

^{1/} Consists of actual expenditures under on-going activities, full estimated costs of recently approved ones (where no expenditures have been reported).

Table 18. GOI expenditures into Blood Protista through December 1990 and projections for the period January to March, 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec.'89	Progress Oct-Dec.'89	Plans Jan.-Mar'90
Building facilities	1900	1500	-	?
Vehicles	350	182	-	70
Staff salaries	3339	1532	234	250
In-country travel	154	55	9	25
Op. Research	1656	973	43	270
Office Equip. & Supplies	110	85	-	1238
Workshops	40	9	-	5
Res. Equip.	1986	576	23	-
TOTAL	<u>9535</u> =====	<u>4912</u> =====	<u>309</u> ===	<u>1858</u> ===

7. Forestry faculty training.

Under this subproject 14 faculty members are currently undergoing one year training in United States. They are spread over three fields of training viz: Tree Genetics and Species Improvement (5 members); Tree Seed Technology and Management (5 members); Tree Physiology (4 members). Four universities are providing the training viz: Mississippi State (6 members); Texas A&M (4 members); Florida (2 members); and Purdue (2 members).

All the universities have prepared comprehensive, one-year training plans for individual trainees. These plans are in accordance with the Terms of Reference of each training developed by Winrock jointly with the ICAR and provided to the US universities in advance of the training. All the trainings have been proceeding satisfactorily. All the trainees are doing well and nobody has any significant problem. They will be completing their training in August, 1990.

Four more trainees are expected to depart for the one-year training under this program in August, 1990.

Financial

Financial USAID expenditures through March 31, 1990 on Forestry Faculty Training are shown in Table 19. There is no corresponding rupee budget for this subproject, all costs being in the United States.

Table 19. USAID inputs in the Forestry Faculty Training project through March 1990 and projection for period April to September, 1990. (as \$ '000)

<u>Component</u>	<u>LOP Target</u>	<u>Cum Total ^{1/} thru Mar. '90</u>	<u>Progress ^{1/} Jan.-Mar. '90</u>	<u>Plans Apr-Sept '90</u>
U.S. Scient. to India	-	-	-	-
Indian Scientists to U.S.	3400	3359 ^{2/}	-	200
TOTAL (\$)	<u>3400</u> ====	<u>3359</u> =====	<u>-</u> =====	<u>200</u> ===

^{1/} Consists of actual expenditures under on-going activities, plus estimated costs of recently approved ones.

^{2/} Excludes \$167,000 non-ARP funds provided under D.O.41 for 1987-88 group of faculty members.

8. Agroforestry research.

A two-member management team consisting of Dr. S. Jayaraj, Vice Chancellor, Tamil Nadu Agricultural University and Dr. R. Debroy, Director, National Research Centre for Agroforestry, visited five U.S. Universities during April 8-24, 1989.

The subproject coordination committee held its meeting on July 6, 1989, considered the tour report submitted by the management team and approved the broad outlines of an LOP plan for implementation. Another meeting of the Project Coordination Committee was held on January 5, 1990 in ICAR.

The research and training plans under this subproject called for selected scientists at the several cooperating centers to go to the United States for training in a number of important research and development areas in Agroforestry and for them then to return to India and offer a workshop/training course to other Indian scientists in the same field. Intensive effort by the U.S. professors as well as by the Indian participants was devoted to preparing the teaching outlines and materials to be used in the workshops. It was originally planned that the teaching staff would consist of two Indian and two American scientists. The number of trainees they would deal with would vary but would be up to 25 participants. The workshops were planned to sum for about 12 eight-hour days under relays of up to 4 or 5 teachers. Hence, they were in fact very intensive courses equivalent perhaps to a 3-hour semester course.

Three such workshops were carried out in the past year, two of which were being implemented at the end of the quarter ending March 31, 1990.

The first workshop on Tree Seed Technology was prepared by Drs. O.P. Toky, William Elam, S.B. Land and F.T. Bonner at Mississippi State University and conducted at the Tamil Nadu Agricultural University, Coimbatore, during the period May 22 - June 3, 1989. Principal topics covered in the workshop were seed Biology and Physiology; Seed production and Tree Improvement; seed collection, post-harvest care, drying, extraction, cleaning and upgrading; seed testing; seed certification and storage and; germplasm conservation. Effectiveness of the workshop was evaluated by a comparison of participants performance on a pre-workshop/post-workshop test and responses to a post-workshop questionnaire. The average test score improved from 57% correct answers to 70% correct answers. Part of the reason for low effectiveness was related to English communication problems.

The second workshop on Nutrient Cycling Studies was prepared by Drs. A.K. Srivastava, S.A. Khan, John D. Hodges, L.E. Nelson and A.L. Friend at the Mississippi State University and conducted at the Central Arid Zone Research Institute, Jodhpur, during the

period March 24 - April 4, 1990. 23 participants from as many institutions throughout the country attended the workshop. The principal topics covered were Mineral nutrition of plants; Quantification of Plant Growth; Plant Water Relations; Hydrology; Roots and Root Systems of plants, their quantification and interactions; litter and soil sampling; principles of nutrient cycling; soil and water conservation and site maintenance; nutrient cycling and systems management; allocation of vegetation; case studies and research strategies. The effectiveness of the workshop was evaluated by a pre-workshop questionnaire and a post-workshop evaluation questionnaire. The overall rating of the course was very good and ranged from good to excellent.

The third workshop on Modelling Agroforestry Systems was prepared by Drs. S.P. Dhall and Charles R. Hatch at the University of Idaho and conducted at the Indian Grassland and Fodder Research Institute/National Research Centre on Agroforestry, Jhansi, on April 2-14, 1990. 21 scientists from 13 different institutions throughout the country participated in the workshop. The workshop had five training objectives viz:

1. Understand the importance of using mathematical models to describe, analyze and evaluate agroforestry systems.
2. Become familiar with ways to formulate agroforestry systems as mathematical models.
3. Become familiar with quantitative methods which are used to model agroforestry systems.
4. Develop spreadsheet programs to summarize and analyze agroforestry data.
5. Use statistical programs to estimate the parameters of agroforestry models.

