

OPERATIONAL PLANS
for
GODOWN REHABILITATION
Including
IMPROVED PRACTICES AND PROCEDURES
for
STOCK MANAGEMENT
and
REPAIRS and MAINTENANCE
of
PUBLIC SECTOR GRAIN STORAGE

(Phase II)

Prepared for

THE GOVERNMENT OF PAKISTAN
MINISTRY OF FOOD, AGRICULTURE AND COOPERATIVES

and

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and

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and

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TABLE OF CONTENTS
GODOWN REHABILITATION PHASE-II

	<u>Page</u>
TABLE OF CONTENTS	i
LIST OF APPENDICES	iii
LIST OF TABLES	iv
LIST OF FIGURES AND EXHIBITS	v
GLOSSARY	vi
EXECUTIVE SUMMARY	vii
CHAPTER 1: INTRODUCTION	1
I. BACKGROUND	1
II. PHASE I BREIF	2
III. PHASE II BRIEF	4
A. Objectives	4
B. Project Tasks	4
IV. PHASE III	5
CHAPTER 2: SURVEY SITE SELECTION AND CRITERIA	6
I. PURPOSE	6
II. FACILITY SELECTION	6
III. PARAMETERS FOR INCLUSION IN SURVEY	8
CHAPTER 3: REHABILITATION IMPLEMENTATION PLAN	10
I. PURPOSE AND GOAL	10
II. COOPERATORS RESPONSIBILITIES	11
A. PASSCO Preparation	11
B. PFD Preparations	12
C. Alternative Operations Plan	13
D. Rehabilitation Schedule	14
III. IMPLEMENTATION OF REHABILITATION PROCESS	15
A. Pre-Consutruction Activities	16
IV. PASSCO CONTRACT MANAGEMENT	18
V. ESTIMATED REHABILITATION COSTS	19
VI. REHABILITATION SCHEDULE	29
CHAPTER 4: PLAN TO MONITOR GODOWN REHABILITATION	30
I. INTRODUCTION	30
II. MONITORING AND EVALUATION	30
III. REHABILITATION MONITORING PLAN	31
IV. PROPOSED EVALUATION/REPORTING	34

TABLE OF CONTENTS (Continued)

	<u>Page</u>
CHAPTER 5: FACILITY REPAIR AND MAINTENANCE PLAN	35
I. INTRODUCTION	35
II. WEAKNESSES OF CURRENT SYSTEM	35
III. REPAIR AND MAINTENANCE WORK	37
IV. R&M MANAGEMENT NEEDS BASIS	39
V. R&M SOURCING, BUDGETING AND ALLOCATING	40
A. Sourcing R&M Funds	41
B. Provincial Allocation of R&M Funds	43
C. Distribution of R&M Funds Within Province	44
D. Responsibility of PASSCO for R&M	48
VI. TIME TABLE FOR R&M	49
VII. LOCAL SITE R&M FUND	53
VIII. SUMMARY	54
 CHAPTER 6: IMPROVED STOCK MANAGEMENT PLAN	 56
I. INTRODUCTION	56
II. Pre-Receipt Activities	56
III. RECEIVING WHEAT	57
IV. STORAGE AND HANDLING	58
V. DISBURSEMENT OF STOCKS	60
VI. RECORDS AND RECORD KEEPING	61
VII. GENERAL HOUSEKEEPING AND UPKEEP	62
VIII. CONCLUSIONS AND RECOMMENDATIONS	64
 CHAPTER 7: PROJECT RELATIONSHIPS: KSU/STDT AND SR/RCA	 66
I. FACILITY MANAGEMENT	66
II. MODIFICATION OF FAQ AND NO-LOSS POLICY	67
III. BULK HANDLING	68
IV. NEW STORAGE	68
 CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS	 70
I. INTRODUCTION	70
II. REHABILITATION	70
III. REPAIR & MAINTENANCE	72
IV. STOCK MANAGEMENT	73
V. OTHER	75

LIST OF APPENDICES

- A. Copy of MINFA Letter Detailing:
 - 1. Priority List of Godowns Requiring Rehabilitation
 - 2. Appointment of PASSCO as Rehabilitation Agency
 - 3. Formula for Sourcing R&M Funds

- B. Selected Information From Tripartite Agreements Between MINFA and:
 - 1. Punjab Food Department
 - 2. Sind Food Department
 - 3. NWFP Food Department
 - 4. Baluchistan Food Department
 - 5. PASSCO

- C. SPECIFICATIONS FOR CARRYING OUT A&E SURVEYS FOR REHABILITATION OF PRIORITY GODOWNS

- D. EXAMPLE: BILL OF QUANTITIES FOR GODOWN REHABILITATION SURVEY/DESIGN

- E. SUMMARY: A&E COST ESTIMATES FOR REHABILITATION OF PRIORITY GODOWNS

- F. BRIEFING PAPER: HCC AND TENTATIVE TIME SCHEDULE TO IMPLEMENT CONTRACTS FOR REHABILITATION WORKS

- G. COST ACCOUNTING PROCEDURE FOR R&M WITH SUGGESTED REPORT FORMS

- H. TENTATIVE IMPLEMENTATION SCHEDULE FOR REHABILITATION PUBLIC SECTOR HTG STORAGE

LIST OF TABLES

	<u>Page</u>
II-1 Capacity of HTG Storage by Ownership and/or Control, Pakistan, 1988	7
II-2 Anticipated Funds and Capacity/Sites, Priority Candidates for Rehabilitation, Pakistan, 1988	8
III-1 Funds Available for Rehabilitation Work, Selected Priority HTGs, Pakistan, 1988	20
III-2 HTG Surveyed Capacity Qualifying for Rehabilitation, Pakistan, 1988	21
III-3 Ascending Order Array of the Rehabilitation Costs for Priority 1 HTGs by Agency, Pakistan, 1989-90	24
III-4 MFAC Capacity Targets, Allocated Funds and Designed Capacity with Estimated Costs by Agency, Pakistan, 1989-90	27
V-1 Example of Allocation of R&M Spending Authority Among Food Department Regions, Sind	45
V-2 Example of Allocatin of R&M Spending Authority Among Districts, Hyderabad Region, Sind	45

LIST OF FIGURES AND EXHIBITS

	<u>Page</u>
II-1 Host Country Contracting Process	17
III-A Field Report, Godown Rehabilitation Evaluation	33
V-1 Flow of R&M Requests for Funding	47
V-2 Repair & Maintenance Survey and Cost Estimates	50

GLOSSARY

- AID/ARD - (U.S.) Agency for International Development/Office of Agriculture & Rural Development
- AID/ENG - (U.S.) Agency for International Development/Office of Engineering
- A&E - Architectural & Engineering firm (ZOR Engineers)
- Cft - Cubic feet
- DF - Director of Food (Provincial Officer)
- DDF - Deputy Director of Food (Regional Officer)
- FSM - Food Security Management
- GOP - Government of Pakistan
- GR/RCA - Godown Rehabilitation/Recurrent Cost Accounting (Project)
- Kg - Kilogram
- KSU/STDT- Kansas State University/Storage Technology Development & Transfer component
- HTG - Houst Type Godown (grain storage warehouse)
- MFAC - Ministry of Food, Agriculture & Cooperatives (GOP)
- MINFA - Ministry of Food, Agriculture & Cooperatives (GOP)
- MT or mt- Metric Ton (1000 Kg or 2204.5855 Lbs)
- PASSCO - Pakistan Agricultural Storage & Service Corporation Ltd
- PFD - Provincial Food Department
- PHM - Post Harvest Management
- rft - running (linear) feet
- Sft - Square feet
- USAID - United States Agency for International Development
- USD or \$- United States Dollar (\$1=Rs. 18.12, Aug 1988)

EXECUTIVE SUMMARY

GODOWN REHABILITATION AND IMPROVED MANAGEMENT PRACTICES AND PROCEDURES FOR PUBLIC GRAIN STORAGE IN PAKISTAN

I. INTRODUCTION

The Government of Pakistan (GOP) Ministry of Food, Agriculture and Cooperatives (MINFA) has been suffering undesirable losses of wheat as it moves through the public grain storage system. Much of these losses are attributable to the poor physical condition of the storage facilities operated by the Provincial Food Departments and other agencies. The current condition of the storage facilities and the attendant losses in quantity and quality of wheat reflect inadequate management practices and procedures. Less than ideal storage conditions result from chronic under-funding and under-spending of facility repair and maintenance (R&M) funds.

The GOP is currently in pursuit of the development of a Food Security Management (FSM) system which will contribute to its goal of self-sufficiency in many staple food products, especially wheat. The Post-Harvest Management (PHM) sector of the FSM program embraces the public grain storage system and its management. The GOP recognized the need to improve both the facilities and the management of the public sector storage system. In response to a request for assistance, the United States Agency for International Development (USAID)/Pakistan Mission agreed to sponsor projects with the objective to aid the GOP to improve the management of the public sector storage. The focus of this PHM/FSM Project is to improve the management of the public wheat storage system by:

- o Rehabilitating selected HTG storages;
- o Designing a plan to insure the proper repair and maintenance (R&M) of public wheat storage facilities; and
- o Developing a program to improve the management of wheat stocks in the system.

This project is Phase II of a three phase project. Phase I, reported in November 1986, was basically the discovery phase. It determined the extent of the rehabilitation needs and the basic deficiencies in management. Phase II of the project was designed and carried out to develop a definitive plan for rehabilitation and to address the deficiencies in management. Management was defined to include the actions necessary to minimize storage losses of wheat moved through the public facility system. It refers to preserving the quantity and quality of wheat handled as well as protecting the integrity of the storage facilities.

Phase III will be the accomplishment of the rehabilitation process and the implementation of the R&M and stock management programs.

II. PHASE II GODOWN REHABILITATION PLAN

One of the first major tasks of this Phase II project was to develop a plan to rehabilitate the public owned HTGs constructed prior to May 1981.

A. SURVEY SAMPLE

Each of the Provincial Food Departments (PFD) and the Pakistan Agricultural Storage and Services Corporation (PASSCO) submitted a list of all the house type godown (HTG) sites to MINFA. The storage sites in each of these lists was arrayed in descending order of importance to storage operations of the respective agencies. MINFA supplied the lists to USAID and it was quickly realized that not all of the listed capacities could be rehabilitated with the funds available. The average rehabilitation cost estimate from the Phase I report indicated that up to 390,000 MT capacity could probably be rehabilitated.

Using the 390,000 MT capacity as a base each PFD and PASSCO was assigned a rehabilitation target. The target capacity for these agencies was its share of the 390,000 MT relative to their proportionate share of total HTG capacity in Pakistan as follows:

Province	HTG Capacity			Proportionate Share		
	PFD	PASSCO	Total	PFD	PASSCO	Total
	------(000 MT)-----			------(%)-----		
Punjab	1,250	284	1,534	51.8	11.8	63.6
Sind	401	18	419	16.6	0.7	17.3
NWFP	326	10	336	13.5	0.4	13.9
Baluchistan	126	-	126	5.2	-	5.2
Pakistan	2,077	312	2,415	87.1	12.9	100.0

The list for each agency's HTG sites was divided into two priority sections. The capacity of Priority 1 sites was defined by accumulating the capacities on the list until the assigned target level was reached for each agency. All other sites on the agency's list was designated as Priority 2. The lists were adjusted by MINFA which changed the priority rank of selected sites. MINFA increased Sind's target capacity from 55,000 MT to 108,000 MT and reduced PASSCO's from 67,000 MT to 50,000 MT.

B. A&E SURVEY RESULTS AND ANALYSIS

All the targeted HTG facilities designated as Priority 1 were to be surveyed for design for rehabilitation. The A&E firm (ZOR Engineers) completed field surveys of 75 Priority 1 sites containing 681 HTGs with a capacity of over 454,000 MT. Rehabilitation cost estimates were constructed for all but 3,500 MT (7 godowns which were not in condition to even consider for rehabilitation). About 73 percent of the capacity or 52 percent of the sites qualified for rehabilitation. In other words, the funds available (\$7.546 million USAID plus \$1.888 million GOP less fee for construction supervision and services = \$7.7 million available) are adequate to rehabilitate about 332,000 MT of capacity, or 73 percent of that surveyed.

Based upon cost data in the Phase I report a maximum cost of Rs.350/MT was established to define those sites which would qualify for rehabilitation. Because the estimated costs for rehabilitation exceeded expectations the maximum cost target was relaxed in order to rehabilitate the maximum capacity with funds available. The capacity targeted, surveyed, qualified and the estimated cost of rehabilitation was:

Province/ Agency	Capacity			Estimated Cost		
	Target	Surveyed	Qualified	Low	High	Average
	------(000 MT)-----			------(Rs/MT)-----		
Punjab	202.0	212.2	109.5	262	403	390
Sind	108.0 <u>1/</u>	108.0	108.0	284	296	289
NWFP	47.0	57.5	47.0	266	609	390
Baluchistan	19.0 <u>1/</u>	27.4	19.4	135	330	267
PASSCO	50.6	50.6	50.6			
Pakistan	426.6 <u>1/</u>	455.7	334.5	135	609	340

1/ Adjusted from original targets by MINFA.

C. ANALYSIS OF REHABILITATION COST ESTIMATES

Given the funds available (see following tables) only 73 percent of the facilities surveyed can be rehabilitated. The qualified capacity was 334,500 MT, just slightly over 86 percent of the 390,000 MT target.

