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MID TERM EVALUATION REPORT

SEED PRODUCTION AND INPUTS STORAGE

AGRICULTURAL INPUTS CORPORATION

NEPAL

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MID-TERM EVALUATION REPORT

SEED PRODUCTION AND INPUT STORAGE PROJECT

AGRICULTURAL INPUTS CORPORATION

Acting on Behalf of HMG/N

and

The International Agricultural Development Service

AID Project No. 367-0018

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I. EXECUTIVE SUMMARY

Problems and Overview: Nepal's economy is predominantly agricultural. The country's total area is about 14,000,000 hectares (slightly larger than the state of Arkansas) of which 14% is under cultivation with an additional 13% of the land potentially reclaimable for agricultural uses. The remaining 73% is in forest and forest land, unclaimable waste land and perpetual snow. Nepal's population is estimated as 14,000,000 (1981) with an annual growth rate of 2.6%. In the 1970's, food grain production increased approximately 1.6% per annum while yields increased by only 0.6% per annum.

Farm size in Nepal is small. The average farm size in the country is 2.17 ha., while in the Hill region the average size of cultivated farm holdings is 0.66 ha. This Hill area comprises a broad strip of land extending from the eastern to the western borders through the central part of Nepal. The dominent features of the area are mountain ranges, canyons, inter mountain valleys, and terraced mountain slopes. The Hills are a food deficit area.

U.S. Assistance: To assist His Majesty's Government (HMG) achieve the national objective of increasing food grain production, raising the nutritional status of the people, and improving distribution, a project grant agreement was signed with the government of the United States in August 1978. This agreement established a Seed Production and Input Storage (SPIS) program which would be an integrated part of the National Seed Program (NSP).

The U.S. agreed to contribute 4.1 million dollars over a six-year period, and Nepal agreed to contribute an equivalent of 1.4 million dollars. The purpose of the project is "to help the Ministry of Food, Agriculture and Irrigation (MFAI)

establish a labor intensive system, ultimately to be based on private growers, for producing, testing, processing, storing and distributing seed of the major food crops and of storing and distributing all inputs used in the production of these crops, cheaply and effectively, to the small farmer." The primary emphasis of the revised program is to develop and test a system for local production and distribution of improved seed in the Hill and inner-Terai areas.

Broadly speaking, all the people of Nepal will be the beneficiaries of this project. For as reported in a Mississippi State University (MSU) 1977 study - "Every ton of improved seed planted should yield at least 20 tons more grain than if ordinary farm-run seed has been planted".

<u>Purpose of Present Evaluation:</u> Although the Project Grant Agreement was signed in August, 1978 a contract for technical assistance was not signed until December, 1979. The contract team leader arrived in Kathmandu in February, 1980. A total of 17 months elapsed during this period. The delay in implementation of the project has been summarized in the 1981 Evaluation and is not further dealt with in this report.

In 1981, AID and GON extended the project completion date by one year through August, 1984, and agreed to certain modifications in project inputs. It was also agreed that two external evaluations would be conducted of the innovative elements of this project. The first evaluation, a mid-term review in 1982, was to determine whether any changes should be made to increase the effectiveness of the project in meeting its objectives. The evaluation was to also include recommendations for improving seed production and marketing activities under the project. This report is the result of the mid-term review undertaken in Nepal during the period of September 3 to October 1, 1982.

Effectiveness: AID has been an effective supporter of the seed development program of the Hills and inner-Terai areas while it has been only partially successful in meeting its stated project objective. The overall program is behind schedule even though it it has been extended for one year. This past year the implementation by the technical consultants has been improved, but construction delays, slow selection of personnel for training, shortage of trained personnel and poor production of foundation seed in the Terai are major reasons the project is behind schedule. The actual outputs of the project in terms of the amount of seed produced, processed, and distributed as well as the training of the project personnel and farmers are below planned targets.

The project concentration on seeds rather than fertilizer inputs was noted by the Evaluation Committee in the Revised Project Implementation Strategy (RPIS). Direct farmer operation and management of mini seed plants does not appear feasible at this time, but farmer involvement in production and local distribution, and the involvement of women through a mini seed dealer program, seem feasible.

Conclusion: The Evaluation Team concluded this project should be continued even though the overall achievement of the project so far has not been up to expectations. While progress this past year has been commendable, the overall progress to date fell short of the planned implementation targets. The Evaluation Team found that the achievements of the Project were hindered by two main obstacles: the government (AIC) bureaucratic red tape; and, the lack of a good coordination system among the implementing agencies. The team's recommendations for improved performance of the project focus on the areas of forward planning, training activities, streamlining of decision making, assignment of personnel, technical

matters, and adoption of business-like procedures. In view of the dedicated and hard working personnel at the implementation level together with their gradually built up experience, the team believes that the project objectives can be fufilled, especially if recommendations by the team are implemented .

Recommendations For Immediate Consideration:

1. The annual supply of foundation seed is one of the most basic inputs in the SPIS project; therefore, the production program of AIC and DOA should be such as to guarantee a sufficient supply of improved, quality seed for this project.

2. The timely assignment of personnel, and the training thereof, is essential in order to keep the project from falling further behind schedule. Nine J.T.'s are needed to manage the nine production sites during the coming year. Three are already assigned, three new names were given to SPIS during the team's visit, and the remaining three positions are still unfilled. It is recommended the HMG/N assign personnel to this project to relieve the shortage of site managers as soon as possible.

3. It is recommended the National Seed Program (NSP) be formally documented outlining the goals and objectives of the program, including government department responsibilities for the various functions of the program. Once the program is formally documented, the integration of the SPIS project and the NSP can be implemented.

II. CONCLUSIONS AND RECOMMENDATIONS

The major findings and conclusions of the present evaluation are summarized here; each followed immediately, where appropriate, by one or more recommendations that derive from the respective conclusion of "finding". In Part IV, sections with corresponding headings present details upon which these findings and conclusions are based.

1. The Future: The Evaluation Team concluded this project should be continued basically according to the current plan, even though the project objectives will only be partially achieved during this phase of the project. This project is designed to help Nepal establish a seed production capability and a system for receiving, storing and distributing all agricultural inputs in the Hill and inner-Terai areas.

   The seed production capability of using private growers and ultimate distribution to small farmers are being developed in a satisfactory manner. Construction of processing and storage facilities is behind schedule, but tolerable at this stage of the program. A distribution system for fertilizer and other inputs other than seed does not appear attainable at this time. The AIC Seed Division staff and technical personnel are placing emphasis on seed production and should not dilute their efforts on distribution of inputs at this time.

2. Economics of Mini-sites: Macro-level consideration, it seems, has been the basic guiding force in this project. Surveys at each site were primarily limited to analysis of the suitability of site location and socio-economic

factors. Little emphasis has been given to analyzing the economic feasibility of the site operation; however, the potential demand for seed at the site area far exceeds the storage capacity of the SPIS facilities. The "bin storage" program expands the capacity of the facility and extends the project to outlying areas where more small farmers can be furnished improved seed. This expansion will strengthen the economic viability of the project at the micro-level. The direct, as well as the indirect, benefits occurring from the project when fully implemented should make the project economically feasible.

3. Construction: The current plan (revised) de-emphasizes the construction program and increases emphasis on development of institutions and systems for improved seed production. The SPIS staff is following this strategy, but the de-emphasis of construction is difficult to justify since seed production for 1982-83 depends directly upon completion of seven more facilities. Construction work is lagging behind schedule at several key locations. Engineering and overseer supervision is insufficient to expedite work. Three overseers have been employed, but additional overseers are needed to expedite the program. Tendering is very time consuming.

Recommendations:

That SPIS construction be assigned additional overseers to expedite construction, and that each construction site be visited twice a month by these personnel.

4. Operational Plans: The operational plans have been prepared for each site. Use of these plans by the AIC management staff would assist them in implementing and standardizing operating procedure at each site location.

Recommendation:

Revise, and annually update, operational plans in accordance with evaluation team comments in Part IV.

5. **Seed Production:** The revised implementation strategy emphasizes increased seed production for 1982-84. In accordance with this effort, nine sites will produce seed during the next growing season. Three JT's have already been assigned, while three are pending assignment and need training in preparatory work for management responsibilities. The remaining three must be identified and trained before the next growing season.

Recommendations:

The production of source (foundation) seed be investigated to determine how best to produce adequate quantities for the national seed program. If government farms are incapable of producing adequate quantities, then private farmers should be contracted to produce the additional quantities required. Source seed should be delivered immediately after harvest to AIC for storage in the Hill areas.

5.1 The metal bin program should be tested at pilot sites and farmers in outlying panchayats should be given bins, sell source seed, and be trained in seed production. This outreach program will strengthen the total Hill area program and help get more improved seed to small farmers.

Recommendations:

Bins be furnished to farmers on a test basis only, thus expanding the influence of the mini seed house concept. The results of the test would determine the direction of the metal bins program at other sites.

5.2 The metal bin program will also give the mini seedhouse a marketing outlet. This concept should be studied by the marketing consultant for detailed recommendation. The involvement of women as seed dealers is recommended in this metal bin program.

Recommendations:

The mini seed dealers concept be tested by employing the traditional market women on the farm to do the buying and selling of seed.

5.3 The private seed growers' involvement in ownership of mini seedhouses does not seem feasible at this time. Private ownership and management is being sought at one test location, Arughat. A seed growers association of five farmers has been organized for this purpose. Experience learned at this site will permit expansion of farmer participation to other locations. Efforts are underway at other sites to get private grower involvement, but until farmers understand the program, see a reliable supply of source seed and understand the importance of storing high quality seed, private investment and management will be slow in materializing.

Recommendation:

Continue the long-term goal for private sector involvement simultaneously with the current AIC JT management program. Use private seed growers, or seed growers' associations to manage and operate processing facilities based upon experiences learned at Arughat.

6. **Consultants:** This past year, the current IADS staff has done a very acceptable job in implementing the provisions of the program. Short-term consultants have been qualified in their respective professions but should spend more time on in-country training. To fully utilize the technical consultants' visits, meetings with host country personnel should be scheduled before leaving the country.

Recommendation:

Short-term consultant contract should clearly state that 50% of the consultant's time is to be spent on in-country training; and all consultants should submit a summary report for discussion with AID and host country personnel before departing the country.

7. **Standard Enforcement:** Nepal does not have a seed law. The "administrative directive" currently used as a guideline should be updated by the government to require the standard testing and truthful labeling of all seed sold for planting purposes.

Recommendation:

Update administrative directive on seed testing and labeling.

8. <u>Agricultural Credit:</u> The ADB/Nepal and Sajha are the two institutions providing agricultural credit to farmers. Funds are reported to be sufficient for loans to farmers for seed production, but farmers report loans are difficult to obtain from these institutions.

Recommendations:

ADB/N and Sajha institutions be requested by AIC to grant loans to farmers who have signed seed production contracts, and where possible, grant loans where seed is stored on farms.(e.g. metal bin program).

9. <u>Marketing of Seed:</u> Marketing seed under the SPIS will demand a special program as seed production is increased under the project. The regular AIC marketing strategies do not seem fully applicable in the Hill area. Some 19 MT of seed is available for sale in 1982-83. This seed should be used in a market testing program at this pilot site. Size of bag, labeling, promotional literature and other marketing techniques should be developed. The current bags provided by AIC do not meet the needs of the seed program. The bag quality should be improved and various sizes bags used to meet the needs of the small farmer. The program should highlight high quality improved seed. A marketing study is planned and selection of a marketing specialist is in process.