A pre-workshop questionnaire was used to obtain information on the background and experience of the participants. Lectures, field trips and group exercises on micro-computers were used to achieve the workshop's training objectives. A post-workshop questionnaire was administered to measure the degree to which the participants felt the training objectives were achieved. Both the instructors and the participants felt the workshop was highly successful in attaining its training objectives.

Workshop planning was excellent. Facilities, logistics and arrangements provided by IGFR and NRCAF and their respective staffs were superb. The only negative note during the entire workshop was the poor performance of three of the five micro-computers. For the most part, the participants had to share two computers. This resulted in a lower attainment of the fourth and fifth training objectives than would otherwise have occurred.

The participants were an excellent group of scientists. They included agronomists, horticulturists, foresters, statisticians, economists and plant scientists. Since they had approximately similar backgrounds in mathematical modelling, this mixture of experiences contributed to a successful workshop atmosphere. Throughout the workshop they maintained a high energy level. Their sustained interest in the material created a stimulating classroom environment.

Three ICAR scientists viz: Mr. Mohammed Osman (Tree Nursery Technology and Management); Mr. R.K. Singh (Research Methodologies in Tree/Crop Nutrient Cycling Studies); and Mr. P.R. Ojasvi (Agroforestry Modelling) are undergoing 18-month doctoral course work program at Oregon State University/Michigan State University since September 14, 1989. Six more scientists are scheduled to leave for similar programs in August 1990.

The biennial workshop of the All India Coordinated Research Project on Agroforestry was held at Navsari, Gujarat Agricultural University during January 8-11, 1990.

The workshop was also attended by Dr. P.K.R. Nair, consultant, brought in to evaluate the project. Dr. Nair was here during the period December 28, 1989 to January 12, 1990. In his report, Dr. Nair has pointed to a number of scientific and administrative aspects of the project and made specific recommendations for upgrading the research work. He has also identified the following areas of agroforestry in which Indo-US collaboration could be strengthened:

- i. systems analysis and modelling;
- ii. biotechnology research and application;
- iii. development of expert systems for technology dissemination as well as research coordination; and
- iv. advanced agroforestry education and academic collaborations.

Dr. L.N. Harsh of the Central Arid Zone Research Institute, Jodhpur left on February 1, 1990 for a 5-month training in Tree Nursery Technology and Management at Oregon State University.

Drs. V.K. Gupta and S.B.S. Tikka are likely to leave for a 5-month training in "Germplasm Program" sometimes during August, 1990.

ICAR has also initiated action to identify 2 scientists each for 5-month training in (1) Methodologies for Evaluating Agroforestry Systems; (2) Ecosystem Studies; and (3) Root System Studies. All these six scientists also are expected to start training in USA universities in August, 1990.

Financial

Funds from USAID sources which have been spent or committed for the Agroforestry Research subproject are shown in Table 20. As yet ICAR has provided no report of rupee costs for this subproject.

Table 20. USAID inputs into the Agroforestry Research project through March 1990 and projections for the period April to September, 1990. (\$ '000)

<u>Component</u>	<u>LOP Target</u>	<u>Cum Total thru Mar.'90</u>	<u>Progress Jan.-Mar.'90</u>	<u>Plans Apr-Sept'90</u>
U.S. Scient. to India	155	95	46	-
Indian Scientists to U.S.	984	326	35	575
Equipment	670	-	-	74
Workshop	60	-	-	-
Equip. Mtc.	25	-	-	-
TOTAL	<u>1894</u> =====	<u>421</u> =====	<u>81</u> ===	<u>649</u> ===

9. Agrometeorology research.

A three-member management team had visited six U.S. universities for two weeks during April 1989. The recommendations made by the team in its report are considered by the subproject management committee in its meeting held on June 22, 1989, and the broad outlines of a LOP plan were approved.

Dr. Y.S. Ramakrishna and Dr. U.S. Victor completed their 5-month training in Crop Growth Modelling at Iowa State University. Their training at Iowa was supervised by Dr. S.E. Taylor. During their training Drs. Ramakrishna, Victor and Taylor jointly prepared a follow-on training workshop. This workshop was conducted at the Central Arid Zone Research Institute, Jodhpur during February 17 - March 1, 1990 by Dr. Y.S. Ramakrishna, Dr. S.E. Taylor and Dr. L.M. Pollak. Sixteen participants from 16 institutions throughout the country attended the workshop. The objectives of the workshop were:

1. Basic concepts on crop growth and development as affected by weather parameters, inputs and management practices;
2. Methods of monitoring phenology, water use partitioning of dry matter and productivity of field crops using conventional methods and mathematical models;
3. Application of crop growth models for drought monitoring, pre-harvest forecast of crop yields and also in guiding day-to-day agricultural operations; and
4. Experimental techniques for monitoring physical, physiological and biological parameters required for development and validation of crop growth models.

The principal topics covered in the workshop were: plant response to weather; climatology; climate variability, assessment, and classification by crop response; methods of establishing crop zones; energy budget of leaves; concept of modelling; soil moisture models; moisture stress and yield; hydrology simulation model SWIM and plant process models CERES; agricultural weather Information Service. The workshop was evaluated by a post-workshop questionnaire and was well rated.

Another team consisting of Dr. N.N. Srivastava and Dr. V. U. Rao completed 5-month training in "Water Production Functions" at Utah State University in January, 1989. During the training the two scientists also prepared a training workshop in this field jointly with Dr. R.J. Hanks and Dr. Gail Bingham. This workshop is scheduled to be held during the period May 14-25 at the Central Institute for Dryland Agriculture, Hyderabad.

Another team of two scientists viz: Dr. N.V.K. Chakravarty of Indian Agricultural Research Institute, New Delhi; and Dr. M.B. Rajegowda of University of Agricultural Sciences, Bangalore left for 5-month training in Agrometeorology Database Management at the University of Nebraska on January 8, 1990.

Two more scientists viz: Dr. S.S. Mathauda; and Dr. C.B. Patil are expected to leave for 5-month training in "Characterization of Agroecological Environments" at Texas A&M University in late May, 1990.

ICAR is also identifying teams of two scientists each for 5-month training in the following four fields: Basic Micrometeorology; Spatial Dynamics of Insect Pests; Crop-weather Modelling; Water Production Functions. Four scientists are expected to leave for training in August, 1990.