An assessment of the estimated cost of rehabilitating the qualified capacity of 334,500 MT and funds available was made. This assessment revealed that an additional Rs.3.3 million (\$185.2 thousand) would be required to rehabilitate the designed capacity. By tripartite agreements

between the GOP and the PFDs and PASSCO the \$9.4 million (USAID \$7.546 million and GOP \$1.888 million) of rehabilitation funds were apportioned as follows:

Province/ Agency	Allocated Funds Dollars	Rupees <u>1/</u>	Funds Available for Rehab <u>2/</u>
	------(000)-----		-----(Rs)----
Punjab	4,684	84,312	68,826,119
Sind	1,954	35,172	28,711,835
NWFP	1,233	22,194	18,117,550
Baluchistan	779	14,022	11,446,530
PASSCO	781	14,058	11,475,917
TOTAL	9,431	169,758	138,577,951

1/ Converted at Rs.18=\$1

2/ Less PASSCO rehabilitation management fee of 22-1/2 percent which comes entirely from the GOP contribution

The total value of the \$9,431,000 available was converted to rupees at the exchange rate of Rs:18 to \$1. The rehabilitation management fee of 22-1/2 percent of the estimated cost as agreed by the GOP and PASSCO was deducted from the allocated share of each agency. The remaining Rs.138.6 million are available to carry out the actual rehabilitation works.

The surplus or (deficit) rehabilitation fund position of each agency was as follows:

Province/ Agency	Available Funds	Estimated Adjusted A&E Costs	Surplus or (Deficit) Position
Punjab	68,826,119	60,035,035	8,791,084
Sind	28,711,835	36,443,218	(7,731,383)
NWFP	18,117,550	20,956,197	(2,838,647)
Baluchistan	11,446,530	8,953,317	2,493,213
PASSCO	11,475,917	15,524,638	(4,043,721)
TOTAL	138,577,951	141,912,405	(3,334,454)

MINFA must make decisions relative to the estimated funding/cost positions revealed in this analysis. The decisions which need to be made will most likely be ones related to the reallocation of rehabilitation funds which will change the capacity targets. Due to the fact that wheat remains in storage for longer periods in the surplus producing areas,

especially in Punjab, any decisions to adjust capacities should take this into account. Therefore, it is recommended that:

- o Additional capacity for rehabilitation should be designed for Punjab to the extent that the estimated surplus of Rs.8.8 million would be exhausted.
- o To reduce the deficit funding position of Sind, since the Landhi capacity serves a large population center, that rehabilitation of one of the sites (the most expensive) be postponed for rehabilitation at a later date.
- o The estimated surplus in Baluchistan be reallocated to NWFP to reduce its projected funding deficit.
- o Any other adjustments in reallocation of funds, assuming no changes in capacities, except for Sind, be worked out through agreements with PASSCO.

Even if the total targeted capacity cannot be achieved the viability of the rehabilitation process will be demonstrated.

D. REHABILITATION IMPLEMENTATION

The Phase III rehabilitation process should be implemented as soon as possible. There are certain regulations relative to the Host Country Contract (HCC) that must be met prior to tendering rehabilitation contracts for bid. Both USAID/ENG and PASSCO have initiated some of these preliminary actions. They are both aware of the remaining pre-contract requirements and will cooperate closely to complete all these activities as quickly as they can. PASSCO and USAID assisted in the development of a tentative implementation schedule. It is hoped that the actual construction work can get under way early in the second half of this fiscal year (FY). PASSCO, in collaboration with the PFDs, will develop the construction schedule.

The PFDs must cooperate by making the facilities to be rehabilitated available to contractors during the construction phase. This will require each affected storage site to develop an alternative operating plan. The plan will assure the facilities will be empty and they will be able to carry out with their operations with only minimum disruption.

The rehabilitation contract works must be initiated as scheduled in order to have a sizable share of the renovated facilities available for the next season's wheat crop.

E. MONITORING THE REHABILITATION PROCESS

The responsibility for monitoring the rehabilitation process will be led by USAID/ENG. PASSCO is expected to keep AID/ENG as well as the

PFDs and GOP apprised of the progress of the rehabilitation effort through periodic reports that will include among, other items:

- o contract capacity let since last report,
- o contract capacity completed, and
- o other pertinent information such as problem and problem resolution, etc.

USAID/ENG will make random unannounced visits to the construction sites to observe how the works are being carried out. Contractors should be made to understand that they will be monitored and evaluated by USAID. Also, they should be informed that the visits will be unannounced.

III. REPAIR AND MAINTENANCE

A. INTRODUCTION

The repair and maintenance (R&M) program is an important section of this Phase II project. The protection of the capital assets represented by the public sector storage facilities through an improved R&M program is an important facet of management. Not only does it preserve the asset and insure its availability for the design life of the facility but also assures that an acceptable storage atmosphere is available to protect the quantity and quality of stored wheat.

B. BASIS OF NEED FOR IMPROVED R&M PROGRAM

The present R&M program as reported in Phase I has, over the years, been chronically under-funded with allocated funds either being under-spent or mis-spent. This has led to the poor condition that is found in many of the storage facilities in Pakistan. Researchers have noted that one element of inadequacy of the R&M program was that the PFDs were not responsible for the maintenance of their own facilities. The responsibility lies in the hands of the Provincial Public Works Departments.

These situations need to be changed to overcome the current deficiencies. This can be accomplished by adequately funding R&M needs and placing the responsibility for facility management in the hands of the agency that uses the facilities - the PFDs.

C. RESPONSIBILITY FOR R&M

The responsibility for R&M will lay in the hands of Provincial Food Departments. They will be responsible for developing R&M budgets each year. Likewise, each PFD will allocate the R&M funds (spending authority). In collaboration with PASSCO, the R&M construction management

agency, the PFDs will be responsible for carrying out the repair requests of local storage officers.

D. BUILDING R&M BUDGET REQUEST

The R&M budget requests proposed in this study are built from the bottom up. That is, the local storage officer inspects his own facilities and records the R&M work requirements for each godown at the site. In order to do this each storage officer will need to be trained to inspect, recognize, measure and record the observable R&M needs in his facilities. The STDT PHM/FSM project has developed a training wing and will develop a training program to provide the skills to carry out this exercise.

The survey sheets for each site will be furnished to the PASSCO field engineer for verifying and developing cost estimates. The resulting local budget request is to be forwarded to the district for compilation and construction of a report for the regional food officer outlining the R&M needs in his district restricted to the proportionate share of allocated provincial funds. The regional officer will aggregate the district reports. He will construct a regional report to submit to the PFD. At the provincial level a final report on R&M budget requests is compiled and forwarded to MINFA for their information. These records will form a part of the audit trail and R&M control/management system.

E. SYSTEM OF BUDGETING AND ALLOCATING R&M FUNDS

1. Current System

The current system for budgeting R&M requests followed no systematic procedure. Local storage officers submitted requests for R&M works to their superiors. Often, the local managers were reluctant to make R&M requests since some were found to be eight years old with no response (Phase I report). PFDs were to submit R&M budget requests to Provincial Finance Officers based upon a percent of the capital investment in storages. None of the PFD officials could establish the value that should have been used. At best the budget request system appeared to be adhoc and based upon last years allocation of R&M funds appropriation for R&M employed a similar adhoc system.

The allocation system was little better. R&M fund appropriations were placed in the hands of the respective public works department. Requests for R&M works were submitted to them by PFDs as well. The evidence indicates that not all the R&M requests were honored since the R&M funds were underspent.

2. Recommended System

The recommended R&M budgeting/allocation system is a systematic program that places the responsibility for R&M works with the PFDs. In collaboration with PASSCO, the R&M construction management agency, all R&M works for which funds are available will be carried out each year.

The budget requests for R&M will originate at the local storage sites and move progressively up through the managerial levels to the PFD.

Allocation of funds (authority to spend) will be based upon the proportionate shares of (regional to district to locals) covered storage to the total covered storage in each respective sector. That is to say the regional allocation will be based upon its share of Provincial capacity, etc.

Funds for execution of R&M contracts by PASSCO could be transferred on a periodic basis or upon request, whichever system would work best. All R&M funds would be placed in a non-lapsable account with interest earned, if any, being used only for R&M purposes.

It is suggested that the local site managers be supplied with a limited amount of rupees to be used for casual and/or emergency repairs. These kinds of repairs are for such items as light bulbs, replacement of a broken window, re-alignment of a door which may have been damaged, etc. It is suggested that this fund be set at Rs.1/MT capacity at the site and that all expenditures are reported and properly receipted.

F. FUNDING R&M

The GOP is to be commended for the adoption of an R&M funding formula as part of the incidentals payments to the Provinces and PASSCO for procurement of wheat. The basis of the formula was that R&M needs are a function of the volume of wheat moved through the storage system.

The formula is based upon the volume of unrehabilitated storage, volume of wheat procured and the Phase I estimated R&M requirements for each province. These R&M cost levels were estimated to be Rs.20 and Rs.25 per MT (capacity) respectively for Punjab/Sind and NWFP/Baluchistan. The formula to be employed in sourcing R&M funds for each agency is:

$$\frac{(T-C)(S+F)}{P} = \text{R\&M Wheat Procured}$$

- T= Total provincial covered storage capacity
- C= Capacity to be rehabilitated
- S= Average R&M cost per Phase I Report
- F= Fee of executing agency (PASSCO)
- P= Volume of wheat procured

The impact of the addition of R&M to incidentals is minimal. In using the formula, the share for R&M is generally less than three percent of the total incidentals payments.

At this time the fee for managing the R&M contracts by PASSCO has not been established. It is recommended that the GOP and PASSCO agree to a reasonable fee in order to implement the R&M funds sourcing formula as soon as possible.

It is believed that current R&M needs are a result of the "wear and tear" on a facility from the volume of wheat moved through the system during the past year. Therefore, the input for P (volume of wheat procured) used in the formula to derive the R&M allowances should be that volume. Using this known value will eliminate the need to make adjustments which may result if the number was an estimate for the current year.

G. R&M CONTRACTS AND EXPENDITURE RECORDS

Once the regional, divisional and local managers are informed as to the allocation of spending authority the R&M budget requests can be compared with the allocation. If any adjustments are required they can be done at this time. For example, if allocations are not sufficient to meet all the requested works those to be completed during the current R&M year can be specified. Any R&M work that has to be postponed should receive priority status in the next years program.

After this exercise PASSCO can initiate the R&M contract activities. Each contract will be assigned to a specific site or sites with the contract price reported to all concerned storage officers. As contracts are completed and contractors paid these amounts will be recorded in the ledger aligned with the budget request, budget allocation and contracted price. Examination of these data will provide for monitoring and controlling the R&M program. The report will also serve as an important document in the audit trail relating to R&M.

H. SUMMARY

The proposed program for executing R&M for public grain storages along with the suggested records and reports provide a sound basis for improving the R&M (facilities management) program. The formula based R&M source of funds, the prorata system for allocation, the building of a budget request all promise significant improvements over the current system.

The placing the responsibility for R&M in the hands of the PFDs and employment of PASSCO, an experienced engineering/contract management firm, provides the opportunity which assures that most, if not all, the R&M funds will be properly expended.

Lastly, the provision of better maintained storage facilities will provide the storage atmosphere which will be reflected in improved management of wheat stocks passing through the public storage sector.

V. IMPROVEMENT IN STOCK MANAGEMENT

It was the opinion of the study team that all the practices and procedures required for proper management of bagged wheat stocks are adequately described in the procurement and/or operations manuals of each of the agencies. The main problem is that the PFDs were lax in the enforcement the stated practices. A major deterrent to good stock management was the condition of the storages in which the local managers operated. It would be most difficult, if not impossible, for a local manager to protect the wheat in storage from excessive levels of deterioration. The rehabilitation of storage facilities and implementation of an improved R&M program will provide better storage conditions in which the storage officers will be operating.

To assure that the current bagged storage management practices and procedures are employed, it is recommended that the position of compliance officer be made responsible for enforcement. He will enforce the use of the practices and procedures by making random, unannounced visits to storage sites under his jurisdiction. The expectation of an evaluation visit by the compliance officer at any time should result in greater use of the current practices, thus improving management.

Two other policy areas that tend to restrict the application of sound storage management practices are:

- o The No-Loss policy of the Food Department
- o FAQ standards for procurement
- o Conversion from bagged to bulk storage system

All these policies are under investigation by the KSU/STDT study team. Their findings and recommendations relating to these two problem areas should provide an opportunity to further improve the management of wheat stocks.

In addition, this project team is in the process of studying and developing other technologies that may also provide opportunities to improve management even more. They have established a technology transfer (education/training) wing with a management training program designed for local storage managers. It is recommended that PFDs establish a program which will allow all their local managers to take advantage of the training opportunities.

V. SUMMARY: CONCLUSIONS AND RECOMMENDATIONS

The accomplishment of the rehabilitation of targeted priority facilities along with the adoption and implementation of the recommended stocks and R&M management programs will aid the GOP to improve the management of its public sector storage system. The observations and analyses revealed many areas in operations that, if changed, would lead to these improvements. The following recommendations relating to rehabilitation of facilities, repair and maintenance and stock management are a result of the Phase II investigation. Recommendations carry different levels of priority or importance. Some may be judged to be most critical while others are less critical. The study team believes all the recommendations are important for consideration by the GOP and others with an interest in this project. The recommendations are ordered in the level of importance as viewed by the consultants. It is recommended that:

A. REHABILITATION

The rehabilitation of storage facilities is an important step in the quest to improve the management of public wheat storage. Not only will it provide a better storage environment in the restored facilities but also provide the type and service life of storage which will contribute to the transition to bulk handling.