Recommendations:

A marketing study should be completed as soon as possible and marketing strategies from the study should be implemented this selling season. The marketing program should include a national plan, a plan for each site, some advertising and test marketing and assistance to mini seed dealers.

10. <u>Commodities:</u> The equipment and other inputs have arrived in-country in a timely manner. Equipment is moving to mini-seed house sites as soon as the buildings are turned over to AIC. Bags are one of the major inputs which need immediate attention. If poly lined jute bags are used as the standard AIC Seed Division bag, then the thickness of the liner should be at least doubled to prevent ripping.
<u>Recommendation:</u>

Strengthen the poly liners of the jute bags now in use. If liners continue to rip change to a two-bag process.

11. <u>Training:</u> The training goals and objectives of this project have fallen critically short of the projected targets and needs of the project. Both out-of-country and in-country training programs must be strengthened during the remaining two years of this project. A more detailed training plan seems appropriate to best utilize the training funds and accelerate academic, non-academic and in-country training. The Evaluation Team would like AIC and SPIS personnel to consider the following recommendations:

1) Prepare a detailed training plan with implementation schedule;
2) Expand the scope of the in-country training program by 2 or 3 times its current size with emphasis on J.T. and farmer training in preparation for the 1982-83 planting season;
3) In-country training should include (i) management training, (ii) seed marketing and pricing, (iii) maintenance of facilities, (iv) extension type meetings, (v) on-the-job training at processing facilities, etc. (section 10.2);

4. Women's participation in the training program should be encouraged, particularly on seed processing, storage and marketing;
5. Non-academic, out-of-country training should be emphasized since these training sessions are short-term and can give immediate short term results to the project;
6. Academic, out-of-country studies should be encouraged on a one year basis since project targets have not been achieved; and,
7. Assign a high priority to training the remaining two years of this project since the success of the program is so dependent upon trained personnel.

12. National Seed Program: One important objective before SPIS is to assist HMG in improving the entire system of seed production, processing, storage and distribution in Nepal. To achieve this objective, first a comprehensive National Seed Plan (NSP) should be documented outlining long-term policies, goals, objectives, institutions, responsibilities, infra-structure, targets and financial needs. In this document, the role of the private sector and a specialized national seed production agency could be specifically addressed. Integration of the SPIS with the NSP would also be ensured, including future continuation and phase II input needs.

In order to implement this recommendation, however, the SPIS should assume leadership in assisting the Central Seed Production Committee (CSPC) come up with the NSP document within a few months time. This will best be accomplished by mobilizing a team of consultants from in-country and outside who should work closely with the SPIS and CSPC.

Recommendation

A document be drafted outlining the goals, objectives, targets and administrative responsibilities of a National Seed Program.

13. **Management Responsibilities:** The management structure for the seed function within AIC seems overly complicated as outlined in the organizational chart. Management and operational decisions made by the central office are passing through too many offices before reaching the field site. Therefore, subordinate management personnel do not seem to understand corporate policies and programs.

Recommendation:

The organizational structure for seed management should be reviewed by AIC and, where possible, simplify the procedure of getting policy and operational decisions effectively communicated to, and implemented by field personnel. More responsbility should be delegated to regional and district offices.

14. **Subsidies:** The transportation costs of foundation, or source seed, from the Terai to District AIC offices is currently subsidized to keep the price competitive with farmer's stored seed.

Recommendation:

The Evaluation Team is not in favor of subsidies in general, but until the supply and demand factors influence the seed markets in the Hill area, transport subsidies on foundation seed should be continued to keep the SPIS seed price competitive with local seed.

15. <u>General:</u>

a) The involvement of Peace Corps Volunteers is highly recommended and special reference is made to their dedicated contribution to the project.

b) Wherever possible the acquisition of land for mini seed plants should be large enough to accommodate an access road and guard quarters. Maintenance of the facility to be the responsbility of AIC.

c) All mini seed plant construction sites should include a seed drying platform.

d) Coordination at the local level is encouraged between all development projects e.g. SPIS, Integrated Cereal Project, Hill Food Development Project, DOA, the Integrated Rural Development Project and Agricultural School Campuses, etc.

e) Foundation seed be replaced every three years at each site.

f) The pilot site of Sundar Bazar be used as a principal site for JTs.

g) A price differential be established between foundation seed and certified seed.

h) Operational plans should be updated annually and used by each site to standardize operational procedures.

i) The AIC Seed Division be re-organized to clarify management responsibilities and accountability.

III. EVALUATION METHODOLOGY

This mid-term evaluation has been undertaken to determine whether any changes should be made to increase the effectiveness of the project in meeting its objectives. The SPIS project objectives are two-fold:

1. To assist HMG/N improve the national seed production and distribution system, including seed production, processing, storage, distribution and certification; and
2. To assist HMG/N develop and test a system for local production of improved seed in Hill areas to which transportation of seed from other areas is economically unfeasible.

The Evaluation Team reviewed all pertinent documents including the Project Paper, the Grant Agreement, Project Implementation Letters, Contract Reports, the 1981 Evaluation Report, Baseline Survey Report, Training Materials and other related correspondence. Field trips to construction sites and discussions with IADS personnel and officials of His Majesty's Government were held by the team.

The Evaluation Team took particular care in trying to determine where a shift in direction of the objectives was decided. However, it had no more success than the first Project Review Team. This change in direction is quoted from the first evaluation report:

> "One decision which had been made, and which is important for AIC's overall development strategy in Nepal, concerns the relative focus on the Hills area and the inner-Terai as opposed to the Terai proper. The Review Team was

unable to identify in the Project documentation exactly when the decision was made to focus SPIS primarily on the Hills and inner-Terai areas; however, the decision is implicit in several decisions made which were pertinent to the Project."

Based upon this change in direction, the Evaluation Team has reported on various aspects of the Hills and inner-Terai areas. The AIC project is helping (i) to improve the seed production, processing, storage, distribution, marketing and certification and (ii) to introduce improved quality seed in the Hills and inner-Terai areas.

Given the above background, the team developed its conclusions and recommendations.

IV. DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

1. Construction Work

1.1 Construction Target of the Project

During the length of the project: sixteen mini-seed plants; twelve warehouses; one long-term storage unit for germ plasm; and a central seed testing laboratory at Khumaltar are scheduled for construction. Appendix D summarizes the construction schedule. Results to-date are:

Mini-seed houses (16):

a. two have been completed and turned over to AIC;
b. two have been completed but still are not released by the contractor;
c. four are under various stages of construction;
d. five are being tendered;
e. three are pending land procurement

Warehouses (12):

a. six are under construction;
b. five are being tendered; and,
c. one is pending land procurement.

1.2 On going Construction:

The warehouse at Damauli and Waling, originally planned to be completed in August 1982, are still under construction. The Waling warehouse is expected to be completed by the end of October 1982. This warehouse was visited by the team and the completion date of October 1982 looks attainable. The warehouse at Damauli (which was also visited by the team)

is about half completed. A dispute between the primary contractor and sub-contractor is delaying construction. The four mini seed houses currently under construction are planned to be completed between July 1983 and September 1983.

1.3 Proposed Construction

Construction at ten sites (five warehouses and five mini seed houses) has not been started; the works are still under the tendering process - construction bids have been invited but no contract has been awarded. The AIC construction schedules for the three mini seed houses and the one warehouse for which the land has not yet been procured are tentatively planned for completion by the end of September 1983.

Expansion of the seed testing laboratory at Khumaltar was originally planned to be started in October 1982. At time of this evaluation, however, tne tender for the job was just being published. Similarly, the construction of a germ plasm storage facility at Khumaltar was planned to start in November 1982, but at the period of this evaluation the preliminary design for the storage building was still being prepared.

1.4 Construction Modification

A slight modification in the construction of the mini seed house (adding of office space) and warehouse (connecting the seed processing room to storage) has been included in recent construction. These modifications will make each site more efficient in its operation.

Beside an access road to each seed facility, some office space and a small guard house would be useful. These additional features would make the sites more operational and should be considered under any Phase II construction plan.

1.5 Tendering Process

The baseline survey data and the local situations factor in preliminary site selection. The Engineering section prepares the design and cost estimate for the construction. The site proposal is then sent to AID for approval. Once approved, AIC calls for bids through the "Gorkhapatra," a daily newspaper in Kathmandu. Firms must submit their bids within 30-35 days from date of notice. Generally, the lowest bidder gets the contract and the completion date assigned to the contractor is usually 9 (nine) months from the date of signing the contract. The contractor is required to provide a bank guarantee with the deposit of "earnest money" and he is paid on "running bill". Some advance to the contractor to start the work is also provided.

It usually takes four to six months to get the construction contract signed from the date AID has approved the facility design and cost estimate One reason for such delay is the unavailability of the space to advertise the construction tender in the daily paper. However, this delay could be reduced by paying an extra charge to the paper for immediate advertisement.

1.6 Review of the Ongoing Construction

The team had a chance to visit two ongoing construction sites at Damauli and Waling. General observations on those sites have been mentioned in section 1.2. The dispute which has halted construction on the warehouse at Damauli will hopefully be settled soon. If not, and if work is not resumed shortly, the current contractor will be terminated for default and a new contractor will be engaged to complete the warehouse.

The engineering section at AIC, considering the difficulty of getting the construction materials to the Hill areas, is planning to provide a one year instead of 9-month time for the completion of the construction. Such thinking is understandable, but it will delay the completion of the construction work. This will call for a revision on the work schedule of the SPIS project.

The team has found that the construction works at Galkot, Guyandi, Marpha and Ghorahi are going well; but at Birendra Nagar, it is slow going. Some construction works have been done (and going on) in Chaurjhari, but in Majhuwa and Charikot, construction has not yet started (though it is reported otherwise in Appendix D). Better construction supervision at the construction site by AIC is required if the work is to be finished on time and meet construction specifications.

1.7 Review of the Completed Sites

Visits were made to the completed sites of Trishuli and Sundar Bazar. The work progress at Sundar Bazar is excellent. The team would like to complement the concerned people for their job done at Sundar Bazar.

Arughat and Trishuli premises have not yet been handed over to SPIS though they have been completed for months. The handing over was delayed due to lack of technical personnel (who could inspect the construction and approve/disprove the work) and the requirement for certain corrections in the construction work.

1.8 Supervision of Construction Work

The total technical supervisory personnel allocated by AIC at present is 10 overseers and 5 engineers. But only 4 engineers and 9 overseers have been recruited thus far. Of the 4 engineers, one is out of country for study. Therefore, the total technical supervisory personnel working at present is 9 overseers and 3 engineers. However, they are not exclusively assigned to supervise SPIS construction. They also look after regular AIC construction and SPIS construction. SPIS has funded three additional overseers who have just been employed. This will help speed up the inspection and supervision, but additional personnel are still needed if the construction schedule is to be maintained.

The Western Development Region (Pokhara), is served by one engineer, and one overseer who has to supervise 7 construction sites located miles apart (2-5 days walk). These two technicians also have to

supervise regular AIC construction. Therefore, more technical personnel should be employed on a temporary basis to permit site visits twice a month at a minimum.