Financial

Table 21 presents a summary of USAID inputs to Agrometeorology from USAID sources. Table 22 presents similar data for GOI funding.

Table 21. USAID inputs into Agrometeorology through March 1990 and projection for the period April to September, 1990. (\$ '000)

<u>Component</u>	<u>LOP Target</u>	<u>Cum Total thru Mar. '90</u>	<u>Progress Jan.-Mar. '90</u>	<u>Plans Apr-Sept'90</u>
U.S. Scient. to India	260	31	28	35
Indian Scient- ists to U.S.	408	162	49	275
Workshop	40	-	-	-
Equipment	902	-	-	364
Equip. Mto.	25	-	-	-
TOTAL	<u>1635</u> =====	<u>193</u> =====	<u>57</u> ===	<u>674</u> ===

Table 22. GOI inputs into Agronmeteorology through December 1989 and projection for the period January to March, 1990. (Rs. '000)

Component	LOP Target	Cum Total thru Dec.'89	Progress Oct-Dec.'89	Plans Jan.-Mar'90
Building facilities				
Office equip. Supplies	301	200	54	75
Vehicles	-			
Maintenance Office equip. Vehicles				
Staff salaries	5528	3910	368	420
In-country travel	257	185	17	36
Contingencies	914	540	50	40
TOTAL	<u>7000</u> =====	<u>4835</u> =====	<u>489</u> ===	<u>571</u> =====

Plans are underway to start design work on items 3, 4 and 5 of the foregoing list. The Winrock office in Washington is in communication with leaders in these fields in the U.S. with the goal of arranging tours for the three management teams to visit centers of excellence and start the planning process. The ICAR is in the process of identifying the members of these three teams and obtaining clearances from DEA. The plan is to complete these formalities in April-June quarter while WI/DC is simultaneously finalizing a schedule in the U.S. The tours will be made in the July period and the reports will be prepared by all three teams before August 15, 1990. The next step will be for corresponding U.S. teams to come to India to further develop and finalize the plans in collaboration with the Indian team members. It is expected that this activity will take place after the termination of the MSS contract on September 30, 1990.

A N N E X U R E S



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

NEW DELHI, INDIA

February 22, 1990

MEMORANDUM

TO: Dr. Colin A. McClung - Winrock International
THRU: Mr. John A. Becker - AGRE
FROM: Surjan Singh - AGRE *SS*
SUBJECT: Equipment Procurement.

1. Our office has in the past requested Winrock through various I.O.s to arrange for the procurement of commodities in support of various subprojects under ARP. This enabled WI to issue Task Orders (T.O.s) to Sheladia, the procurement subcontractor. The WI 15th Quarterly Progress Report indicated February 1, 1990 as the last date by which T.O.s were to be issued to Sheladia. We would like to know if T.O.s for all the equipment authorized by I.O.s have been issued. If not, which ones are yet to be Task Ordered?
2. We understand certain items of equipment require installation assistance and training. Please identify all such equipment and indicate the steps being taken to insure installation and training.
3. We note that the earlier estimates of the procurement and delivery schedules no longer hold and that some items of equipment may not be delivered to consignee institutions by September 1990. Please identify all such items and indicate how the procurement subcontractor proposes to address the issue.
4. We urge you to expedite the procurement to the extent feasible and we would like to review the position soon after receiving your response to various enquiries stated above.

3172489 WIAD IN
EASYLINK 1388451A001 21MAR90 12:16/12:17 EST
FROM: TLX 887902 SHELADIA UD
SHELADIA ASSOCIATES INC
TO: 95303172489

95303172489 (WIAD IN)+

20 MARCH 1990

SAI REF: 915-628

TO: COLIN MCCLUNG/SUNDAR ISAAC

FROM: MARY LOU CISAR
SHELADIA ASSOCIATES. INC.

1. REGARDING 22 FEBRUARY 1990 LETTER FROM JOHN BECKER TO COLIN MCCLUNG ON THE SUBJECT OF EQUIPMENT PROCUREMENT, THIS LETTER WAS FORWARDED TO US FROM WINROCK-DC.
2. LIKE THE PRIORITY PROCUREMENT LIST, SHELADIA HAS NEVER SEEN THE PROCUREMENT AND DELIVERY SCHEDULES REFERRED TO IN THE 22 FEBRUARY LETTER.
3. SINCE THE INCEPTION OF THIS SUB-CONTRACT, WINROCK/ROSSLYN HAS FORWARDED THE TASK ORDERS TO US BUT HAS CONTINUED TO MANAGE THE OVERALL PROCUREMENT PROCESS WITHOUT REALLY DISCUSSING DELIVERY DATES WITH US. WE HAVE, ON SEVERAL OCCASIONS, ADVISED WINROCK THAT DELIVERY DATES ESTIMATED ON THE INDIVIDUAL TASK ORDERS SENT TO US ARE UNREALISTIC.
4. IF THE PROCUREMENT SUB-CONTRACTOR (SHELADIA) IS NOW BEING ASKED TO REVISE EARLIER ESTIMATES, IDENTIFY ITEMS OF EQUIPMENT THAT MAY NOT BE DELIVERED TO CONSIGNEE INSTITUTIONS BY SEPTEMBER 1990 AND HOW WE PROPOSE TO ADDRESS THE ISSUE, SHELADIA MUST HAVE THE WINROCK ESTIMATES.
5. WE HAVE REQUESTED THAT DR. WILLIAMS SEND US A COPY OF THE ESTIMATED PROCUREMENT AND DELIVERY SCHEDULES REFERRED TO IN THE ABOVE-MENTIONED LETTER.
6. AT THIS POINT, WE ARE BEING ASKED TO RESPOND TO USAID WITHOUT ADEQUATE INFORMATION. UPON RECEIPT OF REQUESTED DOCUMENTS, WE WILL RESPOND AS SOON AS POSSIBLE.