- o In light of the tentative rehabilitation schedule PFDs will quickly develop an alternative operating plan. The plan will insure facilities will be available for rehabilitation and minimize the disruption of on-going storage activities.
- o The expenditure of contingency rehabilitation funds will be closely controlled by AID/ENG and PASSCO. Required "extra works" will be conducted and paid only under an approved work order.
- o All savings in the rehabilitation of the qualified HTGs will be applied to further rehabilitation in Punjab. These savings may be sourced from unspent contingency allowances, contractor bids coming in under estimated costs, etc.
- o Monitoring of the progress will be accomplished by AID/ENG. In addition to construction progress reports from PASSCO AID/ENG will conduct random unannounced construction site investigations. They will report to the GOP and AID/ARD the progress of the rehabilitation activities.
- o USAID be prepared to allow PASSCO to complete the design/cost estimates for rehabilitation of additional capacity in Punjab. PASSCO will use the survey reports furnished by ZOR Engineers on deleted facilities in Punjab.

- o The GOP consider the implementation of a program to source additional rehabilitation funds similar to the R&M funding plan by adding Rs.30 to 40 per metric ton of wheat procured. Over time all facilities could be rehabilitated.

For example, what capacity of HTG storage could be rehabilitated in a province that procured 1.25 million MT wheat with the rehabilitation allowance of Rs.30/MT added to incidentals? The average (unadjusted for construction management, contingencies and inflation) rehabilitation cost for Pakistan is estimated to be Rs.334/MT.

Rs 30 x 1,250,000 = Rs.37.5 million/Rs.334 = 112,300 MT capacity)

B. REPAIR AND MAINTENANCE

The implementation of an improved R&M program could possibly be the most important product of this project. The results of the neglect of R&M is apparent in the extensive rehabilitation requirements. The recommended program if initiated and continued would, if properly funded, eliminate the need for facility rehabilitation in the future. The only future needs might arise from changes in technology and would be classified as retrofit.

- o The proposed R&M program be implemented immediately and funded beginning FY 1989/90.
- o The R&M funding by formula for each FY be based upon the PFDs and PASSCO's procurement levels for the past year.
- o R&M funds to be placed in a non-lapsable account upon release to the Province. Interest earned, if any, will also be used for R&M.
- o PASSCO be appointed as the R&M management agency with the service fee to be agreed to by the GOP and PASSCO.
- o PFDs will transfer R&M funds to PASSCO on a periodic (quarterly) basis. PASSCO will be bound by the same fund banking rules as the PFD.
- o The KSU/STDT training sector develop a program to train local managers in the techniques of surveying and preparing a request for R&M.
- o PFDs, in collaboration with the STDT training officer, will develop a schedule incorporating all the management training opportunities.

- o PFDs will require and encourage all local managers and other appropriate management personnel to attend the scheduled training courses.
- o The R&M funding formula be reviewed every two or three years for changes that may be required due to inflation of contractor supplies and labor costs.
- o PASSCO will only pay contractor vouchers that include a statement from the storage officer and PASSCO field engineer attesting the work has been completed.
- o PASSCO will furnish R&M account records relating to contracted amounts and payments to the PFD.
- o The PFD and GOP will monitor the R&M program using reports detailing requests and expenditures by district and region.
- o Local storage officers are to be supplied a minimal R&M fund allowance to take care of "emergency" repairs, i.e. light bulbs, window panes, etc. The amount will be established at Rs.1/MT capacity at each site and will be subject to a quarterly review.

C. STOCK MANAGEMENT

Stock management practices and procedures will provide greater benefits (savings in wheat quantities/quality) as improved facilities are provided. The current stated stock management practices, if enforced more rigorously, will provide significant improvement in management of the public sector wheat storage system.

- o All PFD units (local, district, regional, etc.) will continue to employ the current storage practices and procedures laid down by the Food Department in each Province.
- o Storage practices and procedures will be enforced by the compliance officer in each district. He will employ a random unannounced system for site visits to support the enforcement of adherence to established operating procedures.
- o The practices and procedures will be amended or changed as new storage management technologies are developed and proven.
- o A FIFO (first in-first out) inventory system will be employed to minimize the time wheat remains in storage. The only exceptions are to move wheat stored in the open and lots of questionable (deteriorating) quality.

- o Current storage/disbursement records will be followed meticulously to provide appropriate data for management decisions.
- o Local storage officers will be required to continually practice the rules of good interior/exterior housekeeping to minimize storage pests.
- o The GOP and PFD continually review the STDT Project findings and adopt the proven improved practices relating to, among others:
 - FAQ standards and grain testing
 - Wheat treatment protocols
 - No-Loss policy/practices
 - Bulk handling practices

D. OTHER

The GOP has from time to time expressed an interest in removing itself from the storage and handling of wheat. The only exception being the need for storage with sufficient capacity to retain the volume of wheat to satisfy the requirements of the strategic (emergency) and operational (price stabilization) volumes. The derationing action of the GOP was one step in that direction. Findings in the World Bank, IFPRI and other studies have addressed this policy issue. It is raised at this time in this report relative to the costs associated with rehabilitation and maintenance of the volume of public storage capacity. One way to reduce these costs is to involve the private sector in owning and operating more and more of the wheat storage requirements.

- o The GOP adopt the price policy recommendation in the IFPRI study. This recommendation was that the GOP raise the release price for wheat to 115 percent of the procurement price to allow for the cost of handling and storage. A price policy such as this would provide incentive to the private sector.

CHAPTER 1

INTRODUCTION

I. BACKGROUND

The Government of Pakistan (GOP), like the government of many developing nations, has embarked upon a program to achieve self-sufficiency in food production. As a part of its food security plans considerable attention has been given to cereal grain, especially wheat. Pakistan has made significant strides in increasing the output of wheat and in recent years has obtained production levels nearly equal to annual requirements. Little attention has been given to post-harvest management (PHM) of cereal grains. Losses to pests and spoilage resulting from poor stock and facility management have been estimated to be as much as 4.5 to 5.0 percent over an average five and one-half month storage period. Efforts in these areas have been shown to increase foodgrain availability.

Previous and on-going research by indigenous research institutions and donor organizations have identified, although not definitively, unwarranted levels of losses to storage pests (insects, vertebrates and molds/fungi) in both public and private storage. The federal and provincial governments own most grain storage facilities in Pakistan due to several grain programs and their administration. Like-wise, the government purchases and holds a large share of annual wheat output in its storage system. Thus, the government is responsible for the greatest loss of wheat in off-farm storages.

The GOP, with assistance by the United States Agency for International Development (USAID) Mission to Pakistan, has initiated a multi-faceted, wide ranging food security management (FSM) project of which post harvest management (PHM) is a part.

This three phase PHM project is directed toward improving public sector storage and management. Public sector grain storage godowns (constructed prior to May 1981) are incapable of providing a storage atmosphere that will minimize losses. It was concluded that a comprehensive rehabilitation program accompanied by an improved storage management program was necessary. Therefore, the PHM project is designed to assist the GOP with rehabilitation and management to provide a wheat storage system capable of reducing the level of storage losses in the public sector.

II. PHASE I BRIEF

Phase I of this project, completed in October 1986, was basically a fact finding mission. It was designed to determine the general condition and estimate the rehabilitation costs for a representative sample of wheat storage facilities constructed prior to May 1981; to describe the practices and procedures used in storage facilities and stock management; and to investigate the situation and procedures associated with the funding recurrent costs of repair and maintenance (R&M).

Overall, the storage problems appeared to be caused by utilization of storage facilities in generally unsatisfactory condition. The current and on-going deteriorating condition of the target facilities was directly linked to, and resulted from chronic underfunding, exasperated by underspending of funds for repair and maintenance (R&M). The facility and stock management practices and procedures employed by local managers could not be fairly evaluated because even the best stock management practices and procedures, if employed, would have failed to protect wheat placed in storage due to the conditions of the facilities. Good management practices would have included maintaining the condition of facilities.

Briefly, the recommendations of this phase of the project were that:

- o the responsibility for R&M of all provincial wheat storage facilities be placed with PASSCO;
- o the GOP initiate explanatory discussions with appropriate agencies in the provinces and PASSCO to develop agreements relative to the proposed R&M relationships;
- o all funds budgeted for R&M be placed in non-lapsable accounts in each province;
- o the R&M funds now and in future non-lapsable accounts be transferred to the new agency responsible for R&M;
- o the GOP pursue alternative sourcing of rehabilitation funds in excess of those specified by USAID;
- o the method for calculating the level of funding for R&M costs be revised as suggested in the report;
- o requests for and responses to tenders for both rehabilitation and R&M be executed as over or under as opposed to premiums or waivers applied to the current schedule of rates;
- o tenders for both rehabilitation and R&M be "lump sum" bids for a collection of works located in a generally contiguous area;
- o after proper training storage officers in properly maintained godowns equipped with appropriate pest control equipment and supplies be employed under a compensation program which will reward him for maintenance of the quantity and quality of wheat stocks entrusted to his care;
- o research be initiated to test the efficacy of current and other approved pest control protocols for control of insect pests indigenous to Pakistan;

- o research be conducted to document the true cost of storage and establish a rental rate which will provide a "fair" rate or return on invested capital in private storage; and
- o consideration be given to development of mobile training cadres composed of instructors and instruction materials in critical storage management areas.

III. PHASE II BRIEF

A. Objective

The overall objective of this phase of the project is to aid the GOP and its provincial Food Departments in improvement of the public sector grain storage system in Pakistan.

B. Project Tasks

1. Design of an improved system of recurrent cost accounting procedures to be used by public sector managers, and a schedule for implementing the system.
2. Design of an improved system of public grain storage O&M and management improvement procedures, and a schedule for implementing the system.
3. Design of a long-range management plan for a new grain storage facility inspection program and a schedule for implementing the plan. The plan shall include a financial plan to ensure sufficient funds are allocated for O&M.
4. Completion of the public storage facility survey (five years of age or older) started in Phase I. The survey shall define the current O&M status and provide detailed engineering specifications/ designs and cost estimates for prioritized rehabilitation of up to 390,000 MT of godowns.
5. In conjunction with the Provincial DFAs and PASSCO and based on (d) above, development of detailed action plans for each province for implementing the godown rehabilitation program, including a schedule that minimizes disruption of on-going grain storage activities.
6. Development of a monitoring and evaluation plan for the improved public sector management program (taking into account recommendations of the World Bank-financed studies and the findings and recommendations from Phase I).
7. Preparation of a final report incorporating all of the above plans, with an executive summary, for submission to the GOP and USAID 2 weeks prior to the consultant team's ETD Pakistan.

IV. PHASE III

Phase III will involve the actual rehabilitation of selected priority storage facilities and the implementation and monitoring of the recommended O&M practices and procedures developed in Phase II.

CHAPTER 2**SURVEY SITE SELECTION AND CRITERIA****I. PURPOSE**

The Ministry of Food, Agriculture and Cooperatives (MFAC) accepted the recommendation in the Phase I report and agreed that only house type godowns (HTG) would be rehabilitated. It was the intent that the Phase II facility sample for survey would include the facilities (sites) nominated for rehabilitation. In order to derive the sample (list) to survey for rehabilitation design/estimate each Provincial Food Department (PFD) and PASSCO prepared a list of all sites with HTGs five or more years old (see Appendix A).

II. FACILITY SELECTION PROCESS

Facilities surveyed in Phase I indicated that all units constructed prior to May 1981 required differing levels of rehabilitation. It was also shown that the estimated cost to rehabilitate the entire population of target facilities was far greater than the funds available for the rehabilitation process. It was decided that those facilities believed to provide the greater contribution to the operation of the public storage sectors activities would be considered as candidates for restoration. Lists of storage sites were compiled in descending order of importance by the PFDs and PASSCO which included all godowns in each province. These lists were furnished to USAID to be used in scheduling engineering surveys.

Since it was not possible with the funding available to rehabilitate all the facilities on the lists (see Appendix E), USAID/ENG developed a plan to limit the list to approximately the tonnage that could be rehabilitated with available funds. The capacities were apportioned to the provinces and PASSCO based upon the proportionate share of their capacity to the total for Pakistan (See Tables 2-1 and 2-2).

Based upon the average cost per metric ton (MT) for rehabilitation for the sample survey in Phase I (Rs.280/MT) and the anticipated funds available (\$7.546 million of USAID funds) for rehabilitation it was found that only about 390,000 MT of storage could be renovated. This capacity was apportioned to each PFD and PASSCO (see Table 2-2).

These 63 sites were classified as priority 1 candidates for rehabilitation. The sites, identified by location were furnished to the A&E firm (ZOR Engineers) for survey. (see Appendix A).

III. PARAMETERS FOR INCLUSION IN SURVEY

In order for the A&E study team to carry out the survey/design tasks and develop the rehabilitation cost estimates for the priority 1 facilities (sites) a set of rules describing inclusion/exclusion parameters were established. In addition, other specifications (rules) were developed to

TABLE 2-1
CAPACITY OF HTG STORAGE BY OWNERSHIP AND/OR
CONTROL, PAKISTAN, 1988 ^{1/}

Province	Capacity			Share		
	PFD ^{2/}	PASSCO ^{3/}	Total	PFD	PASSCO	Total
	----- (000 MT) -----			----- (%) -----		
Punjab	1,250	284	1,534	51.8	11.8	63.6
Sind	401	18	419	16.6	0.7	17.3
NWFP	326	10	336	13.5	0.4	13.9
Baluchistan	126	-	126	5.2	-	5.2
Pakistan	2,077	312	2,415	87.1	12.9	100.0

^{1/} Constructed prior to May 1981

^{2/} Source: Phase I Report, Nov. 1986

^{3/} GOP priority list

TABLE 2-2
ANTICIPATED FUNDS AND CAPACITY/SITES, PRIORITY ^{1/}
CANDIDATES FOR REHABILITATION, PAKISTAN, 1988

Province	Capacity			Sites		
	PFD	PASSCO	Total	PFD	PASSCO	Total
	----- (000 MT) -----			----- (No.) -----		
Punjab	202	48	250	40	3	43
Sind	55	11	66	3	1	4
NWFP	47	8	55	14	2	15
Baluchistan	19	-	19	1	-	1
Pakistan	323	67	390	58	5	63

Source: USAID-ARD/ENG, 1988

guide the survey efforts. (see Appendix C for details) In summary, the general conditions guiding the survey were:

1. Only HTG type facilities constructed prior to May 1981 were to be included in the survey and rehabilitation design/estimates.
2. The target average rehabilitation cost was Rs. 280/MT for facilities at a site with no building to be included if its estimated rehabilitation cost exceeded Rs. 350/Mt.