1.9 Quality of Construction Work

Construction quality at Sundar Bazar was excellent. At Waling it was noted that the wooden frames used on windows and doors were of very poor quality and the cement plaster on the room walls (particularly inside of the storage room) were either of low standard or unevenly plastered. Lack of frequent supervision of the construction work is one of the reasons for such poor quality construction.

1.10 General Observation on Construction Work

The executing agencies at the field level are the Regional and District offices of AIC. The funds for construction and other orders usually go to the District offices thru the Regional Offices from the Central office located at Kathmandu. Some comments seem appropriate.

First, the funds apportioned for SPIS purposes are not kept separate from the regular AIC budget. Sometimes, the District Offices of AIC run out of money to pay the contractor. This happened in Dang, and the contractor at Waling was also experiencing the same delay in payment of bills

Secondly, the Office-in-Charge of the AIC office at Syanja (Waling) was found to be very unfamiliar with the SPIS project. It was learned later that he was

relatively new to Syanja, having been there for nine months. The team believes that any newly-assigned personnel at SPIS project areas should be briefed extensively about the project.

The construction facilities are adequate for good seed processing and storage. The mini processing and storage facilities are appropriate to project sites and should meet the purpose and objective for which they are built.

1.11 The sites for the SPIS project are selected after consultation with AIC Regional Office, the Agricultural Development Office and review of the Baseline Survey. The project coordinating committee makes the final recommendation with AID's concurrence.

1.12 <u>Funds for Construction</u>

Total funds earmarked for construction were 16.9 million rupees. The total projected construction costs are:

a.	Total cost of 13 approved construction sites	Rs. 6,674,930
b.	Total estimated cost for 13 additional sites	Rs. 7,016,096
c.	Total estimated cost for central seed lab at Khumaltar	Rs. 750,000
d.	Total estimated cost for germplasm/ genetic seed store	Rs. 100,000
		Rs.14,541,026

The balance of 2.4 million Rupees is planned to be accounted for in variation between actual and estimated construction costs, possible cost escalation and for unforeseen items that have not been included in the estimates. The breakdown of total funds released, expended and budgeted by AIC were not available to the team for review

2. <u>The Baseline Survey and Operational Plans</u>:

2.1 At the time of this evaluation, 20 (twenty) baseline survey reports had been published and an additional 13 (thirteen) surveys were underway (Appendix E).

2.2 According to the work plan "Revised Project Implementation Strategy, R.B. Singh et al, June 12, 1981" the purpose of the baseline survey is to provide information on: a) general information on the project area b) availability of credit, irrigation and other inputs; c) information on seed needs of the site and current sources of seed; d) extent of community interest in the project; and e) capability of the AIC and DOA/Extension Service in the area.

2.3 After scanning through the published baseline survey reports, the following observations are noted:

a) The surveys were designed very appropriately and the reports published in a timely manner;
b) All the sites selected for the construction of SPIS seed houses or warehouses were found feasible - even those sites (e.g. Damauli, Waling, Ghorahi and Arughat) where the baseline survey was carried out after the construction started.

c) Many surveys have mentioned the problem of unavailability of inputs like fertilizer and seeds at the project sites. This problem could be solved by the AIC itself, as supply of those inputs is its sole responsibility;

d) Unavailability of credit at site has also been mentioned by several surveys. AIC should approach ADB/Nepal in this regard for necessary arrangements;

e) The survey reports may be used as working papers by staffs at project sites in executing the seed production program. In this regard, copies of the reports should be made available to all the field staff at all SPIS project sites; and

f) The baseline survey reports of Chainpur/Bajhang expressed a little skepticism concerning support for the project there. The team was assured that the facility will serve four or five panchayats of the areas instead of one panchayat as indicated by the baseline survey. This portends well for the feasibility of the project there.

2.4 <u>The Operational Plan</u>:

At the time of this evaluation 25 (twenty five) operational plans and two socio-economic surveys (at pilot sites of Sundar Bazar and Gyandi) were completed and reports published (Appendix E).

2.5 After reviewing several operational plans, the following comments are made:

a) These plans together with the baseline survey reports can be used in executing the program at the field level. Thus, the format of the operational plan should be simplified, such that it could be used easily by the field staff as a working document. The plan should be made available to and discussed with the field staff. Regular supervision and checking by the Centre should be done on the basis of the operational plan;

b) The training program for each site should have been included in the corresponding operational plan. This would make the field staff more aware of their program;

c) Marketing (at least selling and buying of the seeds at the sites) of the seeds is not included in the operational plan. Its inclusion will make the plan more effective and help the staff feel responsible for the program;and

d) The record-keeping system should also be included in the operational plan, thereby helping to maintain uniform record-keeping practices in all the project sites.

Finally, the team would also like to draw the attention of the concerned agencies to the staffs (as much as possible), the sites and the provision of inputs as outlined in the operational plan.

3. Seed Production

3.1 The revised implementation strategy for the project suggests a change in direction of the project by deemphasizing the construction program and increasing emphasis on improved seed production. Seed production figures for 1981-83, summarized in Appendices F & G, reflect this change in direction.

3.2 3.2.1 The emphasis on private sector involvement in seed production has also changed. In the original Project Grant Agreement (PGA), reference is made to "private growers"; the SPIS also refers to "private growers"; the Statement of Work for the Evaluation Teams refers to "the role of the private sector"; the SPIS report under project objectives refers to "development of private seed producing and market enterprises"; the report on the First Annual Evaluation for SPIS, April-August 1981 refers to the "role of the private sector"; and the Project Paper refers to "Private Management".

3.2.2 The involvement of "private growers" in the Hill area should be made possible on a long-term basis, either by farmer associations or by private individuals, once the initial program becomes operational. One facility, Arughat, is being used to test private grower management. An association of five seed growers has been organized and they are being trained to manage this facility. Experiences learned at Arughat can be applied at other locations if it appears feasible. There are no traditional organizations with the capacity to take on responsibilities of operating seed processing and storage facilities. The Sajha, caste and self-help groups do not have the capital, distribution capabilities or technical knowledge to operate the mini seed processing and storage facilities. As confidence, experience and training evolve from exposure to mini facilities in the Hill area, long term "private farmer" management and ownership could develop; but short-term participation does not seem practical during the remaining two years of this project.

3.2.3 The "private sector" role is even more remote. Private investment in the seed industry at this stage of development just does not exist in Nepal. However, one privately-owned seed company just recently formed, the Nepal Seed Company, will produce hybrid seed maize in the Terai region. The constraints on distribution and land availability in the Hill area do not lend themselves to stimulating capital investments at this time. As AIC mini seed producing facilities become operational, and as the demand for improved seed by the farmer increases, this private sector involvement should be reevaluated.

3.2.4 The involvement of private farmers as mini seed dealers may be the first step in private sector participation. Marketing of seed by individual farmers (primarily women) who also have metal bin storage seems realistic (See discussion of the metal bins later on in this section).

3.3 Dr. Kaplan reports that the farmer groups or cooperatives of Nepal (Sajhas) seem to be weak and unable to perform well the functions already assigned to them. Caste groups are social categories without any corporate structure. Self-help groups are ephemeral and do not have enough structure to take on tasks that are to have long duration." Direct farmer operation and management of mini seed plants does not appear feasible in most cases. Farmer-grower involvement in production and local distribution does seem feasible.

3.4 Seed production at the pilot site of Sundar Bazar will be discussed as the prototype for other locations. Source seed is furnished to the farmers after a contract has been signed for seed production.

Field visited by JT's, (Junior Technicians) three to four times during the growing season, permits supervision of farmers' production. At harvest time each farmer is assigned a time to bring his seed to the processing plant. The seed is weighed, inventoried and seed cleanings are returned to the farmer for feed.

3.5 Farmers are paid a base price (set by commercial grain prices) plus 10% premium upon delivery of the seed. Once samples of the seed are tested and graded for quality, an additional premium of up to 20% is paid to farmers. This payment will be delayed about two months. Farmers at Sundar Bazar believed this was reasonable. The selling price of seed is discussed under the marketing section of this report.

3.6 3.6.1 The timely supply of inputs such as source (or foundation) seed and fertilizer will be critical to the production program. Early delivery of source seed to each site should be considered before the rainy season. Since only a small quantity of source seed is needed to support this program, it should be moved from the Terai to Hill area storage at harvest time.

3.6.2 A perennial shortage of foundation seed exists in Nepal. Foundation seed stocks are produced only on government farms under the supervision of DOA. The quantities of seed produced are established by the Coordinating Committee, but target results are not often achieved. The importance of foundation seed production as a necessary means of maintaining varietal purity (and thus increasing yield) does not receive the priority attention needed by <u>all</u> levels of management in AIC.

3.6.3 Only a small amount of foundation seed is needed each year for the Hill area. For example, in 1982-83 foundation seed requirements for nine project sites are

	Planting Rate	Ha.	M.T.
Wheat	100 kg/ha.	100	10.0
Maize	25 " "	29	0.75
Rice	50 " "	20	1.0

However, the Terai gets the total allocation of foundation seed as it has the greatest food production potential. Therefore, no foundation seed is available for the Hill area. New supplies of foundation seed should be provided to Hill area certified seed growers every three years. This would permit the production of high quality improved varieties in the Hill area for sale to local farmers. The need for a good foundation seed supply is basic to the overall success of this project. Since the government will not authorize the private production of foundation seed, the capacity of the government to produce foundation seed must be increased. One American farmer in Nepal could produce all the foundation seed required for the Hill area.

3.6.4 The delivery of bags must be reliable and on a timely basis. This is a supply problem for AIC management.

3.7 The subsidies of foundation seed transportation to the Hill areas should be continued. Transportation costs of seed from the Terai to the District Headquarters Office is absorbed by AIC. Transportation by porters from the District Headquarters to the project site is added to seed costs. While the team is basically opposed to subsidies, the current transportation subsidy should be continued to encourage the Hill area farmers to use improved seeds.

3.8 The Sundar Bazar farmer-grower program worked very well this first year. Since it is a pilot site, experience learned should be used in training personnel for other site locations. Participation by farmer-growers has been good. During a team meeting with farmers, it was obvious the farmers were very much in support of the program. Farmers wanted more acreage for production next year and more farmers want to participate in the program. The farmers of Sundar Bazar are typical poor hill farmers, and the project illustrates how they can be organized to participate in the seed program. These farmers should be used as a group to test "private growers" ownership and management.

3.9 The Institute of Agriculture and Animal Science has a campus located at Sundar Bazar. This campus has some 240 students. While cooperation exists between local personnel, no formal cooperation exists for seed production or training and no courses are offered in seed production, storage, etc. One of the basic criteria for selecting Sundar Bazar as a test site was the campus located near by. However, no plan exists to utilize this resource. Basic team work

between government agencies and AIC and between the Campus and AIC does not exist. It appears rather that they compete with one another. A policy should be established at the highest level to combine these resources for the national seed program.

3.10 During the field visit to Trishuli the staff explained a "metal bin" program which was started during "Save The Seed Program" in 1978. Some 60 bins were given to farmers for on farm storage. Fumigants were also furnished free to control insects. These bins are located at strategic farms surrounding Trishuli. Seed is sold by local women to other farmers in their area. The selling price of the seed is only slightly more than grain prices.