REGARDS,

MARY LOU

MMMM

WU*

3172489 WIAD IN

MAIL WINROCK-DC AR SU D203 WILLIAMS

MAR 22 '90

TO: WILLIAMS
FM: MCCLUNG

MSG NO. 203

D203 CISAR TELEX 915-628/SINGH BECKER LETTER/(SH-36)

DD. THE ''EARLIER ESTIMATES'' MENTIONED IN SINGH/BECKER LETTER WERE THE GENERALIZED STATEMENTS GIVEN IN ANNEX 3 OF WI QUARTERLY REPORT 15 DATED NOV 17 '89. I AM ASKING FLOYD WILLIAMS TO FORWARD YOU A COPY OF ANNEX 3 AND ALSO OF ANNEX 2 WHICH REFERS TO SCHEDULES IN OTHER ASPECTS OF THIS PROJECT. FROM THE MAIN BODY OF THE REPORT PAGES 2, 3 AND 4 WHICH COVER ''STATUS OF PROCUREMENT'' SHOULD ALSO BE SUPPLIED TO YOU. YOU MAY ALREADY HAVE ALL THESE ITEMS.

EE. WHEN SURJAN SINGH WROTE HIS MEMO HE WAS CONCERNED WITH DELAYS IN GENERAL BUT PARTICULARLY WITH THOSE ITEMS THAT WOULD BE DELIVERED AFTER SEPT 30 '90 AND HOW THEY WOULD BE HANDLED.

FF. YOU HAVE ALREADY GIVEN SOME OF THE REQUESTED INFORMATION IN THE ''STATUS REPORT ON PROCUREMENT'' WHICH YOU SENT TO RON HUBBARD WITH YOUR MEMO OF MARCH 16 '90. I SUGGEST THAT YOU SIMPLY SEGREGATE OUT ALL THOSE T.O.'S WHICH YOU BELIEVE WILL NOT BE DELIVERED TO CONSIGNEE INSTITUTIONS BY SEPT 30 '90. DETAILED EXPLANATIONS AS TO WHY THEY WILL BE DELIVERED AFTER SEPT 30 ARE LESS IMPORTANT AT THE MOMENT THAN IS ON ESTIMATE OF THE SCOPE OR SIZE OF THE PROBLEM AND HOW TO HANDLE IT.

GG. IT IS NOT MY PLACE TO PUT WORDS IN YOUR REPLY BUT IF I WERE YOU I WOULD PLAN TO HAVE A PERSON IN RESIDENCE IN INDIA FOR 60 TO 90 DAYS AFTER SEPT 30 IF THIS SHOULD BE NECESSARY IN ORDER TO DEAL ADEQUATELY WITH LATE ARRIVING EQUIPMENT. IT MAY NOT PROVE NECESSARY TO DO THIS BUT WILLINGNESS TO TAKE SUCH ACTION WOULD REDOUND SUBSTANTIALLY TO SHELADIA CREDIT.

HH. PLS COMPARE THE TIME REQUIREMENT ESTIMATES IN YOUR MARCH 16 MEMO WITH THOSE IN OUR ANNEX 3. I WOULD APPRECIATE YOUR COMMENTS.

REGARDS.

C.C. 297

.SEND
.END

Transfer complete. 1 message(s) processed.

1 correct message(s), 0 incorrect message(s).



USAID Agriculture Support Service Project

March 20, 1990

MEMORANDUM

TO : Surjan Singh. AGRE
FROM : A. Colin McClung. WINROCK
SUBJECT : Equipment Procurement

This is a partial response to your memo of February 22, 1990. It is somewhat delayed because we are waiting for Sheladia's input on point #3 in your memo. This is still awaited from them and, according to a telex from Floyd received today, we will wait still more (A copy of this telex is enclosed).

1. As you know, upon receiving an Implementation Order from AID (Agre), Winrock/Washington issues a task order to Sheladia. A task order may cover all the items in a particular I.O or several task orders may be issued against a particular I.O. depending on the modality of procurement, and the requirement of in-country installation and warranty servicing.
2. Task orders amounting to an estimated 3,596,000 have been issued. These are listed in the attached annex I. These T.O's cover most of the I.O's that have been issued. Exceptions are:

I.Os 50 and 51. Computers Agrofor and Agromet	\$175,000
I.O.18. ETT/IVRI	260,000
Miscellaneous items from ETT and SPU (There are small items not requiring advertising)	80,000
Total	<u>\$515,000</u>

3. The cost data in "2". above, do not include freight which is estimated at about 24% of the purchase price. Applying this rate, our list comes up to a gross of \$5,055,000. (Please note that no freight charges need be added for the computer purchase which presumably will be done locally.)

It is apparent that we have more in above procurement lists than we have funds for in our present contract (\$4,060,000). The over-run is about \$990,000 . This will be taken care of partially by dropping out items of lower priority from any given procurement list. This will be done just before a contract is signed. Also it is our understanding that additional funds will be added to the contract to provide full funding for Agrofor and Agromet. This will be \$786,000 and will reduce our over-run to \$204,000.

5. A list of the items requiring installation along with the estimated values is attached as Annex II.
6. Regarding Sheladia's involvement with shipments arriving after September 30, 90 (and of MSS contract), we have requested them to provide us with their proposed plans. They are awaited. In the meantime our office in Arkansas is working on an expected schedule of events for each item. This is being done in consultation with Sheladia. Though it will be more appropriate for Sheladia to perform this task, we feel that in the interest of the project this input is useful. We will send you a copy of this schedule as soon as it is completed.

Encl: a/a

WI:Sl:lj:usaid-agre\900320.sgh

4/2

ANNEX 1

FILENAME TOCOMP

T.O. NUMBER	DATE TO SHELADIA	BIDS ADVERTISED	BIDS DUE	VALUE	DIFF. ITEMS	TOTAL ITEMS	SUB PROJECT
1	3/31/89	4/7/89	5/19/89	\$177.583	18	53	PHT-FV
2	3/23/89		11/19/89	\$163.500	1	3	PHT-FV
3	3/23/89	4/7/89	5/24/89	\$101.362	1	2	PHT-FV
4	3/23/89	11/06/89 REBID	12/12/89	\$100.000	1	4	PHT-FV
5	3/23/89	4/7/89	5/26/89	\$39.980	1	4	PHT-FV
6	4/10/89	5/03/89	5/30/89	\$210.000	20	20	SPU
7	4/10/89	N/A	SM VLUE PRMNT	\$1.550	1	1	SPU
8	4/10/89	N/A	SM VLUE PRMNT	\$6.396	1	1	SPU
9	4/10/89	N/A	SM VLUE PRMNT	\$2.939	1	1	SPU
10	4/10/89	5/3/89	6/1/89	\$103.456	1	1	SPU
11	4/10/89	5/3/89	6/2/89	\$54.600	1	1	SPU
12	5/4/89	5/26/89	6/30/89	\$55.532	1	6	ETT
13	5/22/89	PROP		\$1.350	1	1	SPU
14	5/30/89	6/23/89	8/2/89	\$144.000	12	23	CBAW
15	5/30/89	6/23/89	7/24/89	\$115.439	1	4	CBAW
16	5/30/89	6/23/89	7/28/89	\$51.781	1	1	CBAW
17	5/30/89	6/23/89	7/28/89	\$52.527	1	1	CBAW
18	6/15/89	7/7/89	8/10/89	\$38.200	2	5	ETT
19	9/13/89	10/20/89	12/13/89	\$139.200	2	32	AGHBT
20	10/16/89	1/5/90	2/26/90	\$68.225	15	15	BP
21	10/16/89	1/26/90	3/21/90	\$100.500	19	19	BP