3. Roads were not to be included in costs for rehabilitation and poor condition may exclude the site and/or facility from the survey.
4. Boundary walls, offices and residential areas were totally excluded from the survey.
5. External drainage rehabilitation costing an estimated Rs.35 or less was included. If greater than that the facility was to be dropped from the survey.

In addition to the general guiding rules, specifications relating to the survey of the facilities themselves were prepared. They were not parameters which, if applied, would exclude a facility from rehabilitation. They were guidelines that defined survey procedures associated with rehabilitation, specification and associated design and estimates of cost. These dealt with specific facility areas/problems such as structural damage, faulty walls and floors, doors and ventilators, and water proofing.

CHAPTER 3**REHABILITATION IMPLEMENTATION PLAN****I. PURPOSE AND GOAL**

In order to make a facility available for rehabilitation construction it must be emptied of stock. That facility then would be out-of-service during the time it was being renovated. As such, this may interfere with operations of the affected site as well as the district and or region of the PFD. Hence, the need is for a definitive plan or action for the rehabilitation of the targeted facilities.

A primary focus of the efforts to rehabilitate the selected priority public sector wheat storage HTG's was to implement and carry out the required works in a manner which would cause minimum disruption of on-going storage/distribution activities. This plan is designed to accomplish that goal.

Successful attainment of the goal of minimum disruption will require close cooperation and collaboration among the affected parties. These will include, at a minimum, two principal groups or agencies. One would be the operations/management personnel of the storage site under consideration, it's district and regional directors of food and an appropriate officer at the provincial level. The other would be the agency employed by MFAC charged with the responsibility and accountability of executing the rehabilitation process. In this case that agency is the Pakistan Agricultural Storage and Services Corporation (PASSCO). It is also expected that the Deputy Secretary, Storage of MFAC and the USAID/FSM project coordination officer would be able to provide the assistance required to secure cooperation between the two parties.

II. COOPERATOR'S RESPONSIBILITIES

A high level of cooperation is required to effect the rehabilitation of facilities at each site with a minimum of disruption. There are certain areas of responsibility for each party. The primary function of fulfilling these responsibilities would be to keep the other party as fully informed as possible about the rehabilitation plans and progress. In that way the process of rehabilitation can take place in a more orderly fashion and create as little disruption to the on-going storage program as possible.

A. PASSCO Preparation

Before the affected storage center can plan for the changes and reconstruction that storage management must be made aware of certain things. PASSCO, as the implementation agency, should furnish this information. The information to be supplied to Provincial Food Department management to be used in planning for rehabilitation of its facilities should include:

- i. a list of the priority sites in the province to be scheduled for rehabilitation.
- ii. a site plan for each site on which each facility (godown) to be rehabilitated will be designated;
- iii. a best estimate of the time that each facility to be rehabilitated will be out-of-service;
- iv. a copy of the tentative implementation schedule for rehabilitation;
- v. any other information relative to the rehabilitation process that is believed to be of value to the respective PFD in planning to make facilities available for reconstruction; and
- vi. a notification of the contact person to whom all queries from the PFD's, the GOP and/or USAID will be directed. This contact person will be responsible for response to all queries in a timely manner to the respective inquirer.

There are several other pre-construction tasks that PASSCO must accomplish. They include such things as pre-qualification of contractors, preparation of tender documents, etc. In addition PASSCO should stand ready to answer any questions the management of a PFD may ask relative to the rehabilitation contract work program.

B. PFD Preparations

The various Provincial Food Departments have expressed a desire to accomplish the rehabilitation of priority facilities in their respective jurisdiction at the earliest possible date. To accomplish this they will have to cooperate closely with PASSCO and establish a plan to handle/consign the stocks at each site in such a manner as to make the facility available to the contractors according to the rehabilitation schedule. This plan will have to consider the potential for interruption of their on-going business and also provide the facilities in an orderly fashion so as not to delay the work of the contractors. Based upon these considerations consistent with the estimated out-of-service time each PFD will then furnish PASSCO with:

- i. the time (date) each facility (site) will be empty and available for reconstruction; and
- ii. the maximum time that the facility can be kept open/empty for rehabilitation work according to alternative storage/operation plan.

In order to supply PASSCO with items 2i and 2ii each of the respective Provincial Food Departments will have to develop an alternative storage/operations plan. The plan will account for those storages which will be out-of-service while undergoing rehabilitation. This alternative

operating/storage plan will be the key to minimizing the disruption of business during the renovations process.

C. Alternative Operations Plan

The project consultant team does not possess, nor has it been charged with conducting the investigations to secure information and data to develop an alternative operating plan for each province which will make facilities available to contractors for execution of rehabilitation work activities. It is recommended that each Provincial Director of Food develop a planning committee composed of personnel from the Regional and District Food offices as well as the officer incharge of the facility/facilities to be rehabilitated.

This committee will be familiar with the operations requirements of the subject facility (site) and its relation to other storage sites in the district/region, and will be capable of developing an alternative operating plan to accommodate the loss of storage capacity for the estimated time the facility will be out-of-service.

This plan may include but not necessarily limited to:

- i. shifting of stocks from one godown to another empty rehabilitated or disqualified for rehabilitation in the same site if the stocks cannot be consumed ahead of the scheduled time of rehabilitation;
- ii. providing plinth(s) for outside storage within or near vicinity of the site compound sufficient in size to accommodate the tonnage of wheat to be stored, and to assure that adequate coverings are available to protect the wheat stored outside;
- iii. give due consideration to serving the adjacent "normal" market. The "normal" market is defined as other receiving godowns, mills in the area or other usual outlets for the wheat off-take; or
- iv. some combination of the above or other workable plans.

D. Rehabilitation Schedule

It is believed that the rehabilitation scheme can be accomplished in just over two years (see Appendix H). This should provide adequate time for the affected storage sites to develop and implement their alternative operating plans (3 above) that allows the rehabilitation to take place in an orderly fashion. This will, however, require close cooperation between PFD's and the construction management/supervision PASSCO.

Once PASSCO has submitted the list and rehabilitation schedule of facilities to be renovated to the respective PFDs and the PFDs have developed their alternative operating plans, rehabilitation can proceed. PASSCO and the provincial food agencies (regional or district) along with a representative of the Provincial Food Department should meet and make adjustments, if needed, to finalize the implementation schedule.

The tentative schedule provides for rehabilitation works to occur simultaneously in all Provinces and in the cases where applicable and convenient in more than one region and/or district in a province. The schedule for each Province is essentially controlled by, but not limited to, the following:

- i. the number of separate contracts to be let in each province, by region and district;
- ii. the estimated time required for PASSCO to enter into each contract and implement the required works;
- iii. the estimated or specified time allowed to each contractor for completing the contract; and
- iv. the PFD's best estimates of the time required to make the facilities available to each contract, providing for unforeseen delays.

Once agreement has been reached relative to the dates encompassing start/finish for each contract PASSCO can then begin the process of placing contractors on the job.

III. IMPLEMENTATION OF REHABILITATION PROCESS

Careful planning and execution by the involved agencies will be required to initiate and complete the rehabilitation of the qualifying target facilities in an effective and timely manner. The agencies responsible for finalizing the rehabilitation time schedule are the GOP, USAID/ENG, PASSCO and the Provincial Food Departments. Each of these agencies will be responsible for specific action steps in the program and should be prepared to cooperate closely, as required, in the development of the rehabilitation action plan and its execution. The USAID/FSM Project Coordinator will be available to help these agencies coordinate their actions.

The cooperating agencies should recognize that the principal consideration for planning and operation is that contract rehabilitation work should interfere only minimally with the ongoing storage activities of the system. A procedure has been suggested as to how the affected Food Departments can, by developing and following an alternate operating plan minimize the disruption in their operations. In order to accomplish this they will require inputs from PASSCO.

Both PASSCO and AID/ENG should attempt to complete the pre-construction activities at the earliest possible date so the rehabilitation phase of the project is to be quickly implemented.

The rehabilitation of the qualifying priority HTG facilities is to be accomplished under a Host Country Contract (HCC), a choice by the GOP.

The major rules, regulations and guidance for HCC construction services is contained in the AID Handbook 11, Chapter 2. PASSCO, by following the provisions in this document will develop a smoother working relationship and avoid potential unnecessary delays in completing the project.

The HCC assistance program will not be outlined and discussed in this report. A briefing paper prepared by AID/ENG that outlines the essentials of the program can be found in Appendix F.

A. Pre-Construction Activities

There are many important and crucial actions that must be undertaken prior to the award and management of the construction contracts which will rehabilitate a sizable share of critical/priority storage capacity throughout Pakistan. Some will be initiated and carried out by PASSCO while others are the responsibility of AID/ENG.

Prequalification of contractors and the publication of notice in the Commerce Business Daily (CBD) are being carried out and will not delay the start of actual rehabilitation. It is noted that AID/ENG approval is required for many of the steps in the pre-contract award scheme. The HCC process is graphically presented in Figure 3-1 on the following page.

IV. PASSCO CONTRACT MANAGEMENT

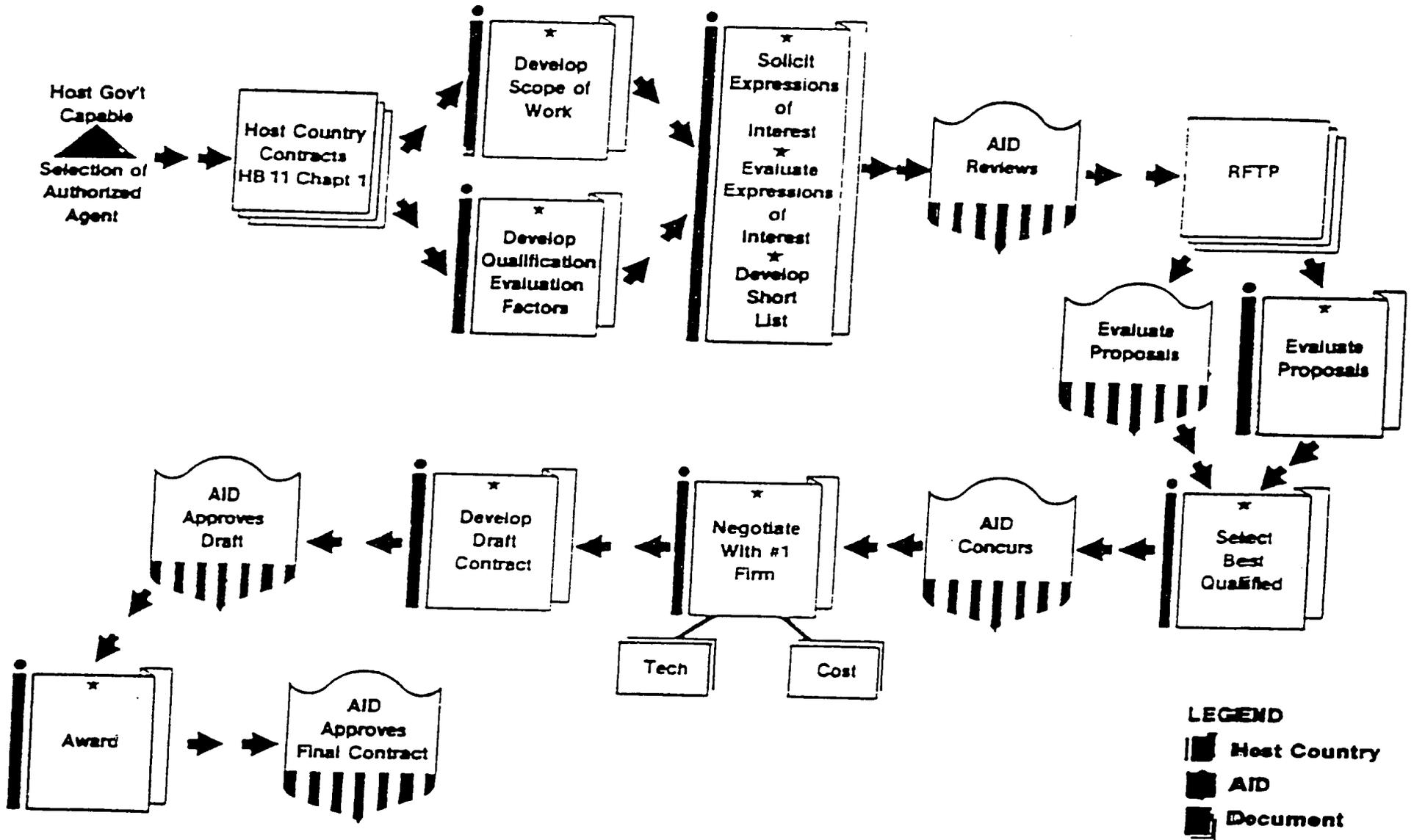
The consultant team has no concern regarding the ability of PASSCO to manage the contracts involving the rehabilitation of the qualified target HTGs. They have exhibited this expertise in past construction works, i.e. the World Bank-financed godowns. Likewise, USAID/ENG has handled contracts through HCC programs. Due to this, it is believed that the rehabilitation program will be carried out effectively.