3.10.1 One bin site was visited by the team. The woman in charge discussed the program, showed samples of seed which looked of good quality and had no insect damage. She said farmers came back each year to buy her seed because they liked the quality and variety. She reported that fields are looked at and, when a field looks ready to her, the seed is harvested for storage. She stressed the need for a better supply of source seed and for seed of improved varieties. This program illustrates the basic involvement of women in the seed program as mini dealers.

3.10.2 The metal bin program will be tested at Sundar Bazar in 1983. Forty bins have been purchased with SPIS funds. Twenty bins will be transported to Sundar Bazar after the rainy season. These bins will be distributed to farmers in outlying panchayats.

The bins will hold 0.4 MT of seed. The location of these bins will be important in that they should not directly compete with the mini seed house operations, but rather expand the scope and influence of each seed facility.

3.10.3 This bin concept will permit the mini seed house to furnish source seed and greatly expand its program of delivering improved seed to small hill farmers.

3.10.4 Once established, these bin sites can also be tested as potential mini dealerships. The women do the trading and as experience is gained in selling their own seed, special arrangement in the future could be set up between AIC and mini dealers (women) to market project seed. The Sundar Bazar test site would be a good location to test this marketing concept.

3.11 Storage Facilities: The present storage capacity for each mini seed house is 40 MT of clean seed. The structure, either of brick, stone or cement block, is sealed with a smooth layer of concrete both inside and out. This 40 MT of stored seed is understood to meet approximately between 10-15% of the total seed requirement of the district. If the metal bin program proves feasible additional storage can be extended as a part of the mini-seed house project to outlying panchayats.

3.12 Management: Three different types of management systems are expected to evolve to supervise operations of the mini-seed houses. One of these systems

will be the pilot site managed under the SPIS project directly, another is the AIC management system, and the third system is farmer ownership management. Sundar Bazar and Gyandi are pilot sites, Arughat is intended to be a farmer-managed enterprise, and the remaining 14 sites will be AIC managed seed houses. Upon completion of the project in 1984, the test site will be managed by AIC.

3.13 Under the farmer system, a Junior Technician (J.T.) is to be the manager of the mini-seed house as well as the member secretary of the seed growers' association. This seed growers' association is understood to be a loosely formed cooperative having around 5 or more members. From this group, one leader is to be picked as a paid co-manager. The J.T. is to train the co-manager who is to ultimately take over as a manager in a privately-run seed enterprise. Under this system, ADB would provide operating loans to the cooperative.

3.13.1 The AIC managed system is to contract with the seed growers and buy the seeds from them directly through a premium system. In such a case, production loans are available to the seed growers.

3.14 Records and Labeling:

3.14.1 Standard inventory records must be kept at each location. This record keeping system should be included in the site operational plan. Some modification was suggested in its format during the team's visit to Sundar Bazar.

3.14.2 The standard DOA tag will be used to label seed. White, blue and green labels are issued by the Botany Division, DOA. The white label is to be used to denote foundation seed, blue for certified first generation seed and green for certified second generation seed. AIC also uses yellow tags for improved seed. Enforcement is the responsibility of the Botany Division.

3.15 General: Storage conditions in the Hill area are relatively good, because of cooler temperatures and lower humidity than in the Terai region. Seed is also dried and placed in air tight bags to prevent absorption of moisture, thus ensuring good quality seed for farmers.

3.16 Maintenance: A maintenance program for cleaning the equipment, maintaining the buildings, checking for water leaks, servicing equipment, checking stored seed and general housekeeping inside and out should be initiated. All facilities and equipment are new and they will stay in good condition if employees are trained to have pride in their mini seed plant.

4. Advisors, Consultants, Counterparts

4.1 Although the Project Grant Agreement was signed in August 1978, a Contract with the International Agricultural Development Service (IADS) was not signed until December 1979. The Contract Team Leader arrived in Kathmandu in February, 1980. Thus a total of some 17 months elapsed between signing of the Grant agreement and the arrival of initial contract technical assistant personnel. In addition to the

slowness in securing a contractor and finally negotiating a contract, project implementation was slow as summarized by the in-house AID evaluation on April-August 1981.

4.2 Changes in personnel, including assignment of a new team leader, has since accelerated implementation of project activities. The current staff of two long term consultants, a team leader and field supervisor, have made good progress this past year and are to be complemented. The 1981 Annual Report and the July 1982 Semi-Annual Report clearly reflect this progress.

4.3 A review of short-term consultant reports reflect highly qualified personnel have been selected for this technical work. The findings reported by short-term consultants should constantly be reviewed in training programs to get maximum benefit from this technical assistance. As mentioned in the Revised Project Implementation Strategy (RPIS), particular attention should be given to short-term advisors spending at least 50% of their time on in-country training. Whenever possible, a preliminary draft of the advisor's report should be distributed prior to consultant departure. The benefits of a debriefing by appropriate host country personnel can only complement the short-term consultant work and accomplishments.

4.4 In developing countries, a major constraint to more rapid progress is the shortage of highly trained and competent manpower. This is true in Nepal. This shortcoming is especially evident in the development of a viable and growing seed industry to improve

total productivity in the agricultural sector. The imperative need for good management and trained labour--particularly for mini seed processing and storage warehouses--cannot be overemphasized.

4.5 Selection of junior management personnel has been slow. Current staffing levels are:

Position of Full-Time JTs*/JTAs**

Site	Staff
Trishuli	AIC JT (Mr. Neupane)
Arughat	Project funded field assistant (FA***) (Mr. Dhan Kumar Shrestha) (JT from Dept. of Agriculture will also be assigned)
Sundar Bazar	AIC JT (Mr. Jagat Bahadur KC)
Majhuwa	JT from DOA assigned (Mr. Khem Narayan Chapagain)
Bijuwar	JTA from DOA assigned (Mr. Bharat Mani Sharma)
Galkot	JT from DOA assigned but name and details awaited
Charikot	JT from DOA to be assigned
	Seed program presently operated by IHDP (Swiss project) to be handed over to AIC. Presently IHDP has its their own JT's on staff.
Gyandi	JT from DOA to be assigned.

*JTA - One year agricultural training after High School
**JT Two year training in general agriculture after High School
***FA Field Assistant - local progressive farmer

Summary - Nine J.T.'s are needed at this time; three have been assigned, three names were received in September during team visit, and three are still to be selected.

4.6 Nine mini seed production sites are to become operational during the 1982-83 planting season, but only one new J.T. has been assigned. The assignment of more J.T.'s to the project is essential as construction and seed production is expanded. J.T. training should be completed in October of 1982 to permit supervised seed production during the growing season. The delay in selecting and training can only further delay the full implementation of the project objectives. In addition, this delay in the selection of personnel lessens the opportunity of the two consultants' services to be fully utilized by the project.

4.7 Special in-country management training should be scheduled for all levels of management. Counterpart management training is not included in the training schedule, but should be considered where funds permit. The current in-country training program is for technical orientation, but should be expanded to include management techniques and principles.

4.8 The selection of counterpart personnel is extremely important to the success of the project. Counterpart personnel should be assigned for the length of the project and not just for 3 month, or one year, or

until they take off on overseas training. The training of host country personnel as counterparts is essential if the program is to be continued upon departure of consultants.

5. Social Science Research

5.1 This research was done in two communities targeted for establishment of pilot small seed-houses. The study was to investigate constraints to project implementation and critical factors to be considered in site selection. A consultant, Dr. P.F. Kaplan, completed this study in December 1981. Areas covered by his report: (a) describe current sources of seed; (b) identify varietal preferences; (c) identify possible constraints to the production and marketing of improved seed in the Hill region; (d) recommend solutions to these potential problems: and, (e) establish criteria and a system for selecting sites for small seed houses/warehousing.

5.2 The study reveals that (a) many farmers save their own grain for seed; (b) storage is their number one problem; (c) improved varieties came from the mini kit program, cooperatives and other farmers; (d) seed brought in from the outside does not reach the farmers in time for planting; (e) poor quality seed is being brought in from the outside; (f) poor quality seed is especially prevalent during shortages; (g) agriculural credit is generally not available; (h) in-kind payment is desirable for seed to ease cash flow; (i) low cash flow may effect sales at any prices; and (j) bag and transportation costs may price seed out of reach of most poor farmers.

5.3 The pilot site at Sundar Bazar produced 15 MT of wheat seed and 0.5 MT of maize seed in 1982. This seed is now in storage at the new warehouse. Farmers transported the seed to the warehouse at no extra cost.

5.4 In a meeting with eleven farmers at Sundar Bazar during a field trip, the farmers seemed satisfied with the seed multiplication program. Concern was expressed that the selling price of seed at planting time will be too high; that more acreage should be contracted; more farmers want to participate in the program; and farmers do not want to store the wheat "on farm", but sell it for cash at time of harvest.

5.5 Since this is the first year of production, it is difficult to judge farmers' intentions. From initial reaction, farmers in the seed multiplication program are very enthusiastically supporting the SPIS program. This observation may be premature since the program has not gone through a full cycle and marketing the seed is yet to be done.

5.6 Many of the problems identified in the social research are being studied to determine how best to deal with them. Sundar Bazar will be a good testing ground.

6. Seed Analysis and Standard Enforcement

6.1 A study of the seed analysis and seed quality enforcement practices of His Majesty's Government (HMG) has just been completed by Mr. R. G. Griffith's consultancy. He reports:

"In principle the work of the Seed Technology and Improvement Program is acceptable regarding field and laboratory activities. Minor changes in methods of practices, management and increased range of tests should prove useful. The official national seed program of His Majesty's Government (HGM) consists of all the standard recognized components of variety production, release and maintenance, multiplication, processing, marketing and quality control. The former is under the control of the relevant crop commodity program while multiplication, processing and marketing is handled by the Agricultural Input Corporation (of which SPIS is a part, assisting the Seed Division). Official quality control is in the hands of the Agricultural Botany Division (DOB), Department of Agriculture. Its activities are not supported by legislation and so its role is confined to monitoring through field inspection of prospective seed crops and laboratory testing of submitted seed samples."

6.2 Seed labeling is accomplished by color coded tags indicating percentage purity; moisture content; inert matter; other crop and weed seed; minimum germination percentage; and, date of test. A label is valid for only one season. Three regional and one national laboratories do the seed testing. Test results are furnished AIC in a timely manner to permit proper labeling before seeds are sold to farmers. As seed production increases, the government must ensure that its capacity to test additional quantities of seed in a timely manner is adequate.

6.3 Farmers delivering seed to the pilot site at Sundar Bazar are paid the established price of commercial grain plus a 10% premium. The remaining premium payment may reach another 20% depending upon laboratory test results on the sample submitted for this purpose. Based upon test results, final payment is then made to the farmers. This procedure has worked well at Sundar Bazar in 1982. Careful planning will be necessary to avoid laboratory delays in testing; thus, avoiding payment delays to farmer. Regional laboratory facilities are adequate for this testing.

6.4 The DOA Botany Division currently is using a draft copy of a document entitled "Increased Use of High Yielding Crop Varieties and Fertilizer, Central Nepal," drafted by the Food and Agricultural Organization of the United Nations and dated 1975. This document is used as an administrative guide to standardize the seed analysis and labeling.