22	10/16/89	INFORMAL PROC.		\$530.000	33	33	BF
23	10/30/89	INFORMAL PROC.		\$358.000	2	39	AGNET/AGFOE
24	12/4/90	INFORMAL PROC.		\$331.000	15	126	AGFOE/AGNET
25	12/12/89	1/26/90	3/15/90	\$84.000	3	4	BP/ETT
26	12/14/89	1/10/89	3/1/90	\$23.100	1	3	BP/ETT
27	12/29/89	1/26/90	3/16/90	\$296.000	20	66	PHT-FV
28	1/8/90	1/26/90	3/19/90	\$41.000	1	6	PHT/BP/ETT
29	1/8/90	INFORMAL PROC.		\$129.000	6	10	ETT
30	1/25/90		DMC134	\$1.300	1	1	BF
31	1/25/90	N/A SM VALUE FROMNT		\$6.000	1	2	BP/ETT
32	2/25/90	N/A SM VALUE FROMNT		\$512	1	4	
33	2/25/90	N/A SM VALUE FROMNT		\$352	1	1	
			SUM	\$3.596.855	187	497	

NOTES:

1. INFORMAL PROCUREMENT IS BEING ADOPTED FOR TO'S 22, 23, 24 AND 29 SINCE THESE ITEMS REQUIRE IN-COUNTRY INSTALLATION AND TRAINING.

ITEMS REQUIRING IN-COUNTRY INSTALLATION AND TRAINING

<u>T.O.</u>	<u>ITEM</u>	<u>QTY</u>	<u>VALUE</u>	<u>SUBPROJECT</u>
2	HPLC	3	DLRS 163,500	PHT-FV
3	TEXTURE MEASURER	4	103,000	"
4	GAS CHROMATOGRAPH	4	25,000	"
5	GAS BLENDER	4	40,000	"
10	NIR ANALYZER	1	103,500	SPU
11	TOFU SYSTEM	1	54,000	"
15	AA SPECTROPHOTOMETER	4	115,500	CBAW
16	HPTLC	1	51,800	"
17	HPLC	1	52,500	"
19	WEATHER STATIONS	16	139,000	AGMET
22	ALL ITEMS	33	600,000	BP
23	ALL ITEMS	39	360,000	AGMET
25	ALL ITEMS	4	84,000	BP
26	PAPER COPIER	3	22,000	BP/ETT
27	MICROTOME	2	20,000	PHT-FV
27	STERILIZER	4	22,000	"
27	SHRINK WRAPPER	4	80,000	"
29	HOOD	1	5,500	ETT
29	SCINTILLATION COUNTER	2	40,000	"
29	AUTOCLAVE	1	5,500	"

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. 09		2. EFFECTIVE DATE 3/29/90	3. REQUISITION/PURCHASE REQ. NO. 386-0470-3-70141-01	4. PROJECT NO. (if applicable)
5. ISSUED BY Regional Contracting Officer USAID/New Delhi		6. ADMINISTERED BY (if other than Item 5)	7. CONTRACT ID CODE	
8. CODE		9. PAGE OF PAGES 1 1		

10. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) Winrock International Institute for Agricultural Development 1611 N. Kent Street Arlington, Virginia 22209		11. AMENDMENT OF SOLICITATION NO. 12. DATED (SEE ITEM 11)
13. MODIFICATION OF CONTRACT/ORDER NO. 386-0000-C-00-5039-00		14. DATED (SEE ITEM 11) 09/29/85
15. CODE	16. FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offers is extended, is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)
see attached.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

<input checked="" type="checkbox"/>	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input checked="" type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Foreign Assistance Act of 1961 as amended and E.O. NO. 11223
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return 6 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

See Page 2

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print) A. COLIN McCLUNG	15B. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) M.H. Snyder - Regional Contracting Officer
15C. CONTRACTOR/OFFEROR <i>(Signature of person authorized to sign)</i>	15D. DATE SIGNED 30 MAR 1990 <i>(Signature of Contracting Officer)</i>
15E. UNITED STATES OF AMERICA	15F. DATE SIGNED <i>(Signature)</i>

Page 2
Modification No: 09
Contract No: 386-0000-C-00-5039

The purpose of this modification is to provide incremental funding in the amount of \$2,122,499 in the contract budget.

Accordingly the contract is modified as follows:

1. Section B.2 - Estimated Cost and Obligated Amount

Delete \$8,517,850 and in lieu thereof insert \$10,640,349.

2. Section G - Contract Administration Data

Section G.1: Add the following fiscal data:

<u>PIO/T NO</u>	<u>AMOUNT \$</u>	<u>APPROPRIATION</u>	<u>BPC</u>
386-0470-3-70141-01	48,731	72-11M1021	QDNA-87-27386-KG-13
"	1,161,574	"	HDAA-83-27386-AG-13
"	206,988	"	HDAA-84-27386-AG-13
"	580,670	"	HDAA-85-27386-AG-13
"	124,536	"	QDAA-86-27386-AG-13
	<u>2,122,499</u>		
	=====		

Section G.5: Delete \$8,517,850 and in lieu thereof insert \$10,640,349.

FUNDS AVAILABLE-US AID/I
CHECKED BY.....*[Signature]*.....*[Signature]*
AUTHORIZED BY...*[Signature]*.....