As opposed to managing contracts for new structures with only a minimum of work order changes, the management of rehabilitation contracts may involve many such changes. The nature of rehabilitation is such that some types of required works can only be "best estimates". It is only when the fault is fully exposed in the reconstruction process can the "real" cost be determined. To cover the potential requirement for "extra" work to correct a fault the estimates for rehabilitation were adjusted upward by a 10 percent contingency allowance. The use of the contingency funds should be carefully controlled.

It is important that a plan for the approval of the legitimate expenditure of contingency funds be designed by PASSCO and approved by AID prior to making any such commitment with the contractor under the funded project. To be most effective, the plan must include a procedure for quick turn around for approval. This would insure that a contractor would not be delayed in the performance of his work.

FIGURE II-1

Host Country Contracting Process



It is suggested that the plan includes the following procedures:

1. When the contractor's mechanic/artisan discovers that a fault is more extensive than that described/contracted, he notifies his construction/superintendent immediately.
2. The contractor and PASSCO supervising engineer inspect the fault and agree to the extent of additional labor and materials required to correct the fault.
3. If the cost of the "extra" work exceeds Rs. 2500, PASSCO will notify (phone) the AID/ENG project officer and describe the need and inform him of the estimated costs of extra labor/materials. Any work that requires extra expenditures less than this amount are approved by the PASSCO supervising engineer under intimation to AID/ENG.
4. If in the opinion of the AID/ENG the request is valid and properly priced for work exceeding Rs.2,500, he immediately arranges USAID approval and conveys the same to PASSCO. If it appears to be a major expense item, he may wish to confirm by a site visit.
5. With proper approval, PASSCO will prepare a work order that specifies the additional work required and the approved payment level. This document then becomes part of the awarded contract in force for that site.

This procedure will, in addition to providing for the fault to be properly repaired, also allow for the payment upon submission of a voucher along with validating/support records. The procedure provides for a rapid turn around from discovery to request to approval for execution of additional work that may be required to properly rehabilitate a storage structure. The timing should create no significant delay in a contractor's performance under contract.

V. ESTIMATED REHABILITATION COSTS

In order to define clearly for the GOP and the Provincial Food Departments estimated the volume of HTG capacity that may be rehabilitated under this project, a tentative assessment of estimated costs vs available funds was made. The funds available for the rehabilitation phase of the project are:

USAID Contribution:	\$7,546,000
From GOP	: \$1,888,000
Total	: <u>\$9,434,000</u>

This sum was allocated proportionately to each of the provinces and PASSCO per separate Tripartite Agreements by the Ministry of Food, Agriculture and Cooperatives. (see Table 3-1).

TABLE 3-1

**FUNDS AVAILABLE FOR REHABILITATION WORK,
SELECTED PRIORITY HTG'S, PAKISTAN, 1988**

Province or Agency	Allocation per Tripartite Agreements	Allocation per Tripartite Agreements <u>1/</u>	Available Funds for Rehabilitation <u>2/</u>
	(\$000)		(Rs.000)
Punjab	4,684	84,312	68,826.1
Sind	1,954	35,172	28,711.8
NWFP	1,233	22,194	18,117.6
Baluchistan	779	14,022	11,446.5
PASSCO	784	14,112	11,520.0
TOTAL	9,434	169,812	138,622.0

1/ Converted to rupees at rate of \$1=Rs.18

2/ Rupee allocation less PASSCO management fee @ 22-1/2 percent
calculated as follows: $\frac{169,812,000 \times 100}{122.5} = 169,812,000 \times 0.8163265$

PASSCO was awarded a fee of 22-1/2 percent to manage the rehabilitation phase of the contract. This leaves approximately \$7.7 million for actual rehabilitation works. The adequacy of the funds, disregarding the provincial allocation, to accomplish the rehabilitation of approximately 390,000 MT of HTG storage capacity can more easily be demonstrated by the following basic analysis.

Each province and PASSCO submitted to MFAC a list of the HTG storage sites constructed prior to May 1981. This list was arranged in descending order of importance to the storage/distribution operations in each province or agency. HTG storage capacity constructed prior to May 1981 and listed by the PFD's and PASSCO totalled 2,415,000 metric tons at 504 sites throughout Pakistan. The project paper upon which this PHM/FSM project was based provided for rehabilitation of up to 750,000 MT capacity. It was quickly realized that there were insufficient funds available to rehabilitate that volume of storage.

ARD and ENG departments of USAID/Pakistan selected the top 131 sites from the priority lists totalling approximately 750,000 MT. The selection for each of the provinces and PASSCO was made based upon each unit's proportionate share of the total HTG storage in Pakistan. Estimated cost data from the Phase I report of this project revealed that only about 390,000 tons of HTG storage could be rehabilitated with the funds available. The lists were then divided into the following two categories:

- First Priority Sites: 64 sites with about 390,000 MT capacity.

2. Second Priority Sites: 67 sites with about 360,000 MT capacity. Rehabilitation of this class site would only be initiated after completion of qualifying First Priority sites subject to availability of funds.

The classified lists were referenced to MFAC for concurrence. MFAC made some adjustments that up-graded some Second Priority sites to First Priority. At the same time some First Priority sites were downgraded to second. These adjustments reduced First Priority sites to 63 and increased Sind Province's share disproportionately. Only those facilities listed as first priority or substitutions for cause from second priority were to be surveyed for design/estimates and subsequent rehabilitation.

It was agreed by the study team, USAID and PASSCO that in order for a site to qualify for rehabilitation the cost estimate developed by the survey must be Rs. 350/MT or less (see Appendix C). During the conduct of the survey and construction of the estimated costs for rehabilitation it was found that Rs. 350/MT was too restrictive. Had this parameter been maintained, too few sites would have been qualified and only Sind and PASSCO would have achieved their targeted rehabilitation quotas. Even though the ceiling rate was adjusted to fit the situation for each province the capacity that qualified in Punjab was only about 51 percent of the established goal of 214,800 tons.

The volume of capacity assigned as Priority-1 and surveyed for rehabilitation in Sind Province was disproportionate relative to its "fair" share as a percent of its HTG tonnage to the total in Pakistan. The three facilities in Sind which make up the bulk of the surveyed capacity are a special case resulting from past confusion of ownership since construction and no R&M was accomplished.

If these units are renovated then the GOP will have to make the decision relative to reallocation of rehabilitation funds. These facilities are very important to the overall storage scheme in Pakistan in that they service a very large population center - Karachi.

The inadequacy of the pool of funds supplied by USAID and the GOP relative to the HTG capacity qualified for rehabilitation can best be demonstrated by an example. This example will be based upon the following assumptions:

- o All qualified HTG capacity built before 1981 in each Province including PASSCO facilities will be rehabilitated.
- o The estimated costs for rehabilitation, excluding a contingency allowance, is the cost of renovation. These costs per MT capacity will be rounded to the nearest whole rupee/MT.
- o The acceptable level for contingency allowances will be 10 percent.

TABLE 3-2

**HTG SURVEYED CAPACITY QUALIFYING
FOR REHABILITATION, PAKISTAN, 1988**

Province or Agency	Capacity		
	Target	Surveyed	Qualified for Rehabilitation
	------(Metric Tons)-----		
Punjab	202,000	212,200	109,500
Sind	108,000 ^{1/}	108,000	108,000
NWFP	47,000	57,500	47,000
Baluchistan	19,000	27,400	19,400
PASSCO	50,600	50,600	50,600
TOTAL	426,600	455,700	334,500

1/ This was adjusted by MFAC to 108,000 MT

- o That approximately one-half of the rehabilitation projects capacity will be accomplished in 1989 and the remainder in 1990. Some may be rehabilitated during the last quarter of 1988.
- o The acceptable level for inflation for construction will be 10 percent per year. However, the change in the relationship of the Rupee to the dollar reduces this level of inflation to a net rate of approximately four (4) percent.
- o The conversion rate will be Rs.18=US\$1 which is near the current (July 1988) rate.

Using these assumptions and the average costs per metric ton of storage capacity estimated in the 1988 survey the total cost for rehabilitating the 334.5 thousand metric tons of qualified priority HTG storage can be estimated.

Principle which guided the research and analysis of rehabilitation was to maximize the capacity to be rehabilitated in each public agency. The constraints which applied were:

- o Funds available for rehabilitation work
- o Capacity targets for each agency/province
- o Capacity (tonnage) qualifying for rehabilitation

The principle followed in the analyses was to maximize the capacity to be rehabilitated in each agency with the target capacity and funds available as constraints. Arrays in ascending order of the estimated costs/MT were constructed for each agency. Both the capacities and estimated total costs were accumulated to be used to determine the approximate maximum

volume of storage capacity that could be rehabilitated. In order to more closely estimate the total cost of rehabilitation, the current A&E estimate was adjusted to reflect the impact of inflation and contingency allowances. The adjusted cost/MT was used to estimate the total cost of rehabilitation for each surveyed site. These total costs were accumulated to display the funding requirements for any accumulated level of capacity (see Table 3-3).

TABLE 3-3

ASCENDING ORDER ARRAY OF THE REHABILITATION COSTS
FOR PRIORITY 1 HTG'S BY AGENCY, PAKISTAN, 1989-90

Identification		A&E	Adjus-	Capa-	Accumu-	Total	Accumu-	
MFAC	A&E	Location	Esti- ate	ted Esti- mate <u>1/</u>	city	lated Capa- city	lated Cost <u>2/</u>	lated Cost
			--(Rs/MT)--	---	---	---	---	---
				(000 MT)			(Rs 000)	
PUNJAB								
22	P.21B	Sahiwal (FGG)	262	278	2.0	2.0	611.6	611.6
8	P.42	Pasrur	311	330	1.0	3.0	363.0	974.6
27	P.4B	Attock (FGG)	322	342	6.0	9.0	2,257.2	3,231.8
32	P.54	Faisalabad	333	353	9.0	18.0	3,494.7	6,726.5
7	P.41B	Sialkot	334	354	1.0	19.0	389.4	7,115.9
12	P.46	Malakwal	342	363	1.0	20.0	399.3	7,515.2
25	P.52B	Basal (FGG)	346	367	1.0	21.0	403.7	7,918.9
10	P.44	Lalamusa	349	370	1.0	22.0	407.0	8,325.9
3	P.38B	Faruqabad	351	372	2.0	24.0	818.4	9,144.3
19	P.8D	Vehari	355	377	2.0	26.0	829.4	9,973.7
33	P-10A	Jaranwala	360	382	4.0	30.0	1,680.8	11,654.5
19	P.8G	Vehari	360	382	2.0	32.0	840.4	12,494.9
33	P.10B	Jaranwala (FGG)	363	385	4.0	36.0	1,694.0	14,188.9
21	P.35	Bonga Hayat	366	388	4.0	40.0	1,707.2	15,896.1
19	P.8B	Vehari	367	389	2.0	42.0	855.8	16,751.9
28	P.50	Sihala	377	400	3.0	45.0	1,320.0	18,071.9
20	P.23A	Pakpattan	379	402	2.0	47.0	884.4	18,956.3
34	P.55	Tandlianwala	379	402	5.0	52.0	2,211.0	21,167.3
11	P.45B	M.B. Din	381	404	1.5	53.5	666.6	21,833.9
30	P.47	Shahpur	385	408	2.0	55.5	897.6	22,731.5
1	P.1	Moghulpura	388	412	44.0	99.5	19,940.8	42,672.3
31	P.17	Shorkot Road	393	417	4.0	103.5	1,834.8	44,507.1
18	P.18	Dunyapur	400	424	2.0	105.5	932.8	45,439.9
29	P.51	Rawalpindi	403	428	4.0	109.5	1,883.2	47,323.1
30	P.49A	Chakwal	412	437	4.0	113.5	1,922.8	49,245.9
6	P.37A	Depalpur	421	447	1.0	114.5	491.7	49,737.6
23	P.49B	Chakwal	424	450	1.0	115.5	495.0	49,740.6
19	P.8A	Vehari	431	457	0.5	116.0	251.4	49,992.0
6	P.36	Okara	446	473	8.0	124.0	4,162.4	54,154.5
7	P.41A	Sialkot	448	475	4.0	128.0	2,090.0	56,244.5
5	P.31	Habibabad	450	477	2.0	130.0	1,049.4	57,293.9
4	P.32B	Sheikhupura	454	482	3.0	133.0	1,590.6	58,884.5

TABLE 3-3 (Continued)