7. Agricultural Credit

7.1 During the operational phase of the project pilot farmers will require credit (particularly for inputs) for seed production. Besides the private money lenders, ADB/Nepal and Sajha were reported to have sufficient funds to meet the farmers' requirements. However, two important issues were identified in this regard. First, is the problem of making the credit available to the farmers participating in the seed production program at the project sites which are often located at a distance from the District Offices of ADB/Nepal. Secondly, as the credit is tied to inputs supplied by AIC (ADB/Nepal issues credit

coupons to the farmer which are then cashed at AIC for inputs), the effectiveness of credit then depends on the timely supply of inputs by AIC.

7.2 Inputs are delivered to the Hill areas after the rainy season as storage facilities are non-existent. Since the inputs are carried by porters, large quantities cannot be moved between the end of the rains and planting time. Inputs, therefore, often arrive at distribution sites long after optimum planting dates with a resultant significant decrease in crop yields. The twenty-eight project storage sites (16 mini-seed houses and 12 warehouses) will permit seed to be produced locally or delivered from the Terai prior to the rainy season. The timely supply of inputs will be a direct benefit of the project storage facilities.

7.3 In spite of sufficient funds, their unavailability to the farmers has often been reported. This paradoxical situation exists because of defaults. Farmers who have not paid back outstanding loans are not eligible to receive loans. This was the situation reported by the baseline survey at many of the project sites.

7.4 Storage loans could also be provided to the farmers against the seeds stored in the bins. This would help increase the total amount of credit that could be provided to the seed producing farmers by ADB.

8. Marketing of Seed

At the present stage of the project, marketing of seed has not been an issue; but it will demand attention in the near future -- as soon as most of the storage facilities are completed and seed production has expanded. 1982-83 will be the first marketing year for the test site at Sundar Bazar.

8.1 Buying and Selling of Seed

AIC has been the sole institution in Nepal that buys and sells seeds At present, it buys seeds from the farmer, the GON's agricultural experiment station, the DOA, and if necessary, India (if required). AIC sells through its own warehouses, as well as through the Sajha and commission agents.

In FY 1982-83, AIC plans to buy and sell 6,010 MT of seed. Most all seeds handled by AIC are currently procured from the Terai region of the country

Since AIC has no co trol over foundation seed, it is never sure about the amount of seed it will be able to buy. This basic seed is produced for AIC by the DOA. The quantity of certified seed produced by AIC is directly affected by the supply of foundation seed. An aggressive marketing program of improved high quality seed will require a reliable supply of foundation seed.

8.2 Seed Requirements

A committee at the district level prepares a seed production program for its region and requisitions the seed from the AIC central office. AIC reviews the programs of each region and determines the amount of seed to be sold in each district. Seed supplies are allocated accordingly.

8.3 Procurement Price of Seed

The initial procurement price of seed is determined at the time of signing the contract between the farmers and AIC. It is usually 110 per cent of the prevailing market price of grain. However, the price is revised during the collection time - the contract price prevails if the market price has decreased, but the contract price may be increased according to the market price to prevent the seed from being sold for food. A farmer is paid up to 20 percent of the fixed price as additional premium, depending upon the seed quality.

8.4 Selling Price of Seed

The selling price of seed is established by simply adding the following marketing costs to the procurement price.

	Cost Items	Amount
a.	Load/Unload	Actual cost incurred
b.	Transportation	" " "
c.	Packing & Seed Treatment	" " "
d.	Losses	2% of the cost price
e.	Administrative	3% " " " "
f.	Unforeseen	2% " " " "
g.	Dealer's Commission	6% on the selling price

8.5 Transportation Cost

The government subsidizes the transportation cost of seed from the procurement place to the district headquarters. Transportation cost incurred within district movement, however, is not subsidized. During the FY 1982-83 the subsidy is expected to amount to RS 1,994,000 ($152,190).

8.6 Packing of Seed

Presently, AIC handled seeds are usually packed in 40 kg bags. Since this is too large for the small farmers of the Hill regions, the SPIS Project is planning to introduce 10 kg packages in the project area.

To identify the different types of seed, AIC uses white tags for foundation seed, blue for certified first generation seed, green for certified second generation seed, and yellow for improved seed. There is no separate identification for the seed produced by the SPIS Project. A different tag should be developed for food grain purchased for seed during years of improved seed shortages. This seed is often of poor quality and gives the entire AIC seed program a bad name.

8.7 General Review of Marketing

The short-term marketing consultant should be brought into this project as soon as possible. The development of a marketing program for the Hill area can then be implemented in 1982-83. It is recommended

that the marketing specialist review the team's recommendation concerning the mini seed dealer in section 3.10. The role of the private sector should also be reviewed.

Market and price guarantees are the two important variables that could be used to induce farmers to produce certain crops. The present system of seed procurement by AIC guarantees the price but not the market. If the grain produced by the contract farmer fails to meet seed standards, something should be worked out to encourage the Nepal Food Corporation to buy it.

The team was told that farmers dislike the pricing policy of AIC. However, the farmers at Sundar Bazar appeared to be satisfied with AIC's pricing policy. The issue of seed pricing and marketing should be considered seriously by AIC, taking into account the supply and demand situation and profits.

9. Commodities

9.1 The procurement practices under the project seem to be adequate. Over 80% of the equipment is in country and 20% remains on order. Some problems and delays have been experienced clearing custom and this should be monitored very closely by SPIS personnel. The remaining 20% of equipment should be promptly cleared through customs as soon as it is received in Nepal.

9.2 The cleaning equipment built in-country is of fair to good quality. In-country materials are not as durable as U.S. manufactured products; therefore, more maintenance is required. If maintenance is stressed, the in-country machine will do the work satisfactorily. The dollars saved by building the machine in Nepal were probably justified. Most of the equipment is labor intensive, since it is hand operated.

9.3 As more construction is completed and mini seed plants come on line, the installation of equipment will become essential. The SPIS staff has anticipated the transportation problems (1-5 days walk by porters) and has equipment stored at various trail heads waiting for completion of facilities:

a) Trishuli seed house on site;
b) Dhading Besi seed house on site;
c) Sundar Bazar seed house on site;
d) Delivered to Gorkha Office - AIC, waiting for final handover of Arughat Seed house:
e) Remaining equipment stored in Pokhara AIC office for Gyandi seed house - Basic seed processing equipment at site.
f) Waling and Damauli warehouse equipment being stored in AIC Office Pokhara for final delivery when buildings are completed.
g) Additional equipment stored in warehouse at Kathmandu.

9.4 The quality of bags purchased by the AIC should be re evaluated. Currently a polylined jute bag is used to store seed. The polyliner which is glued to the jute bag is very thin. When the bag is handled the jute stretches and the liner rips thus letting in moisture. A heavier liner with adequate strength to withstand the weight and handling might solve the problem. Another choice would be a two-bag scheme. A large polysack bag inserted into a smaller jute bag has been used in other countries. The two-bag system is not as efficient to fill because of the extra handling, but under the labor intensive program it should not be that expensive.

9.5 The mobilization of project inputs have been timely and satisfactory to make sites operational as construction is completed.

9.6 Constraints appear to be in the purchase of miscellaneous items. No funding has been provided for purchase of minimal office supplies, equipment and furniture. A major constraint is that there is no reliable source of bags. This is an acute problem for the country and AIC does not appear to have this supply situation under control. The Coordination Committee should take immediate steps to resolve this constraint.

10. Training Program

Categories of Training and Their Budgetary Allocation

Training has been broadly categorized into two parts namely (i) in-country training, and (ii) overseas

training. Overseas training, however, has been further divided into (i) academic (degree) and (ii) non-academic (non-degree) training. The budget allocated for the overall training program is U.S. $707,000 out of the total SPIS Project budget of U.S. $5,509,000. This allocation, accounting for 13% of the total budget, clearly indicates the importance attached to the training program in the SPIS Project. Hence, it certainly demands a well-developed training strategy and an effective implementation schedule. The funds allocated for overseas training, especially for non-academic courses which are projected to cost U.S. $219,000, weigh heavily against the proportion of in-country training budget of only U.S. $100,000. Therefore, some funds from academic training ($287,000) and non-academic training ($219,000) should be transferred over to the in-country training program. The in-country training program should be expanded and improved for effective implementation of the project. See Appendix H. for a summary of in-country training to date.

The following tabular presentation summarizes the training expenditure.

Categories of Training	Budget Allocation	Total Claimed as per 7/31/82
1. In-country training	US $100,000	US $ 22,240
	Direct Cost $ 98,000	
	IADS Fee $ 2,000	
2. Overseas training	US $607,000	US $109,392
	Direct Cost $502,000	
	IADS Fee $105,000	
a. Academic training	US $287,000	
b. Non-Academic training	US $219,000	
Total of 1 and 2	US $707,000	US $131,633

Further budgetary analysis also indicates that only about 18.6% of the total training budget has been utilized during the first half of the project period.

10.2 Training Schedule, Achievement and Need for Additional Training

The original training schedule has been revised and extended by a year to 1984 (see appendix H. for in country training). In the implementation phase, there has been a slight deviation both in in-country and overseas training programs. Scheduling, location, subject matter, content and frequency of training have been changed. It was reported that 13 out of the total of 26 in-country training programs have already been completed.

Regarding the overseas training program, the team was told that the reasons for delays are: (a) selected candidates not meeting the required level of English language proficiency required by U.S. universities; (b) inability to send candidates to European countries, and (c) the negative attitude of the Government of India toward accepting Nepali participants. Since project funds will stop in 1984, no new candidates can be sent for the two years of academic training required for an advanced degree. Short-term non-academic training would still be possible within the time limit.

The in-country training program could be made better if the following features were included (i) management training (ii) training on seed marketing and pricing (iii) training in maintenance of

facilities (iv) more frequent training on seed handling, storage, and processing (v) on-the-job training regarding the proper use of foundation seed, roguing, isolation, advantages of using improved seed, maintenance, and post and pre-harvest care of seeds (vi) farmer seed grower organizational meetings (vii) extension type meetings.

10.3 Training Specialist, Staffs and Their Motivation

The project training specialist should design training courses and methodology based on the needs of the project.

The in-country training program should be broadened to utilize the expertise of in-country University personnel, the Entomology, Agronomy, Soil and Pathology Divisions of DOA, and the Marketing and Farm Management Divisions of the Food and Agricultural Marketing Services Department (FAMSD). The present remuneration of RS $200 to the trainer may need revision to attract high dedication and expertise for the training. How- ever, the amount of remuneration should also be judged against the quality and the subject matter content in the handouts.

10.4 Training Equipment and Materials

There seems to exist a reasonable amount of training equipment on order or awaiting custom clearance; yet the literature and reference materials do not seem to be adequate to facilitate the training program. A manual on seed technology, which is being prepared, should be seriously accorded priority and be published soon. Various leaflets, and folders (which can also be inserted inside the seed bag) should also be used as training materials.

10.5 Trainees Selection Procedure for In-country and Overseas Trainings

10.5.1 In-country Training

At present the trainees for the in-country training program are selected from the present as well as potential seed growers by the local field offices of AIC and JTs. The JTs and PCVs involved in seed production are also automatically placed in training.