"Copy of a FAX message received
March 16, 1990"

SHELADIA ASSOCIATES, Inc.
Germantown Facilities Division

15825 Shady Grove Road, Rockville, Maryland 80860

16 March, 1990

TO: Ron Hubbard

FR: Mary Lou Cisar

RE: Updated Schedule/projection

This could be more detailed, however, because of the time, I'm sending this as is, and you can tell me what you need "filled in".

Our estimated timetable for this procurement based on my discussion with you is as follows:

1. 60 days from advertising to closing.
2. 30 days from closing to NMIC request.
3. 30 days from NMIC request to NMIC receipt.
4. 30 to 60 days vendor lead time. This time will vary, depending on the sophistication of the equipment. Some items may take up to 180 days for delivery.
5. 30 days from warehouse delivery to arrival in India.

These time periods assume there will be no snags.

If you have any questions, or if I can clarify anything, please call me at any time. My home number is (301) 258-9482.

50

Estimated and revised procurement schedules

Annex - 7

A. Schedule of procurment actions as seen June 30, 1989:

day	0	-	specifications to Sheladia
day	21	-	advertise for bids
day	66	-	bids received
day	80	-	bids evaluated, supplier selected
day	94	-	proforma invoice received by Sheladia
day	101	-	proforma invoice received by end user
day	146	-	NMIC received by Sheladia
day	153	-	order placed
day	213	-	goods delivered to warehouse

B. Schedule of procurement actions as revised November 15, 1989:

day	0	-	specifications to Sheladia
day	21	-	advertise for bids
day	66	-	bids received
day	96	-	bids evaluated by Sheladia
day	126	-	bids evaluated by Winrock
day	156	-	proformas received by Sheladia
day	166	-	proformas received by end user
day	206	-	NMIC received
day	213	-	order placed
day	273	-	goods delivered to warehouse

.....

day	280	-	goods despatched
day	295	-	goods received in India
day	305	-	goods clear custom
day	315	-	goods arrive at site.

57

Minutes of the meeting to review the progress of Indo-USAID Subprojects under Agricultural Research Project and Project on Plant Genetic Resources held on 16.1.90 at 11.00 A.M. in Committee Room No. 1 Krishi Bhavan, New Delhi under the Chairmanship of DDG(CS)

A meeting to review the progress of Indo-USAID subprojects under Agricultural Research Project was held on 16.1.90 under the chairmanship of DDG(Crops Sciences), ICAR. A list of officers who attended the meeting is enclosed. As decided in the last meeting, a proforma was devised in consultation with USAID and the Coordinators of various subprojects had submitted the progress of their subprojects in the revised proforma. The action taken report was reviewed and it was felt that good progress has been made on all aspects in different subprojects. Each sub-project was then discussed in detail and a brief account is given as under:

1. Sub-project on SFU:

The progress of SFU subproject was presented by Dr.Nawab Ali, Project Director. As regards staff position, 50 posts have been filled up out of total strength of 60 sanctioned posts. As regards scientific posts, five positions were unfilled and under Technical posts also, four positions were lying vacant. The Chairman desired that the technical posts should be filled up quickly as the Heads of Institutions were empowered to do so. As regards scientific posts, these may be filled up through deployment at the earliest possible.

The position in respect of Training of Indian Scientists in USA was noted to be satisfactory. As regards consultancy, Dr.Nawab Ali informed that requisition of 15 consultants is in the pipeline and it is hoped that by the end of March 1991, 20 man-months would be utilised against LOF provision of 27 man-months.

As regards procurement of equipment, Dr.McClung of Winrock informed that by end of March,1990 most of the equipments would be procured. Dr.McClung further informed that they had requested USAID to permit them to transport equipments by air from USA to India.

Dr.Nawab Ali informed that the construction of buildings would be completed by June, 1990.

-2-

Under training, deputation proposal in respect of one scientist and one Technical staff specially recruited for the project have not been agreed to by the council due to the fact that they have not completed five years service in ICAR. Since SPU is a time bound project in a specialized field, the condition of having put in five years service in ICAR before deputation may not be adhered to in this case, otherwise the project objectives would not be achieved. The members recommended that this condition may be waived off for all the Indo-US subprojects.

Action ADG(Engg.)
IC Division -DS(S)

2. Subproject on 'PHT-FV'

The progress of the project was presented by the ADG(Hort)

As regards staff position, 75 posts out of a total of 82 have been filled up so far. Out of 7 posts lying vacant, 3 are of scientists and 4 are of Technicians. The Chairman remarked that the vacant positions may be filled up without further delay through deployment. Under training 83 man months out of 132 have been utilised so far. It was also mentioned that all the scientists deployed at the various centres except one because of health grounds have been deputed for training. As regards consultancy, only 24 man-weeks out of 113 could be utilised so far.

ADG(Hort) pointed out that due to non-procurement of equipment, the consultants could not be invited which has resulted in poor utilisation of consultancy services. He pointed out that in so far as procurement of equipment is concerned, most of the equipment would be procured by middle of 1990 as intimated by Winrock International. He further added that some spares are also needed for the equipment already received for which they would place demand during the current year.

Dr.Surjan Singh mentioned that since 'SPU' & PHT subprojects are being extended for one year beyond 31.3.90 upto 31.3.91, the concerned Subject Matter Division may prepare the level of effort in respect of training, consultancy, equipment etc. for the year 1990-91 and submit to USAID at the earliest.

Action: ADG(Engg.)
ADG(Hort)

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3. Subproject on 'Blood Protista'

The progress of the project was presented by Dr.M.N.Malhotra, Principal Scientist(AH). He informed that 5 posts of Scientists and 6 posts of technicians were lying vacant. The chairman advised that these posts may be filled up without further delay. Principal Scientist (AH) mentioned that no imported equipment has been procured for this subproject so far and as circulated by Winrock he hoped that most of the equipment would arrive by July/August, 1990. The chairman remarked that considerable progress has been made in this subproject.