**ASCENDING ORDER ARRAY OF THE REHABILITATION COSTS
FOR PRIORITY 1 HTG'S BY AGENCY, PAKISTAN, 1989-90**

Identification		A&E	Adjus-	Capa-	Accumu-	Total	Accumu	
MFAC	A&E	Location	Esti- ate	ted Esti- mate <u>1/</u>	city	lated Capa- city	lated Cost	
			--(Rs/MT)--	---	(000 MT)---	----	(Rs 000)----	
PUNJAB (Continued)								
9	P.43	Gujrat	472	501	4.0	137.0	2,204.4	61,088.9
28	P.50	Sihala	473	502	3.0	140.0	1,656.6	62,745.5
13	P.39	Gujranwala	474	503	6.0	146.0	3,319.8	66,065.3
25	5.52A	Basal	475	504	1.0	147.0	554.4	66,619.7
27	P.4A	Attock	475	504	2.0	149.0	1,108.8	67,728.5
34	P.55	Tandlianwala	475	504	0.5	149.5	277.2	68,005.7
16	P.34A	Multan I	478	507	2.5	152.0	1,394.3	69,400.0
10	P.44	Lalamusa	480	509	1.5	153.5	839.8	70,239.8
31	P.17	Shorkot Road	485	514	0.5	154.0	282.7	70,522.5
20	P.23B	Pakpattan	487	517	3.5	157.5	1,990.4	72,512.9
22	P.21A	Sahiwal	501	531	2.0	159.5	1,168.2	73,681.1
4	P.32A	Sheikhupura	503	534	6.0	165.5	3,524.4	77,205.5
14	P.40C	Hafizabad (FGG)	510	541	0.5	166.0	297.6	77,503.1
3	P.38A	Faruqabad	537	570	4.0	170.0	2,508.0	80,011.1
33	P.10B	Jaranwala (FGG)	539	572	4.0	174.0	2,516.8	82,527.9
1	P.1	Moghulpura	550	583	4.0	178.0	2,565.2	85,093.1
29	P.51	Rawalpindi	562	596	14.5	192.5	9,506.2	94,599.3
17	P.34B	Multan II	578	613	2.5	195.0	1,685.8	96,285.1
14	P.40B	Hafizabad	585	621	1.0	196.0	683.1	96,968.2
7	P.41B	Sialkot	603	640	4.0	200.0	2,816.0	99,784.2
14	P.40A	Hafizabad	648	687	2.5	202.5	1,889.2	101,673.4
11	P.45A	M.B. Din	673	714	2.5	205.0	1,963.5	103,636.9
25	P.52B	Basal (FGG)	700	743	1.0	206.0	817.3	104,454.2
22	P.21B	Sahiwal (FGG)	700	743	2.0	208.0	1,634.6	106,088.8
8	P.42	Pasrur	764	810	3.0	211.0	2,673.0	108,761.8
26	P.53	Fatehjang	800	849	1.0	212.0	933.9	109,695.7
SIND								
	S.2	Landhi SGG	286	303	48.0	48.0	15,998.4	15,998.4
	S.3	Landhi SGG	291	309	30.0	78.0	10,197.0	26,195.4
	S.1	Landhi SGG	295	313	30.0	108.0	10,329.0	36,524.4
PASSCO								
	N.5	Nowshera	108	115	6.6	6.6	834.9	834.9
	S.12	Sukkur	239	254	8.8	15.4	2,458.7	3,293.6
	P.37B	Depalpur	268	284	11.0	26.4	3,436.4	6,730.0
	P.48A	Sargodha	280	297	13.2	39.6	4,312.4	11,042.4

TABLE 3-3 (Continued)

**ASCENDING ORDER ARRAY OF THE REHABILITATION COSTS
FOR PRIORITY 1 HTG'S BY AGENCY, PAKISTAN, 1989-90**

Identification		A&E	Adjus-	Capa-	Accumu-	Total	Accumu	
MFAC	A&E	Location	Esti- ate	ted Esti- mate <u>1/</u>	city	lated Capa- city	lated Cost	
			--(Rs/MT)--	---	---	---	---	
				(000 MT)		(Rs 000)		
	P.37C	Depalpur	289	307	2.2	41.8	742.9	11,785.3
	P.33	Kissan	312	331	6.6	48.4	2,403.1	14,188.4
	P.48B	Sargodha	328	348	2.2	50.6	842.2	15,030.6

BALUCHISTAN

1	B.4	Sariab Road	361	383	13.0	13.0	5,619.9	5,619.9
1	B.1	Sariab Road	395	419	2.0	15.0	921.8	6,541.7
1	B.4	Whyte Road	514	545	6.4	21.4	2,836.8	10,378.5
1	B.2	Gowalmandi	735	780	1.8	23.2	1,544.4	11,922.9
1	B.3	Spincy Road	765	812	4.2	27.4	3,751.4	15,674.3

N.W. F. P.

6	N.10	Battagram	265	281	0.5	0.5	154.6	154.6
13	N.12	Hangu	287	304	2.0	2.5	668.8	823.4
10	N.11	Kohat	326	346	4.5	7.0	1,712.7	2,536.1
14	N.3A	Havelian	339	360	7.5	14.5	2,970.0	5,506.1
8	N.1A	Peshawar	340	361	22.5	37.0	8,934.8	14,440.9
9	N.6	Nowshera	350	371	4.5	41.5	1,836.4	16,277.3
7	N.8	Mardan	371	394	1.0	42.5	433.4	16,710.7
8	N.1A	Kohat Road	420	446	2.0	44.5	981.2	17,691.9
	N.15	Kulachi	480	509	0.5	45.0	280.0	17,971.9
9	N.6	Kabul Road	490	520	1.5	46.5	858.0	18,829.9
11	N.16	Dassu	548	581	0.5	47.0	319.6	19,149.5
12	N.7	Misiti	582	617	4.0	51.0	2,714.8	21,864.3
	N.9	Swabi	650	690	0.5	51.5	379.5	22,243.8
	N.14	Tank	670	711	0.5	52.5	391.1	22,634.9
14	N.3A	Havelian	723	767	1.0	53.0	843.7	23,478.6
9	N.6	Kabul Road	786	834	1.0	54.0	917.4	24,396.0
	N.2A	Jangi	Not in use omitted from survey					

1/ A&E estimated cost/MT adjusted to account for inflation at net 4% per annum for 1989 and 1990, e.g.
 $(350 \times 1.04) + [(350 \times 1.04) \times 1.04] = \text{wtd. inflated cost/MT} = 371.28 \text{ or } 371.$

2/ Estimated total cost for rehabilitation adjusted to account for 10% contingency allowance, e.g. $530 \times 1000 = 530,000 \times 1.1 = 583,000.$

The funds required to rehabilitate all capacity surveyed would amount to more than Rs.201.3 million (\$11.2 million). The Rs.169.812 million provided by USAID and the GOP only Rs.138.622 million are available for actual rehabilitation work. The analysis demonstrates that there are insufficient funds available to rehabilitate all the Priority 1 facilities surveyed (334 metric tons).

The question to be answered was: What is the capacity of Priority 1 facilities which can be rehabilitated with the funds available as allocated by the tripartite agreements?

Target capacity levels were estimated and established for each agency participating in the rehabilitation program. The agency target capacities and fund allocations can be found in Tables 3-1 and 4. Every effort was made to qualify as much capacity for each agency as possible in order to attempt to reach the assigned targets. The volume of capacity designed for rehabilitation totaled almost 340 thousand metric tons, approximately 87 percent of the national target of 390 thousand (see Table 3-4), but only 77 percent of the adjusted target.

TABLE 3-4

**MFAC CAPACITY TARGETS AND ALLOCATED FUNDS AND DESIGNED
QUALIFYING CAPACITY WITH ESTIMATED COSTS BY AGENCY, PAKISTAN, 1989-90**

Province or Agency	MFAC Allocations		A&E Design Estimates	
	Capacity Targets	Available Funds	Qualifying Capacity	Estimated Cost <u>2/</u>
	(000MT)	(Rs 000)	(000MT)	(Rs 000)
Punjab	214.8	68,826.1	109.5	60,035.0
Sind	108.0 <u>1/</u>	28,711.8	108.0	36,443.2
NWFP	48.4	18,117.6	47.0	20,956.2
Baluchistan	19.0	11,446.5	19.4	8,953.3
PASSCO	50.6	11,475.9	50.6	15,524.6
PAKISTAN	440.8	138,578.0	334.5	141,912.4

1/ Adjusted from 57,200 MT by MFAC.

2/ Adjusted to account for contingency and escalation.

Analysis of the data in TABLE III-4 revealed that the funds available for rehabilitation were not sufficient to reconstruct the qualified 340 thousand metric tons. An additional Rs.3.3 million (\$185.2 thousand) would be required. The funding position, surplus or deficit, for each of the five agencies was:

- o Punjab Surplus Rs.8.8 million
- o Sind Deficit Rs.7.7 million

- o NWFP Deficit Rs.2.8 million
- o Baluchistan Surplus Rs.2.5 million
- o PASSCO Deficit Rs.4.0 million

Baluchistan was the only province estimated to be able to rehabilitate its targeted capacity with available funds.

The rehabilitation cost estimates used in this analysis were constructed from the A&E design estimates for each site. These primary estimates were adjusted (inflated) to account for potential contingency (unexpected increases) contract expenditures and projected net inflation. There may be some savings in these adjusted cost allowances as the rehabilitation contracts are executed. For example, all the contingency funds may not be required if only limited "extra" construction funds are required. The actual cost for rehabilitation of the qualified/designed 340,000 MT capacity will not be known until all contracted works are completed.

The A&E firm will be required to design an additional 50,000 MT capacity to bring the total qualified/designed capacity to the target level of 390,000 MT. It is recommended that the additional capacity to be designed (sites/facilities assigned by AID/ENG) be located in Punjab Province. All other provincial PFDs/agencies have designed capacities equal to or exceeding their respective target levels. By assigning the additional capacity to Punjab it would raise its total designed capacity to 159,500 MT (74% of target).

VI. REHABILITATION SCHEDULE

The public storage agency officials as well as MFAC have all expressed the desire to initiate the rehabilitation of selected godowns at the earliest possible date. The date of implementation is dependent upon several factors. Among them are the completion of required formalities between the GOP and USAID; the time required by PASSCO (with USAID approval) to originate and award contracts for work; and, the availability of the targeted godowns (empty) in preparation for a contractor to begin work.

Some of the pre-construction activities are underway, which may allow for early implementation of the rehabilitation process. A tentative implementation schedule has been developed and a target of midway of the third quarter of 1988/89, was set to begin the rehabilitation works. It is planned that the bulk of the rehabilitation will be completed in 1989/90 with some carried over into the following year (See Appendix H).

By that date many of the facilities in the procurement areas will be empty and rehabilitation can get well underway. There appears to be sufficient time for contingency operating plans to be developed in all provinces. Part of the capacity will be ready for rehabilitation at the suggested starting date.

CHAPTER 4**PLAN TO MONITOR GODOWN REHABILITATION****I. INTRODUCTION**

The program to implement and execute rehabilitation of the approved priority HTG facilities has been carefully planned. A properly designed and executed monitoring plan would provide an evaluation of the conduct and progress of the rehabilitation project. The plan would provide an opportunity for USAID, MFAC and Provincial Food Department officials to be periodically informed of items such as the following:

- o progress of the rehabilitation activities by Province;
- o problems encountered or anticipated;
- o planned resolution of any problems;
- o status of expenditure of contingency allowances/application; and
- o adherence to provisions of HCC requirements.

The evaluation process to be carried out under the Rehabilitation Monitoring Plan will be executed by personnel from USAID/ENG. Personnel from these two departments possess the engineering and management skills required to conduct field investigations, and provide appropriate analyses and progress reports. They will assist, as appropriate, in making recommendations and/or initiating corrective actions that may be required to expedite the rehabilitation process.

II. MONITORING AND EVALUATION

It is suggested that the monitoring/evaluation team conduct its investigations on an adhoc (unannounced) basis during the execution of the rehabilitation program.

The preliminary contract management plan (schedule) developed by PASSCO should form the base line against which progress on the rehabilitation process would be measured. It is quite likely that as the project is implemented and additional experience is gained, the preliminary plan may be revised. The second plan (revised preliminary) would likely remain unchanged and serve as the "official" base line for monitoring and evaluation.

III. REHABILITATION MONITORING PLAN

The envisioned rehabilitation program will most likely require about three years to complete. It is scheduled for just over two. The proposed monitoring/evaluation program will cover the total elapsed time required to complete the rehabilitation process. The process of monitoring and evaluating could tend to expedite the progress of the rehabilitation program.

It is recommended that USAID/ENG department utilize an adhoc scheduling system for evaluation visits. AID/ENG has monitored the performance of

contractors and progress on agency funded contracts. The normal procedure has been for the evaluator to make an unannounced visit to the construction site. While at the site he inspects the works underway and those that are completed. If a deficiency is noted it is reported to the AID/ENG office and orders effecting correction are telexed to the contractor.

A trip report, for internal (departmental) use is completed after each inspection visit. The trip report contains all pertinent observations, discussions, progress, etc. that took place during the visit. It was reported that generally one visit to small less costly contracts are sufficient, unless there are problems. Larger contracts are visited more often as appear warranted. The trip reports could serve as the monitoring/evaluation reports for the godown rehabilitation contracts.

It was reported that no formal field report form is used to direct the observations of the inspector during the visits. It was reported that AID/ENG would develop such a tool. EXHIBIT 3-A is a suggested format for a field inspection report. It can easily be modified to respond to the needs of such a device as experience is gained in inspection of rehabilitation contracts. An instrument such as this would be beneficial in constructing the monitoring/evaluation reports used to inform others concerned with this project.

IV. PROPOSED EVALUATION/REPORTING

The evaluation/monitoring team would be expected to complete only relevant analyses. USAID/ENG will construct and submit to selected officials in all appropriate agencies a formal rehabilitation progress report. One would expect that the professional opinions, conclusions and any pertinent recommendations that might expedite to program would also be included in the monitoring/evaluation report.

EXHIBIT 3-A

FIELD REPORT: GODOWN REHABILITATION EVALUATION

1. EVALUATOR(S):

NAME _____	USAID/ _____	DATE _____ 19 _____
NAME _____	USAID/ _____	Report No This Contract _____
NAME _____	Agency _____	Site _____

2. CONTRACT LOCATION(S):

PROVINCE _____

(a) _____	(b) _____	(c) _____
(d) _____	(e) _____	(f) _____

3. CAPACITY UNDER CONTRACT:

(a) _____	MT	(b) _____	MT	(c) _____	MT
(d) _____	MT	(e) _____	MT	(f) _____	MT

4. ESTIMATED COMPLETION:

(a) _____	%	(b) _____	%	(c) _____	%
(d) _____	%	(e) _____	%	(f) _____	%

5. QUALITY OF WORK

OBSERVED: _____

6. PROBLEMS REPORTED OR OBSERVED:

(A) PASSCO SUPERVISING ENG _____

(B) CONTRACTOR/SUPERINTENDENT _____

(C) OBSERVED, IF ANY _____

7. RESOLUTION OR RECOMMENDATIONS _____

8. CONTRACT COMPLETION DATE _____ ESTIMATED COMPLETION DATE _____

9. OTHER REMARKS _____

Use back of page if necessary, identify by number category.