The actual participation of trainee groups (seed growers and technical advisors) in the seed production training program should be both required and confirmed by the AIC training office. Other personnel who are involved in handling the seeds e.g. staffs of Sajha, AIC's agents, store keepers, sub-branch manager etc., should also be included in the training.

10.5.2 Overseas Training

The personnel directly involved in the implementation of the project should be given priority in selection for overseas training. Since the overseas trainees are very vulnerable of outside encroachment in Nepal, AIC should take special care in its selection procedure. The trained personnel should also be legally required to work for the seed production program upon completion of their training

10.6 General Review

a. Need to develop a training strategy and its effective implementation;

b. Need for a mid-term training program evaluation to develop a strategy to make it more goal oriented;

c. Need for a training specialist to develop training methodologies, techniques, improve training materials, assess training needs, develop selection procedure for trainees, and to organize and manage the training programs;

d. Need for an overall improvement and strengthening of the in-country training program. This might call for a reallocation of the training funds;

e. Need to develop standard training materials (in Nepali language);

f. Need to provide incentives to trainers;

g. Need to expedite both the in-country and overseas training programs;

h. Need to emphasize on-the-job training;

i. Need for a suitable selection procedure to ensure that the overseas or in-country trainees will work in project related areas upon completion of their training;

j. Need for increasing the participation of women in the seed training programs.

11. National Seed Program

References are made throughout project documents, and in the project implementation strategy to the integration of the SPIS project with the national seed production program and/or national seed program. If this objective is to be achieved, a document outlining the scope and goals of the national seed program should be drafted to permit an evaluation of this integration.

This is not to say a national program does not exist. Quite the contrary, it does exist, but it is included in several documents of several government agencies. The drafting of a single document could help emphasize the importance of the seed program and activities of responsible agencies.

The primary benefits would be to a) identify the national seed program and b) encourage greater priority in allocating resources for seeds.

12. Management and Organizational Chart

Appendix J. illustrates the complicated management structure for the decision making process of the seed program. Policy decisions and operational instructions reaching Hill sites are often diluted, re-interpreted by subordinates or changed as they pass down the chain-of-command. During this process of instructions moving from the central office to the field, the responsibility for carrying them out also gets diluted. Accountability is difficult to identify. This does not apply to all direction, but it is a general overall observation of the evaluation team.

Long distance communication without telephones or radios is difficult when management decisions must flow through people traveling to the regions, districts or branches and sites.

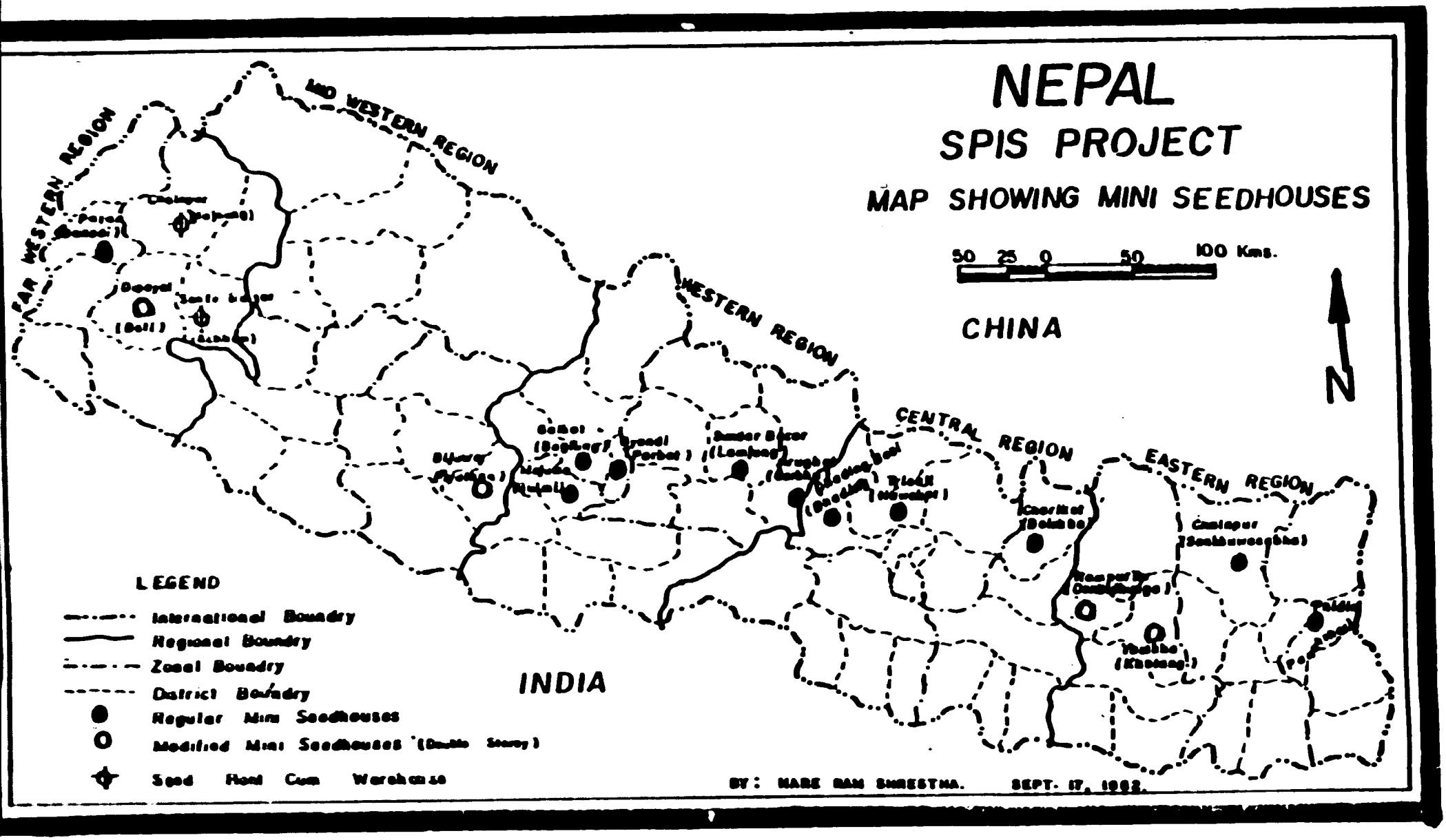
Simplifying the management structure would increase the effectiveness of the overall program. This would permit better supervision, and accountability, and could expedite the decision-making process, avoid extended delays and place a renewed priority on the seed production program.

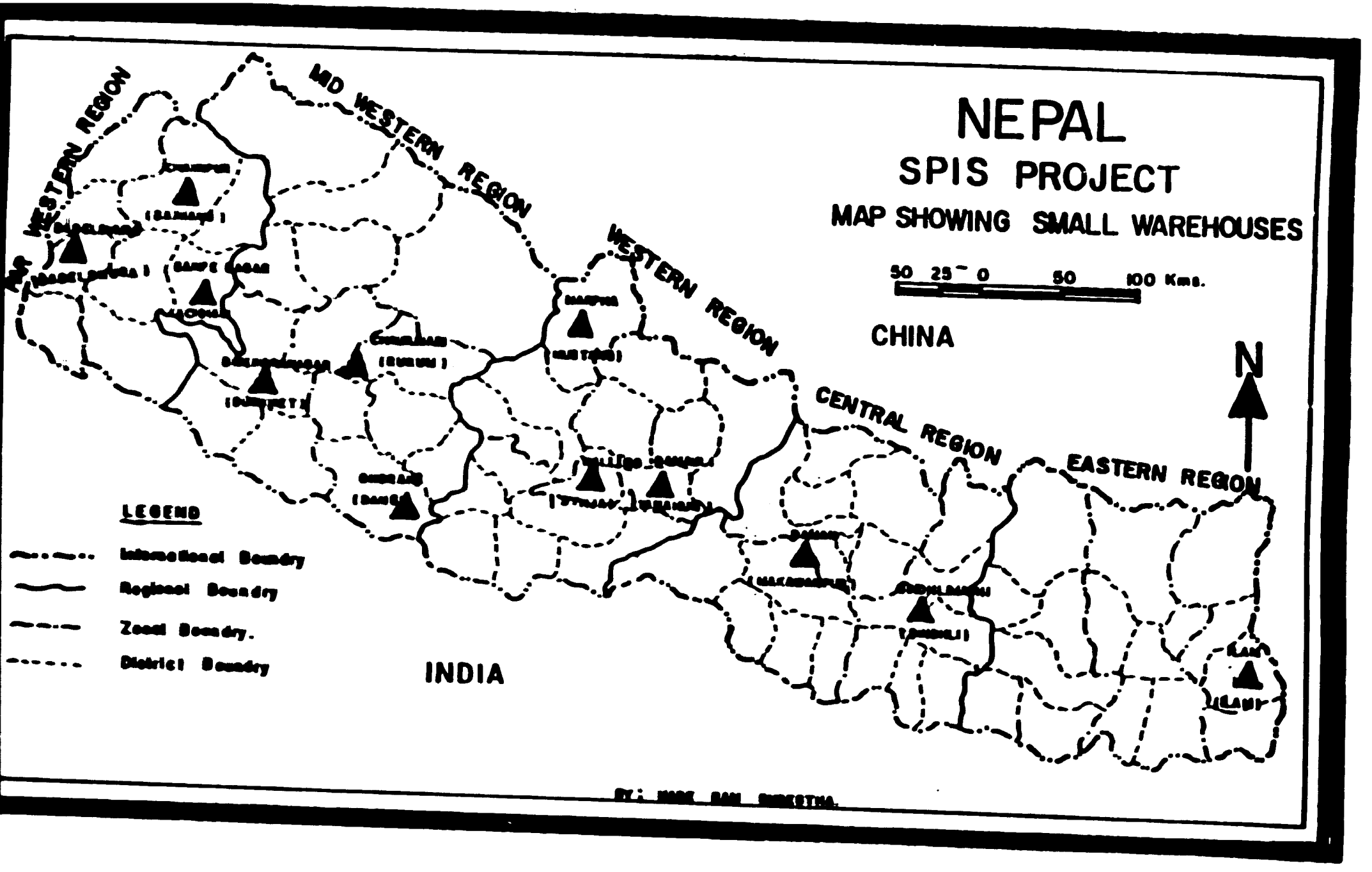
Seed production is a time sensitive business and the management structure of AIC must be so organized to act and/or react to the needs of the program in a timely manner.

13. Financial Summary

The total of AID and host country funds budgeted for this project are $5.5 million. As of this evaluation only $2 million, or 36% have been expended. AID has spent $1.3 million out of $4 million which is 37 per cent of its commitment. Similarly, GON has spent $638,000 which is 46 per cent out of $1.4 million it has committed. About 45 per cent, $50,000 of the funds committed by other agencies have been spent to date.

Considering the total amount of funds spent (36%), it would indicate the program, while implementation was accelerated this past year, is still behind schedule.


NEPAL
SPIS PROJECT
MAP SHOWING MINI SEEDHOUSES
50 25 0 50 100 Kms.
N
CHINA
INDIA
FAR WESTERN REGION
MID WESTERN REGION
WESTERN REGION
CENTRAL REGION
EASTERN REGION
LEGEND
International Boundry
Regional Boundry
Zonal Boundry
District Boundry
Regular Mini Seedhouses
Modified Mini Seedhouses (Double Storey)
Seed Hoal Cum Warehouse
BY: HARE RAM SHRESTHA. SEPT. 17, 1982.