4. Sub-projects on 'Embryo Transfer Technology' and 'Biodegradation of Animal Wastes':

The progress of two subprojects viz. 'Embryo Transfer Technology' and 'Biodegradation of Animal Wastes' was presented by ADG(AN&P). It was informed that no imported equipment has been procured so far for both these subprojects. In ETT subproject, under Training 13 man-months were utilised out of total provision of 27 man-months and under consultancy only 2 man-months have been utilised against total provision of 45 man-months. In the subproject on 'CBAW', under training, 71 man-months have been utilised against provision of 155 mm. and under consultancy 3mm were utilised against provision of 10 mm. The reason for poor utilisation of consultancy services was non-procurement of imported equipment.

The chairman mentioned that since Transmission Electron Microscope was not agreed for IVRI centre, decision be taken by the SMD as to whether the procurement of other equipments in the second priority list for this centre is to be made. This be decided soon in consultation with Director, IVRI.

ADG(AN&P) pointed out that the cases of Indian scientists going to USA for training under both these subprojects have been delayed very much in the past by DEA and were returned after 3 to 4 months with some queries. He requested that this matter may be taken up at higher level in DEA. In addition, large number of restrictions put up by DEA in clearing foreign deputations are prohibitive for proper functioning of these subprojects. Scientists proposed in these ^{sub-}projects are needbased according to the technical necessity. These cases should be viewed from that angle.

Action: ADG(AN&P)
ADG(PIU)

5. Subproject on Agro-forestry:

The progress of subproject on Agro-forestry Research was presented by Dr.J.S.P.Yadav. As regards staff position, the situation was very alarming as 12 posts of Scientists and 21 posts of Technicians and 9 posts of administrative staff were lying vacant at various centres. The chairman suggested that these posts may be filled up without delay. So far as other aspects like Training of Indian Scientists in USA, visit of US consultants to India, etc. are concerned, the progress was noted to be satisfactory. The chairman remarked that since Agroforestry research involves some areas of Plant Genetic Resources also, Director NBPGR may also be associated with this project. He advised Director, NBPGR to interact with DDG(Soils) in this regard.

Action: ADG (Agroforestry)
Director (NBPGR)
& DDG(Soils)

6. Subproject on Agro-Meteorology

The progress of subproject on Agro-Meteorology Research was presented by Dr.P.C.Bhatia. As regards staff position, 44 posts out of a total of 66 have been filled so far. Out of 22 posts lying vacant, 7 are of scientists and 6 are of Lab Technicians. The chairman remarked that the vacant positions may be filled up at the earliest. The progress in respect of Training and Technical Assistance was noted to be satisfactory. Dr.Bhatia informed that BHU centre of this subproject has been closed and in its place one centre at N.D.University of Agri. & Technology, Faizabad is being opened. The chairman desired that USAID may be informed about this change.

Action: Pri.Sci.(Agro)

7. In addition to the nine on-going subprojects, there are six other research areas which have been identified as priority areas by the Indo-US Sub-Commission for Agriculture. In view of budgetary constraints, it has been decided to fund them @ ₹ 150,000 each as pre-project activities. The detailed pre-project activity proposals alongwith level of effort

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for the following six projects are being despatched to DEA:

- i) On Farm Water Management
- ii) Farm Equipment Manufacturing Technology Centres
- iii) Animal Genetic Resource Conservation
- iv) Tissue Culture in Horticultural Crops
- v) Integrated Pest Management
- vi) Protected Cultivation and Green Houses

Action: ADG(FIU)

8. . Dr.R.S.Rana, Director, NBI GR presented information on salient accomplishments under the Indo-US-1D Project on Plant Genetic Resources. It was stated that all the CIs and convenents laid down in the Project document had been fulfilled and the key pre-project activities had also been completed satisfactorily. The budget grant of 1,50,000 US Dollars for pre-project activities had been fully utilized and a plea was made for provision of additional 50,000 US Dollars to cover the excess expenditure. In this context, it was decided that remaining activities be now booked to the main project provisions for training and consultancy.

Thirty six manweeks had been utilized under training/ study tours during the quarter bringing the total to 60 manweeks on a cumulative basis, by the end of last quarter. Cases of eight more scientists from NBI GR and other cooperating centres are being processed. Under consultancy, 5 manweeks had been utilized during the quarter, leading to a total of 19 manweeks on a cumulative basis till the end of last quarter of 1989. List of equipments had been further refined and detailed specifications were being developed. Procurement action for equipments worth Rs. 23.00 lakhs for the research purposes as well as for FIU had already been initiated and thus, the budget grant of Rs. 25.00 lakhs provided during 1989-90 would be fully utilized.

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Dr.Rana also informed that construction plans for the NBFGR Gene Bank and Headquarters building had been further refined during the visit of Dr.Steve Eberhart from USAID and Dr.T.T. Chang from IRRI on Nov. 27 - Dec. 4, 1989. Suggested modifications had been incorporated in the building plan and detailed specifications were under preparation. A national plan for plant quarantine grid under the NBFGR, including requirements for cooperative centres, was being developed for support under the 8th plan. Regular meetings of the PGR Project Coordination Committee were being held for speedy implementation of the Project activities.

The Chairman expressed full satisfaction over the good progress made under this prestigious project and mentioned that during mid-term review, more money could be given to this Project based on fulfilment of targets. He also pointed out that in the Agro-Forestry Project, NBFGR had not been involved and advised that this should be done. The Chairman stressed the need for preparing activity milestones indicating the training and equipment support to be provided to the identified cooperating Institutes/Centres. Regarding the constraints related to reflectivity of funds and the PIU staff requirements, the Chairman assured that the matter would be taken up with DEA and that the provision for staff would be kept in the 8th Plan. However, an effort would be made to get sanctioned the post of Sr.Accounts Officer and three Technical Assistants on priority basis and a suitable proposal in this regard should be sent to the Council soon.

Action: Director, NBFGR

9. The Chairman desired that a representative from DEA may be invited in all the future review meetings.

Action: ADG(PIU)

10. The Chairman further desired that action taken statement of the last meeting may also be presented in every future review meeting.