CHAPTER 5**FACILITY REPAIR AND MAINTENANCE PLAN****I. INTRODUCTION**

Regular and proper repair and maintenance (R&M) of grain storage godowns is of utmost importance. Adequate maintenance makes two important contributions to the grain storage system. First, R&M assures the greatest level of protection for stored commodities, assuming that proper storage and handling procedures are closely followed. Second, and equally important, good R&M will provide insurance that the capital investment represented by storage facilities will be preserved and the units will maintain their structural integrity throughout their design life or longer. Thus, it makes good sense both operationally and economically, to adopt and implement an adequately financed R&M plan which will be rigorously followed and enforced.

As reported in Phase I and II of this project the level of deterioration in the physical condition of the wheat storage facilities constructed prior to May 1981 is glaring evidence of neglect and the current R&M inadequacy. Many of the surveyed facilities were in such poor condition that the only alternative to rehabilitation would be dismantle and rebuild with new and better designed units.

The Phase I report revealed that chronic under-funding and under-spending of R&M funds contributed significantly to the present conditions of the godowns in the public sector wheat storage system. Under-funding can be attributed to the process employed in requesting and allocating R&M budgets. Under-spending can be attributed to the attitude of the public works departments toward R&M works.

II. WEAKNESSES OF CURRENT SYSTEM

Any new and improved R&M system should be designed to strengthen and/or eliminate observed weaknesses and failures in the system now employed. As indicated, many of the inadequacies of the current system were manifested in the chronic under-funding and under-spending of R&M funds. Based upon the findings of the research in Phase I of this project the following weaknesses in the system were observed:

1. The PFDs were not assigned the responsibility for the R&M of the facilities under their ownership and/or control.
2. An organized annual R&M budget estimating process or procedure has not been followed.
3. There was no planned systematic basis for allocation of R&M funds among the regions/districts in a Province. Similarly, no plan existed to distribute funds to storage sites in a district.

4. There were inordinate and unwarranted delays in the transfer of allocated R&M funds to the respective provincial public works departments.
5. Sizable shares of the R&M funds that were allocated and transferred to public works agencies were unused.
6. The lack of adequate control of R&M funds by a responsible Food Department officer resulted in occasional use of R&M funds in capital projects, e.g. to construct new offices, residential quarters, etc.
7. Inaccurate and thereby unusable management information was circulated between the public works departments and Food Departments in the Provinces.
8. The system did not provide for an audit trail. R&M works and accounting were handled by two different agencies neither of which was part of the Food Department.
9. There was no cost accounting system employed for R&M works.
10. The respective Food Departments had no control over the R&M funds or the repair works accomplished at its facilities.
11. No useful management information was generated by the system that could have been used by Food Department officers with regard to R&M.

III. REPAIR AND MEINTENANCE WORK

Prior to developing an improved system to correct the weaknesses observed in R&M one should define the objectives. That is, define the work activities to be accomplished under the procedures incorporated in the plan. Therefore, R&M is defined to include all periodic works required to repair the normal wear and tear of the buildings as well as exterior (site) facilities. Rehabilitation works are those required to correct major structural flaws and/or damages. Thus, the cost of R&M would obviously be much less than that of rehabilitation. R&M works are recurring requirements and are corrected on a periodic basis. Rehabilitation works requirements are episodic and if not a result of damage usually require an extended period of time to become apparent. The implementation and execution of a proper R&M program will often prevent and/or delay the occurrence of major faults in buildings and drainages requiring rehabilitation expenditures. The high cost of the rehabilitation of facilities in this project has provided evidence that neglect of R&M begins to manifest a need to engage in rehabilitation efforts in as early as five years. Rehabilitation works can also result from calamities like earthquake, flood, fire, rough treatment and accidental bumps from handling and operating equipment.

Care should be exercised in the development of the requests for R&M works budget estimate for a facility or storage site. A conscious effort should be made to exclude from the R&M budget those works that would require a major reconstruction effort (rehabilitation) to correct. This does not mean that the appropriate Food Department officials would not be informed of such needs.

The following work activities are considered to be those that would normally qualify as R&M work requirements to be noted, requested and costed for budgeting purposes. The list might be adopted as a check list and employed as a guide by the local storage officers or others in the development of R&M requests each year.

	<u>ACTIVITY</u>	<u>FREQUENCY</u>
1.	Chip out and seal all <u>minor</u> cracks in structural members.	Annually
2.	Repair all <u>small</u> water leak problems and <u>minor</u> damage to roofs.	Annually
3.	Clean out and repair all <u>minor</u> cracks and breaks in floors. Annually	
4.	Whitewash <u>all</u> interior walls and columns.	Annually
5.	Remove <u>all</u> termite tunneling.	Annually
6.	Make <u>minor</u> repairs to doors and screens, as required.	Annually
7.	Make <u>minor</u> repairs to ventilators and screens, as required including replacing broken window panes.	Annually
8.	Make <u>minor</u> repairs to <u>all</u> ladders and catwalks.	Annually
9.	Repair <u>minor</u> damage to expansion joints in roofs, walls and floors.	Annually
10.	Keep <u>all</u> rainwater runoff spouts and drainage pipes clean and free of obstructions.	Annually
11.	Make <u>minor</u> repairs to external platforms and verandas including any waterproofing required.	4 years
12.	Make <u>minor</u> , simple repairs to electrical systems such as replacing/changing globes.	Annually

in the incidentals payments to the Provincial Food Departments by the GOP. PASSCO's duties and responsibilities would be to:

- o assist officers in charge of storage sites in development of R&M works list, if requested (all storage officers should be trained to develop R&M requests);
- o review all R&M work lists submitted by local officers, and spot check a random sample to determine accuracy;
- o prepare estimates for required R&M works requested at each site;
- o prepare, award and manage contracts for R&M works;
- o sign off jointly with the officer in charge that the contracted works have been accomplished; and,
- o arrange for contractor payment.

This part of the recommended R&M system would correct some of the deficiencies apparent in the current program. PFDs would now be fully responsible for the accountability for R&M of its facilities. Funds for R&M would be applied to their dedicated purpose and little, if any, would remain unspent.

One additional and principal advantage in utilizing the services of PASSCO as the R&M works management agency is that it is staffed with engineers with experience in executing these types of works. PASSCO also maintains an engineering staff in each of the provinces in which it currently operates.

The use of PASSCO as the R&M management agency will make it unnecessary for each of the Food Departments to consider staffing an engineering wing.

There is however a need to restructure the present finance wing of the PFDs by the creation of an Accounts/Records Department. This department would become an integral part of the Provincial Food Departments' R&M management/operating team. It would provide for control of the budgeting and allocation of R&M spending authority and provision of records for an audit trail and reports required to better manage the grain storage system.

V. R&M SOURCING, BUDGETING AND ALLOCATING

As we have reported elsewhere many of the HTG facilities are in very bad condition, so badly deteriorated in fact, that cost effective rehabilitation is impossible. This may also increase the funding required for effective R&M.

It is recommended that available/allocated R&M funds in each Province be used principally to address the budgeted R&M needs of all storage. It will be unlikely that newly rehabilitated HTG's will not require much if

any R&M expenditures other than the annual interior whitewashing and possible damages for three to five years. This will provide an opportunity for the PFDs to catch up on R&M requests for other facilities which may have been postponed. However, rehabilitated HTGs should receive funding priority as R&M needs are discovered. Only with proper maintenance will these facilities achieve the 15-year design life.

As new storage capacity is added to the public storage system the requirement for R&M funds will increase over time. As such, the R&M funding requirements should be carefully assessed about every 5-years. Additional R&M funding requirements should be met to protect the investment in public storage facilities as well as the wheat placed in these facilities.

A. Sourcing R&M Funds

The current system for sourcing R&M funds has resulted in underfunding this critical need. Evidence reported in the Phase I report substantiated this fact as did the resultant need to rehabilitate a large capacity of the public storage system. The GOP accepted the conclusions in the report and have agreed to provide R&M funds to the provinces and PASSCO by increasing the incidentals allowances for handling wheat. The theory behind the agreement to fund R&M stemmed from the wear and tear on facilities from handling/storing wheat.

In a Letter of Agreement dated 13 September 1987 from Mr. Mohammad Siddique of the GOP's Ministry of Food, Agriculture and Cooperatives, Food and Agriculture Division, Secretary's Office to Mr. Eugene Staples, it was stated:

("iii) A long-term plan for future R&M costs as per following formulation agreed to between the provinces & PASSCO (cost to be included in the incidentals on wheat handling):

$$\text{R\&M cost/tonne of Wheat Procured during the Year} = \frac{(T-C) (S+F)}{P}$$

T = Total Storage Capacity

C = Capacity to be Rehabilitated during the year

S = Cost of R&M per tonne of storage as worked out in report by M/s Experience, Incorporated

F = Fee of Executing Agency 1/

P = Total Procurement of Wheat during the year

It is proposed to meet the expenditure of R&M costs as part of the incidental transport and storage cost. Precise arrangements for this purpose would be finalized in consultation with the Ministry of Finance".

1/ This fee will have to be established by agreement between PASSCO and MINFA.

The R&M cost/MT of procured wheat will vary from year to year according to the changes that may take place in the values in both the numerator and denominator of the formula. For example, if there was no change in the value of the numerator and the volume of wheat procured (P) declined, the level of Rs. added to the incidental allowance would increase. An increase in P would reduce this R&M rupee level.

To demonstrate the potential level of R&M funds that would be sourced from application of the agreed formula a sample problem is presented. In setting up the equation certain assumed levels of capacity, procurement and executing agency fee are used. The average estimated value for structural R&M requirements contained in the Phase I report will be used (see Chapter X-C, Page 93). That average value is Rs.20/MT storage capacity in Punjab and Sind. This value for NWFP and Baluchistan was Rs.25/MT. The assumed values will be as follows:

1. T = Total Storage Capacity = 3,984,000 MT (TABLE 1-2, Page 2, Phase I Report)
2. C = Capacity to be rehabilitated = One-half the target level of 390,000 MT equals 195,000 MT.
3. F = Fee of executing agency = 22.5 percent of Rs.20 R&M cost estimate equals Rs.4.50.
4. P = Total wheat procurement = 5,000,000 MT.

using these inputs then:

R&M Cost/MT of wheat procured equals:

$$\frac{(3,984,000 - 195,000) (20 + 4.5)}{5,000,000} = \text{Rs/MT of wheat procured} =$$

$$= \frac{(3,789,000) (24.55)}{5,000,000} = \frac{92,830,500}{5,000,000} = \text{Rs.18.57 or Rs.19}$$

If the incidentals ^{1/} sanctioned by the GOP for procurement, transport and storage were Rs.620 the resulting incidentals allocation to account for R&M would be Rs.639. R&M funding would account for about 3 percent of the total incidentals allowances. The increase in the incidentals/MT due to R&M costs is evidently minimal. This would provide a pool of R&M funds in the amount of approximately Rs.95 million.

B. Provincial Allocation of R&M Funds

Incidental allowances to the Provinces and PASSCO has varied from one Province (and Agency) to another. This is likely to continue. It is recommended that the R&M funds generated by the agreed procedure be considered as a Provincial and Agency pool of funds. This would provide an opportunity for the PFD to divide or apportion the fund in an

^{1/} Current incidentals payments, approved and sanctioned by the Government, are related to the costs associated with procuring and handling wheat. They include the following cost categories; gunny bags, delivery charges, taxes and duties, transportation, handling charges, godown expenses, shortages and unforeseen expenses, departmental charges and financial expense.

equitable basis giving each region a "fair share" of pool of R&M funds each year. The GOP would continue to supply the "normal" incidental allowances plus the R&M portion to each Province as currently practiced. The R&M portion of the incidentals paid to PFD would be allocated to the region and district offices. Allocation does not necessarily refer to the actual distribution of funds. It means the authority to spend only while the funds are retained by the PFD.

It is recommended that the allocation formula be based upon the share or percentage of the total wheat storage in a region to the total public sector storage capacity in the Province. The present capacities of wheat storage for each region would need be determined. In subsequent years newly constructed capacity would be added to the total for each participant in order to determine its fair share of R&M funds.

It is recommended that upon receipt of these funds the Provinces/Agencies place them in a non-lapsable account. This is necessary because the possibility exists that any one or more facilities scheduled for R&M works might not, due to operations and storage activities, be available for maintenance works. However, Food Department personnel in the respective province/agency should make every effort to complete the required and budgeted R&M works on all targeted facilities each year. This would aid in preventing the potential for adopting the "we'll do it later" attitude resulting in poor storage conditions such as those that now require extensive and expensive rehabilitation.

C. Distribution of R&M Funds Within Province/Agency

As opposed to the actual transfer of money from the Provincial Food Office only the authority to spend will be used to distribute R&M funds to the Regional Deputy Directors of Food based upon the region's share of provincial storage capacity. The authority to spend for R&M will be allocated on the same basis to the district level based upon its proportionate share of the total regional wheat storage capacity. Storage in each region and district will determine the funds available in each storage year for R&M use.

In order to demonstrate the R&M fund/expenditure allocation process the following example was constructed. The basic assumptions are:

- o Sind PFD generated Rs.4.8 million R&M funds by the new incidentals formula basis; and
- o the PFD management will allocate spending authority to the regions based upon the relative shares of covered storage in the region to the provincial total.

Following the same criteria, R&M spending authority will be passed on to districts within a region. The following example for Hyderabad Region, Sind Province demonstrates the spending authority allocation at the district level.