NEPAL
SPIS PROJECT
MAP SHOWING SMALL WAREHOUSES
50 25 0 50 100 Kms.
N
CHINA
INDIA
FAR WESTERN REGION
MID WESTERN REGION
WESTERN REGION
CENTRAL REGION
EASTERN REGION
LEGEND
International Boundry
Regional Boundry
Zonal Boundry.
District Boundry

AA	Agricultural Assistant
ADB	Agricultural Development Bank
ADO	Agricultural Development Office
AIC	Agriculture Inputs Corporation
AID	Agency for International Development
CSPC	Central Seed Production Committee
DGM	Deputy General Manager
DOA	Department of Agriculture
FA	Field Assistant
FAMSD	Found and Agricultural Marketing Services Department
GON	Government of Nepal
HFPP	Hill Food Production Project
HMG	His Majesty's Government
IADS	International Agricultural Development Service
ICP	Integrated Cereal Project
IHDP	Integrated Hill Development Project
JT	Junior Technician
JTA	Junior Technical Assistant
MFS	Ministry of Food, Agriculture and Irrigation
NSP	National Seed Program
PACD	Project Assistance Completion Date
PCV	Peace Corps Volunteer
PGA	Project Grant Agreement
RPIS	Revised Project Implementation Strategy
RSPC	Regional Seed Production Committee
SPIS	Seed Production and Input Storage Project

Interviews and Visits

1. Mr. Gary Alex
   ARC, USAID/N

2. Mr. B.P. Adhikary
   Farmer, Sundar Bazar

3. Mr. Kedar P. Aryal
   Manager, ADB, Trishuli

4. Mr. S. S. Bal
   Project Supervisor
   SPIS Project

5. Mr. P.R. Bajracharya
   Agricultural Dev. Officer
   Trishuli

6. Mr. Bhupal B. Baniya
   Farmer, Sundar Bazar

7. Mr. P. Chauraisiya
   Project Coordinator
   HFPP, Pokhara

8. Mr. N.L. Dewan
   Engineer
   AIC Regional Office
   Pokhara

9. Dr. W. H. Freeman
   Advisor, ICP

10. Mr. Robert Iltis
    Peace Corps Volunteer

11. Dr. B.B. Khaystha
    Chief, Seed Division/
    Project Coordinator
    AIC/SPIS

12. Mr. Kedar Koirala
    Contractor's Field
    Staff, Waling

13. Mr. Bed Bahadur KC
    Agriculture Assistant
    Sundar Bazar

    Mr. P.P. Gorkhali
    Director General
    Dept. of Agriculture

14. Mr. K. P. Koirala
    Asstt. Production
    Agronomist
    Rampur Agri. Station

15. Mr. Phanindra B. KC
    Up-Pradhan Pancha
    Sundar Bazar

16. Mr. Chet B. KC
    Farmer, Sundar Bazar

17. Mr. C.M. Manandhar
    Asst. Project Coordinator
    SPIS Project

18. Mr. Malla
    Partner in Gorkha
    Construction Co.
    Pokhara

19. Mr. H. P. Neupane
    JT, AIC, Trishuli

20. Mr. W. B. Nance
    Program Officer
    USAID/N

21. Mr. S.P. Phuyel
    Office in Charge
    AIC, Syanja

22. Mr. Y.P. Poudel
    Pradhan Pancha
    Sundar, Bazar

23. Mr. R.M. Poudel
    Store Keeper
    AIC, Trishuli

24. Mr. S.P. Pandey
    AADO
    Trishuli

25. Mr. B.B. Panta
    Agronomist
    Institute of Agri.
      Animal Science
    Rampur

26. Mr. D. R. Pickett
Chief, ARC,
USAID/N

27. Mr. B.P. Pandit
Farmer, Sundar Bazar

28. Mr. Keshab B. Pandit
Farmer, Sundar Bazar

29. Mr. Peter G. Rood
Field Supervisor
SPISP

30. Mr. R. B. Rana
Accountant, AIC

31. Dr. K.B. Rajbhandary
Joint Secretary
(Evaluation)
Ministry of Agriculture

32. Mrs. K.L. Rajbhandary
Botanist, Bot Division
Department of Agriculture

33. Mr. P.N. Rana
Project Director, SPISP

34. Mr. K.L. Shrivastava
Asstt. Office-in-Charge
AIC Regional Office
Pokhara

35. Mr. Binod Sharma
ADO, Pokhara

36. Mr. V.P. Sharma
Acting Chief Officer
Rampur Agri. Station

37. Mr. R.B. Singh
Sr. Agri. Advisor
Ministry of Agriculture

38. Mr. S.K. Shrestha,
Manager, AIC Seed
Processing Plant, Hetauda

39. Mr. B.L. Shrestha
Accountant, AIC,
Trishuli

40. Mr. Hari Bhakta Shrestha
AIC, Trishuli

41. Mr. K.R. Shrestha
Ward Member, Sundar Bazar.

42. Mr. S.M. Shrestha, Farmer
Sundar Bazar

43. Mr. N.D. Subedi
Agriculture Asstt.
Sundar Bazar

44. Mr. B.B. Thapa
Office-in-Charge, AIC
Damauli

5. Mr. A.K. Thapa
Regional Manager, AIC
Pokhara

46. Trishuli Mini seedhouse
47. Ranipauwa Seed Store
48. Bimalnagar Seed and Fertilizer Warehouse
49. Damauli Warehouse (SPISP) incomplete
50. Khairaniter Seed Processing Plant & Training Centre
51. Pokhara Regional Office, AIC
52. Syangja AIC Branch Office
53. Waling Warehouse (SPISP) site
54. Sundar Bazar Mini seedhouse site (Pilot site)
55. Hetauda Seed Processing & Storage Plant (large size)
56. Rampur Maize Development Project, Integrated Cereal Project
57. Khumaltar Botany Section of Agricultural Department.

Best Available Document

Appendix - D

SFIS Project Construction Report

strict	Type	Date of Contract	Construction Date Started (Approx.)	Contract Amount (Rs)	Work Progress (%)	Expected Completion
struction Completed						
Trishuli/Nuwakot (not yet handed over)	Mini seedhouse	16/4/1981	10/6/1981	276,094	100	March 1982
Dhading Besi/Dhading	,,	21/4/1981	,,	383,516	100	,,
Sundar Bazar/Lamjung (Pilot)	,,	19/5/1981	,,	314,133	100	,,
Arughat/Gorkha (Not yet handed over)	,,	22/10/1981	10/11/1981	198,109	100	Aug 1982
struction on-going						
Galkot/Baglung	,,	27/9/1981	10/11/1981	266,952	85	Oct 1982
Majuwa/Gulmi	,,	25/7/1982	5/9/1982	305,727	25	Apr 1983
Gyandi/Parbat (Pilot)	,,	6/4/1982	10/5/1982	436,737	50	Feb 1983
Charikot/Dolakha	,,	2/6/1982	5/9/1982	375,349	30	Apr 1983
Damauli/Tanahun	Small Warehouse	7/7/1981	5/8/1981	429,560	50	Aug 1982
Wailing/Syanja	,,	,,	,,	486,632	90	Aug 1982
Marpha/Mustang	,,	4/4/1982	5/6/1982	1166,728	50	Feb 1983
Ghorahi/Dang	,,	18/1/1982	10/2/1982	569,778	90	Oct 1982
Chourjheri/Rukum	,,	22/4/1982	5/6/1982	899,430	30	Feb 1983
Birendra Nagar/Surkhet	,,	4/4/ 1982	,,	530,437	40	Feb 1983

Site/District	Type	Start	Expected Completion
C. Approved Sites Being Tendered (Notice Sent for Immediate Publication)			
15. Chainpur/Bajhang	Modified Warehouse (with seed cleaning facility)	(Considered as Seed Processing Centre) Dec 1982	Sept 1983
16. Rampur Tar/Okhaldhunga	Modified Seedhouse	,,	,,
17. Bijuwar/Pyuthan	,,	,,	,,
18. Dipayal/Doti	,,	Nov 1982	July 1983
19. Patan/Baitadi	Regular Seedhouse	Oct 1982	Aug 1983
20. Daman/Rokawanpur	Seed Godown	Oct 1982	July 1983
21. Ilam	Seed Warehouse	,,	Aug 1983
22. Dadeldhura 50 mt Capacity	Seed Storage Room	,,	Aug 1983
23. Sindhulimadi/Sindhuli ,,	Seed Storage Room	Dec 1982	Sept 1983
D. Sites in Land Procurement Process (Ready for Tender Except for Availability of Land)			
24. Sanfe Bagar/Achham	Modified Warehouse (with seed cleaning facility)	Nov 1982	Aug 1983
25. Chainpur/Sankhuwasabha	Mini Seedhouse	Dec 1982	Sept 1983
26. Yamkha/Khotang	,,	Dec 1982	Sept 1983
27. Phidim/Panchthar	,,	Dec 1982	Sept 1983

Site/District	Type	Start	Expected Completion
Sites Under Study			
(Number to be determined by Budget Review after above 9 sites are contracted)			
28. Pakhribas/Dhankuta	Mini Seedhouse	-	-
29. Terathum	"	-	-
30. Bhojpur	"	-	-
31. Jajarkot	"	-	-
32. Dailekh	"	-	-
33. Udayapur	Small Warehouse	-	-
f. Laboratories/Facilities			
34. Khumaltar	Seed Testing Lab	Tender call notice published	
35. Khumaltar	Genetic Seed Storage	Preliminary design being prepared	

Appendix E

SPISP Sites Survey and Approval Status

I. Seed Production Sites (Project target 16)

S.No.	Site	District	Baseline Survey		Operational	Social/ Eco. Survey	Site Approval
A.	Regular Hill Seedhouse (11)						
1.	Sundarbazar (Pilot Site)	Lamjung	Report	Published	Completed	Completed	Approved
2.	Gyandi (Pilot Site)	Parbat	"	"	"	"	"
3.	Galkot	Baglung	"	"	"	-	"
4.	Majuwa	Gulmi	"	"	"	-	"
5.	Arughat	Gorkha	"	"	"	-	"
6.	Charikot	Dolkha	"	"	"	-	"
7.	Trishuli	Nuwakot	"	"	"	-	"
8.	Dhading Besi	Dhading	"	"	"	-	"
9.	Patan	Baitadi	"	"	"	-	"
10.	Phidim	Panchthar	Data Tabulated		"	-	Not yet approved
11.	Chainpur	Sankhuwasabha	"	"	Not yet Completed	-	"

S.No	Site	District	Baseline Survey		Operational	Social/ Eco. Survey	Site Approval
B.	Modified Mini Seedhouse (Double Story) (4)						
12.	Bijuwar	Pyuthan	Report Published		Completed	-	Approved
13.	Dipayal	Doti	"	"	"	-	"
14.	Roupur Tar	Okhaldhunga	Data Tabulated		"	-	"
15.	Yamkha	Khotang	"	"	"	-	Not Approved
C.	Seed Plant Cum Warehouse (2)						
16.	Chainpur	Bajhang	Report Published		Completed	-	Approved
17.	Sanfe Bagar	Achham	"	"	"	-	Not yet Approved
II.	Warehouse Sites (Project target 12)						
A.	Regular Small Warehouse (7)						
1.	Dumauli	Tanahun	Report published		Completed		Approved
2.	Walling	Syanja	"	"	"		"
3.	Ghorahi	Dang	"	"	"		"
4.	Birendra Nagar	Surkhet	"	"	"		"
5.	Marpha	Mustang	"	"	"		"
6.	Chaur Jahari	Rukum	Used data from ICP		"		"
7.	Ilam	Ilam	Data not collected		Not yet Completed		"

S.No.	Sites	District	Baseline Survey	Operational Plans	Site Approval
B.	Modified Warehouse (Seed Godown) 1:				
8.	Deman	Mukawanpur	Data Collected	Completed	Approved
C.	Modified Warehouse (Seed Room) 2:				
9.	Dadeldhura	Dadeldhura	Report Published	Completed	Approved
10.	Sindhulimadi	Sindhuli	" "	"	"

Note: In addition Chainpur (Bhajang) and Sanfe Bagar (Achham) are also warehouse sites.