Action: ADG(PIU)
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In addition to the progress of various subprojects some general issues were also discussed which are enumerated below:

1. It was pointed out by several subproject coordinators that the cases of Indian Scientists going to USA for training are delayed very much by DEAs. Cases were returned by DEAs after 3 to 4 months with some queries. In addition, large number of restrictions put up by DEAs in clearing foreign deputations are not enabling the council for proper functioning of the subprojects. Moreover, as per existing procedure for USAID subprojects, the amount to be reimbursed from USAID for the salaries of staff, cost of indigenous equipment, etc. has to be reflected in the ICAR budget. This requirement is not there in case of projects being funded by Ford Foundation, IDRC, UNDI, etc. This requirement needs to be waived ^{off} in case of Indo-USAID subprojects also. Similarly, there are few more issues which need discussion with DEAs. The chairman desired that a meeting may be arranged at the level of D.G. with Secretary (Ext) to sort out these issues. All concerned including representatives of USAID be invited in the proposed meeting and ADG(IIU) may prepare a base paper for discussion. ADG(IIU) may also discuss with OSD(IIM) as to whether reflectable provision of funds is a must for these projects.

Action: ADG(IIU)

2. The chairman mentioned that USAID had issued IIL No.36 for earmarking \$ 200,000 under the ARI for the scientists required to go abroad in USIF projects as DEAs is insisting for foreign exchange component to be met in US \$. He mentioned that this amount has not yet been transferred to USAID as informed by DEAs. He requested USAID to take up this matter with DEAs at the earliest.

Action: Office Director,
USAID.

To sum up, the main decisions emerged out of the discussions in this meeting which need immediate action are listed below:-

1. Arrangements may be made by various Project Coordinators to fill up various categories of posts lying vacant without further delay as the Directors of the Institutes are empowered to fill up the technical & auxiliary posts. The scientific posts may be filled up through deployment at the earliest.

Action: All subproject
Coordinators.

-C-

2. Since Indo-US Subprojects are time bound, the condition of having put in five years service in ICAR before deputation for training to USA may not be adhered to, otherwise the objectives of the project would not be achieved. This condition may be waived off for all the Indo-US subprojects.

Action: IC Division-DS(S)

3. Since SPU & PHT subprojects are being extended for one year beyond 31.3.90 upto 31.3.91, the concerned Subject Matter Divisions may prepare the level of effort in respect of training, consultancy, equipment etc. for the year 1990-91 and submit to USAID with a copy to ADG(PIU) at the earliest.

Action: ADG(Engg.)
ADG(Hort)

4. Since Agro-forestry Research involves some areas of Plant Genetic Resources also, Director NBPGR may also be associated with this subproject. The chairman advised Director NBPGR to interact with DDG(Soils) in this regard.

Action: Director, NBPGR
& DDG(Soils)

5. In the subproject on Agro-Meteorology Research since the BHU centre has been closed and in its place one centre at N.D. University of Agri. & Technology, Faizabad is being opened, the chairman advised that USAID may be informed about this change by the SMD.

Action: Pri.Sci.(Agro)

6. The chairman desired that a representative from DEA may be invited in all the future review meetings.

Action: ADG(PIU)

7. A meeting may be arranged at the level of D.G. with Secretary (Exp) to sort out various issues pertaining to DEA for which ADG(PIU) may submit a self contained proposal to D.G.

Action: ADG(PIU)

8. The USAID should take up the matter with DEA relating to earmarking \$ 200,000 under the NRP for the Scientists Exchange Program to be managed by the USDA (FEURO) for which PIL No.36 has already been issued but the above amount has not been transferred to USL as per DEA records.

Action: Office Director, USAID

The meeting ended with a vote of thanks to the Chair.

List of Officers who attended the 'Review Meeting of Indo-USAID ARP held on 16.1.90 at 11.00 A.M. in Committee Room, No. 1, Krishi Bhavan, New Delhi.

<u>S.No.</u>	<u>Name and Designation</u>	
1.	Dr.R.S.Paroda, DDG(CS)	Chairman.
2.	Dr.T.P.OJHA, DDG(Engg.)	
3.	Dr.R.S.Rana, Director, NEPGR	
4.	Dr.T.N.Chaudhary, ADG(TWM)	
5.	Dr.Kiran Singh, ADG(AN&P)	
6.	Dr.A.Alam, ADG(Engg.)	
7.	Dr.G.L.Kaul, ADG(H)	
8.	Dr.S.Nagarajan, ADG(PP)	
9.	Dr.Nawab Ali, PD(SPU)	
10.	Dr.Bhaq Mal, Head(PIU), NEPGR	
11.	Sh.J.C.Malhotra, ADG(PIU)	
12.	Dr.M.N.Malhotra, Principal Scientist(AH)	
13.	Dr.D.K.Chaturvedi, Principal Scientist(AN)	
14.	Dr.Amba Das, Principal Scientist(PHT)	
15.	Dr.Tarun Kapur, Sr.Scientist(Engg.)	
16.	Sh.K.K.Sharma, Desk Officer(DARE)	
17.	Sh.J.S. Rawat, Section Officer (PIU)	
	<u>USAID</u>	
18.	Dr.John A.Becker	
19.	Dr.Surjan Singh	
20.	Dr.B.P.Srivastava	
21.	Dr.J.S.P.Yadav	
	<u>WINROCK INTERNATIONAL</u>	
22.	Dr.A.Colin McClung	
23.	Dr.Maharaj Singh	
24.	Sh.M.A.Nair	
25.	Sh.P.S.Srinivasan	
26.	Sh.Sunder Issac	

AGRICULTURAL RESEARCH PROJECT No. 386-0470

Estimated Foreign Exchange Budget for Pre-project Activities on

(1) OFWM, (2) FEMTC (3) AGRC, (4) TCHC, (5) IPM and (6) PCGH

(in U.S. \$)

PRE-PROJECT ACTIVITIES	U.S. TECH. ASSISTANCE & INDIAN MANAGEMENT TEAM VISITS TO U.S.	TRAINING/ STUDY TOURS	COMMODITIES	TOTAL
1) On Farm Water Management (OFWM)	30,000	100,000	20,000	150,000
2) Farm Equipment Manufacturing Technology Center (FEMTC)	25,000	125,000		150,000
3) Animal Genetic Resource Conservation (AGRC)	50,000	45,000	55,000	150,000
4) Tissue Culture Horticultural Crops (TCHC)	20,000	110,000	20,000	150,000
5) Integrated Pest Management (IPM)	25,000	95,000	30,000	150,000
6) Protected Cultiva- tion & Green Houses (PCGH)	20,000	105,000	25,000	150,000
TOTAL	170,000	580,000	150,000	900,000