III Extra Sites (Surveyed/being surveyed)

S.No.	Site	District	Type	Status
1.	Phalebas	Parbat	Mini-Seedhouse	Data were collected but this site dropped.
2.	Fakhribas	Dhankuta	" "	Under Study
3.	Terathum	Terathum	" "	Survey team sent for baseline data collection
4.	Bhojpur	Bhojpur	" "	Survey team sent for baseline data collection
5.	Jajarkot	Jajarkot	" "	" " " "
6.	Dailekh	Dailekh	" "	" " " "
7.	Udayapur	Udayapur	Small Warehouse	Under Study

Appendix F

SPIS 1981 - 83 WHEAT PRODUCTION REPORT

Location	1980-81		1981-82		1982-83	
	Hectarage	Yield	Hectarage	Yield	Hectarage	Estimated Yield M.T.
1. Sundar Bazar	-	-	10	15.0 MT	20	30
2. Trishuli	1.5	800 kg	10	4.2 MT	10	15
3. Dhading Besi	-	-	-	-	10	15
4. Charikot	-	-	-	-	15	22.5
5. Galkot	-	-	-	-	5	7.5
6. Gyandi	-	-	10	-	15	22.5
7. Majhuwa	-	-	-	-	10	15
8. Bijuwar	-	-	-	-	10	15
9. Arughat	-	-	-	-	5	7.5
Total	1.5	800 kg	30	19.2 MT	100	150

Appendix G

SPIS 1981 - 83 MAIZE AND RICE PRODUCTION REPORT

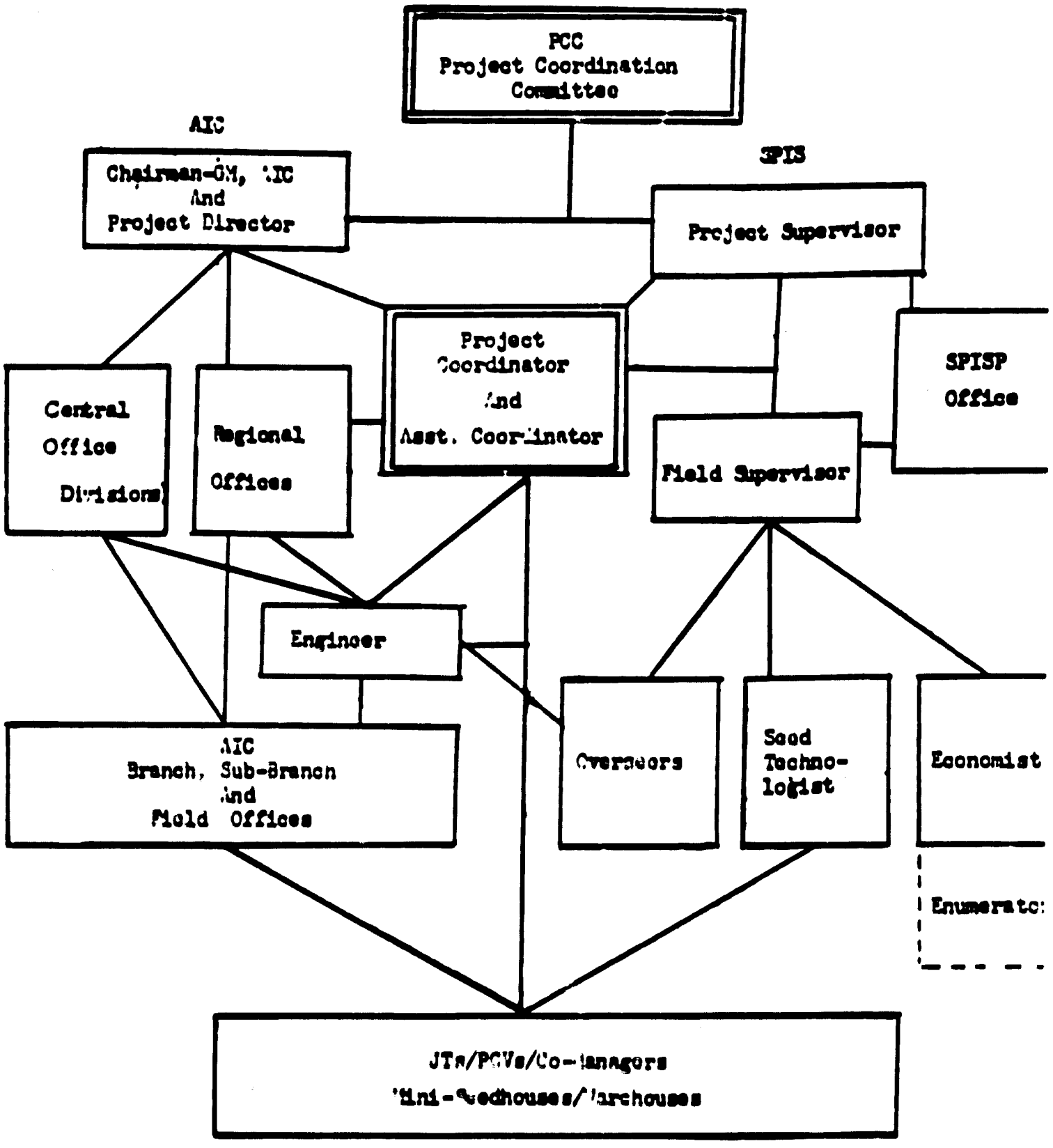
Location	MAIZE						RICE			
	1980-81		1981-82		1982-83		1981-82		1982-83	
	Hectarage	M.T.	Hectarage	M.T.	Hectarage	M.T.	Hectarage	M.T.	Hectarage	M.T.
Sundar Bazar	-	-	2	5	5	5	-	-	1	2
Trishuli	4	3	10	8(est)	5	5	-	-	2	4
Dhading Besi	-	-	3	400 kg (est)	10	10	1	2.5	2	4
Charikot	-	--	-	-	2	2	-	-	-	-
Galkot	-	-	-	-	1	1	-	-	-	-
Gyandi	-	-	-	-	-	-	-	-	1	2
Majhuwa	-	-	-	-	1	1	-	-	1	2
Bijuwar	-	-	-	-	3	3	-	-	2	4
Arughat	-	-	-	-	2	2	-	-	1	2
Total	4	3	15	13.3	29	29	1	2.5	10	20

In-Country Training Programs

In-Country Training	Activities		
2037/38	2038/39	2039/40	2040/41
Seed production training course (wheat and maize was conducted for farmers and AIC personnel in Kathmandu Aug 31-Sept 5 32 participants	1. Trainers training program AIC/HMG personnel (Mr. Ed. Perdon) (C-2) August	1. Training on seed storage and pest control training for farmers by AIC/HMG personnel Central Development Regional area	1. Field storage pest control management training course Khairenitar area.
Maize seed production work shop for farmers and AIC personnel was conducted at the Rampur Station (maize) 28 participant	2. Short training course on seed technology for the AIC (Ag. technicians) by AIC Central Office & Dept. of Agri. personnel August	2. Seed handling & marketing training course for farmers AIC/HMG personnel Kharenitar area	2. Vegetable seed training course for farmers, AIC/HMG personnel in Sarlahi
Vegetable seed production training course for farmer and AIC/HMG personnel Mustang area May (C-1) Dr. J.F, Harrington	3. Wheat and Maize seed production training course for farmers, AIC personnel Kharenitar area September-October	3. Seed production in maize training for farmers AIC/HMG personnel in Pokhara	3. Transportation of seed handling training course for farmers, AIC Sajha and AIC personnel
	1. Seed storage production training course for farmer's, AIC/HMG personnel, Central Development Region area (C-5) October-November	4. Seed production in rice training course for farmers, AIC/HMG personnel will be conducted in Central Dev. Region	4. Seed Production and handling training courses on cereal seed Far Western Region

In-Country Training	Activities	20	
2037/38	2038/39	2039/40	2040/41
	5. Seed analysis, and lab practices training course for farmers AIC/HMG personnel in Khumaltar Kathmandu (C-6) January-February	5. Field inspection training course for farmers AIC/HMG personnel Khairanitar	5. Fertilizer & seed storage handling training course for farmers cooperatives, AIC personnel in Western Development Region.
	6. Maize & seed production training course for farmers AIC/HMG personnel (Khairanitar area) February	6. Seed quality training course for AIC/HMG personnel in Khumaltar	6. Seed processing & handling course on Veg. seed for farmers, AIC/HMG personnel in Khumaltar
	7. Seed production processing & storage training course for local farmers and AIC/HMG personnels in the Trishuli area (C-7) March-April	7. Wheat seed production training course for farmers, AIC/HMG personnel - Surkhet area	7. Fertilizer, seed & technology for AIC/HMG and Sajha Cooperative Khumaltar
	8. Seed Drying and Packaging course (C-8)		8. Advance course in seed technology for AIC/HMG and Sajha Cooperative Khumaltar

IN-COUNTRY TRAINING COURSES COMPLETED

	TRAINING SUBJECT	DATE	PARTICIPANT	VENUE
1.	Crop Seed Production	Aug. 31/80 Sep. 5th	25 Officials	Katimandu
2.	Maize Production	Jan 5-8/81	28 Farmers	Rampur
3.	Vegetable Seed Production	May 15-20/81	25 Farmers	Marpha
4.	Trainers Training	Aug. 2-12/81	10 Officials	Kathmandu
5.	Wheat Seed Production	Oct. 19-22/81	25 Farmers	Sundar Bazar
6.	Wheat Seed Production	Nov. 6th/81	23 Farmers	Trishuli
7.	Grain andSeed Storage	Nov. 6-19/81	20 Officials	Khairenitar
8.	Seed Quality and Field Inspections	Jan 17-22/82	17 Officials	Khumaltar
9.	Seed Storage and Handling	Feb. 11-14/82	22 Officials	Biratnagar
10.	Seed Production and Handling	Mar. 14-17/82	25 Farmers	Nepalgunj
11.	Seed Production	Mar. 26/82	28 Farmers	Dhadingbesi
12.	Seed Production Storage & Handling	Mar. 29-Apr/82	22 Officials	Bhairahawa
13.	Seed Production & Handling	Aug. 10-12/82	36 Farmers	Charikot

ORGANIZATION CHART