TABLE 5-1

**EXAMPLE OF ALLOCATION OF R&M SPENDING
AUTHORITY AMONG THE FOOD DEPARTMENT REGIONS, SIND**

Region	Covered Storage (MT)	Percent of Total	Share of R&M Funds
Karachi	144,500	26.78	1,285.4
Hyderabad	256,640	47.56	2,282.9
Sukkur	138,480	25.66	1,231.7
Sind Total:	539,620	100.00	4,800.0

TABLE 5-2

**EXAMPLE OF ALLOCATION OF R&M SPENDING AUTHORITY
AMONG DISTRICTS, HYDERABAD REGION, SIND**

District	Covered Storage Capacity (MT)	Share of Regional Capacity (%)	Allocation R&M Spending Authority (Rs 000)
Hyderabad	44,900	17.5	399.5
Sanghar	28,980	11.3	258.0
Tharparkar	47,760	18.6	424.6
Dadu	124,100	48.4	1,104.9
Badin	3,100	1.2	27.4
Thatta	7,800	3.0	68.5
Region:	256,640	100.00	2,282.9

The next activity in the allocation process will be to commit spending authority at the local sites where R&M works will be undertaken. Allocations will be based on estimated budget requests rather than storage capacity. The officer-in-charge at a site assisted by PASSCO survey engineer will have completed a survey report detailing the R&M needs by facility at his site. The reports with estimated costs for R&M at each site will be submitted to the district food controller (DFC). He will then be able to compare the budgeted R&M requests with the allocated funds for each site. If sufficient funds are available all budgeted R&M requests can be accomplished. If not, the DFC will decide which facilities (sites) will be funded and which will be delayed until the next funding year and only very essential repairs would be taken up. He will need to maintain a set of records that identifies the action taken

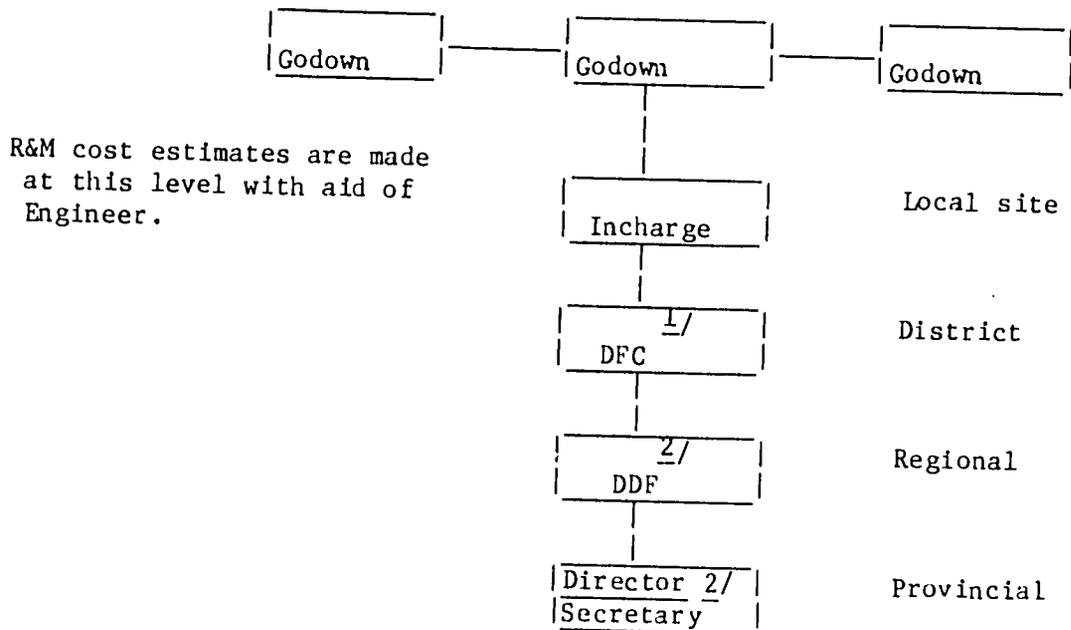
relative to each R&M request. This will help in assuring that facilities or repairs which were postponed will receive priority consideration in the up-coming year.

The DFC will then complete a report (two copies) showing the total budgeted R&M costing and submit one copy to the Deputy Director of Food at the regional level and keeping one copy for his own use.

Currently each region, district and local site are identified by name in the records of the various Provincial Food Departments (PFD). If each godown at a local storage site is not now identified by a permanently assigned number it is suggested that this be done. This would allow the District Food Officers to compile their reports in a reporting fashion which identifies R&M actions taken on each godown. Any time thereafter management personnel at district level could easily determine the R&M status of the qualifying facilities under his jurisdiction. (see Exhibit 5-1 for Flow of Reports).

EXHIBIT 5-1

FLOW OF R&M REQUESTS FOR FUNDING



1/ Level at which R&M expenditures at the local level are made
2/ Informational for creation of appropriate management reports (See Appendix G for suggested reporting forms).

The costed R&M facility survey at each site, identified by the Engineer of the R&M management agency would constitute the first column of a district report form. The engineer may seek advice/approval of his superiors to finalize the estimates prior to submitting the report to the district office. With a space for remarks it could be noted whether or

not the R&M needs at a specific facility would be accomplished during the current year, or were postponed.

It is suggested that the first report from the district to the region and finally on to the province be only the estimated R&M requests for the current year. The subsequent quarterly reports would include information relating to the R&M worth activity, i.e. underway, completed, etc. At the beginning of the storage year and shortly after the close of each subsequent quarter Food Department management personnel at each of the three principal administrative levels would know the condition of each storage facility under his area of responsibility. This should also serve as a management tool by providing decision making inputs to the administrators.

D. Responsibility of PASSCO for R&M

Basically this agency will serve as an engineering consulting and R&M contract management firm.

It is recommended that the responsibilities of PASSCO include but not necessarily be limited to the following:

- i. In collaboration with the officer-in-charge at the local storage site to complete an annual survey and cost estimate of the R&M needs for each facility under his care. If, in the opinion of the PASSCO engineer, the work is too extensive and will be too expensive to be classified as R&M, it will be so noted on the survey report. In that case the estimating engineer will restrict the repairs to essential items within the written financial limits.
- ii. Once the estimating engineer has received the survey reports on each facility he would immediately prepare appropriate cost estimates and get the approval of his superiors. These documents would be submitted to the District Food Officer in that area for making adjustments in light of the funds available. The resulting documents would be forwarded to the DDF who in turn, after compiling all the estimates for his region, would send to the Director. The Director would send a copy of the final documents to PASSCO under intimation to the Secretary, Food Department.
- iii. PASSCO's management engineering office would be responsible for aggregating the site estimates in a district or region into appropriately aggregated potential contract units.
- iv. PASSCO, as the executing agency, would be responsible for preparing tender documents, receiving and evaluating contractor bids, awarding contracts, supervising contractor's work and making payments to contractors out of non-lapsable Personal Ledger Account in which sufficient funds will be deposited by the Food Department.

VI. TIME TABLE FOR R&M

In order to carry out the R&M works each year necessary to maintain the integrity of the storage facilities, an appropriate time table should be followed. The following plan is recommended (see Appendix G for suggested report forms).

1. The survey of facilities for repair can be made at any time the facilities are empty. Most of the godowns are empty during March. The R&M surveys are to be completed no later than 31 March. As the surveys are completed they are to be forwarded to the Estimating Engineer(s) at PASSCO (see Exhibit 5-2).
2. PASSCO will complete all estimates and deliver them to the District Officer no later than 15 April.
3. The District Officer will use these reports to compile the estimates of all godown sites in his district. This report is submitted to the Regional Officer no later than 1 May.
4. The Regional Officer will compile the cost estimates of all the wheat storage sites in the region and forward the report to the Provincial Director no later than 15 May.
5. The Director will compile the aggregated cost estimates for all the complexes in the Province and send its abstract along with a yearly R&M program to the Secretary, Food Department no later than 30 May.
6. Yearly evaluation of the R&M program is finalized in a meeting with the Secretary and the Provincial Food officers. It is suggested this be held between the 7th and 20th of June.
7. The funds for R&M, based upon the past years procurement levels according to the R&M funding formula, will be allocated to each region in a province during the first week of the new financial year.
8. During the July 7-15 period the apportioned spending authority amount will be relayed to each District Officer and PASSCO.
9. The District Officer then will submit a list of the R&M works by site to PASSCO. The R&M works to be undertaken will be defined from this list by the volume of funds (spending authority) for the district.
10. PASSCO then will aggregate the R&M works into reasonable contract units and tender them for bid. The response to tenders are to be evaluated by a Tender Committee represented by PASSCO and PFD. Work is then awarded to the successful bidders. The suggested period is 1-31 August.

EXHIBIT 5-2

REPAIR AND MAINTENANCE SURVEY AND COST ESTIMATES

=====
Identification

Godown Number _____ Size _____ x _____ Capacity _____ MT
 (feet or meters)

Name, Storage Center _____

District _____ Region _____ Province _____

Surveyor(s)/Estimator

Surveyed by: Name _____ Title _____
 Name _____ Title _____

Cost Estimator

Name _____ Title _____

Date(s) of Survey _____ 19 ____ .

=====

Repair and/or Maintenance Item/Need	Surveyed Record		Estimated Cost	
	Quantity	Unit	Rate	Amount (Rs)

 =====

1. Minor Cracks in structural members, chip out & seal
2. Small water leaks, repair
3. Minor roof damage, repair
4. Damaged walls, chip, re-plaster
5. Minor cracks/breaks, floors clean & repair
6. Whitewash, walls/columns
7. Termite tunneling, remove
8. Repair doors
9. Paint doors
10. Repair screens, door
11. Paint screens, door
12. Repair ventilators
13. Repair screens, ventilator
14. Paint, ventilators
15. Paint, Vent. screens
16. Window panes, replace
17. Paint, steel work (except R.beam/ trusses)

EXHIBIT 5-2 (Continued)

REPAIR AND MAINTENANCE SURVEY AND COST ESTIMATES

Repair and/or Maintenance Item/Need	Surveyed Record		Estimated Cost	
	Quantity	Unit	Rate	Amount (Rs)
18. Ladders/catwalls				
19. Ladders/catwalls, paint				
20. Expansion joints, roof				
21. Expansion joints, walls				
22. Expansion joints, floors				
23. Rain run-off/drain spouts, clean				
24. External plat-form				
25. Veranda, repair				
26. Electrical (specify ___)				
27. Drainage, ditches, clean				
28. Grounds, remove weeds, etc.				
29. Debris, removal				
30. Other external				
a. Compound walls, specify _____				
b. Entry/Exit gates, specify _____				
c) Other buildings, specify _____				

Remarks _____

11. A notice from PASSCO is served to the District Officer who in turn will notify the local godown site manager of the anticipated contract starting time. The local manager then will begin to prepare (empty his godowns) for the onset of R&M works.
12. It is suggested that the R&M works start on or about 15 September when some godowns become empty.
13. The repair works should be completed by 31 March after which the godowns will be prepared to receive the new wheat crop.
14. R&M evaluations will be made by PASSCO and the District Officer, or his assignee. A report will be made to the Regional Officer for transmittal on to the Provincial Food Officer. He in turn will report to the Secretary, Food Department on the current R&M program. He will note (remarks) on such things as adequacy of funding, volume of works completed and volume (value) of works postponed, quality of work performed, progress to date, etc. The suggested evaluation dates are 10-31 December and the following 1-20 April.

It is recommended that if R&M funds for any one year are not sufficient to meet the requested works, or if funded works cannot be completed, then these will be priority items for the upcoming year.

The annual R&M survey activity will be a massive undertaking confined to a short time period ending 31 March. Also, it is believed that PASSCO would not get proper collaboration from the storage officers in conduct of R&M surveys. In view of these two constraints it is recommended that all storage officers be trained to conduct R&M surveys. It is the current PHM/STDT project's storage management training component could include a training exercise that would accomplish this.

A cadre of storage officers trained to conduct the surveys of their own (assigned) facilities would help the PASSCO field engineers and the would only have to "spot check" completed surveys. They would then be available to assist a storage officer who might have "special" R&M problems.

VII. LOCAL SITE R&M FUND

There are certain types of repair needs that either require immediate attention or are of such a nature they cannot be postponed until the annual R&M works are completed. Examples of these types of R&M requirements are:

- o A godown door could be damaged from some cause and could not be closed properly. Such a condition would provide access for rodents and birds, an entry for unauthorized personnel and/or not close tight enough to provide for good fumigation.
- o A burned out light bulb would create a work area condition which would hinder carrying out necessary duties or make an area unsafe for the site personnel.

There are other similar types of repair and maintenance requirements that could effectively be handled by the local officer-in-charge. In these cases, local artisans and/or mechanics can be employed to repair these "emergency" or minor needs. The officer could purchase and replace any burned out light bulbs.

In order to do this the officer will require either a small fund of money or the authority to make minor purchases and hire persons to make the emergency repairs and submit the vouchers attesting to the completion of the work or purchases made to PASSCO for payment. These types of repairs and purchases would not require a large sum of money/spending authority.

It is recommended that authority to spend at the local (site) level as opposed to a local fund of money, be instituted as part of the oversee R&M program. It is also recommended that in the beginning the level of

the spending authority be established at Rs 1/MT storage at a site. Thus, the limit would be related to capacity and would reflect the possible level of needs as capacity varies. After about two years experience with this program and the funding level it will be possible to establish a rate which more clearly reflects the needs for minor and emergency repairs.

VIII. SUMMARY

The foregoing sections in this chapter are designed to suggest and recommend an improved recurrent cost (R&M) program. The necessary agency and line authority relationships, practices, and procedures to provide a comprehensive, simple and effective R&M program are succinctly outlined.

It is believed that the accepted R&M funding formula will provide sufficient funds to accomplish the annual, recurring R&M needs in the public wheat storage sector. It should be noted that no provisions for inflation were included in the programs. It would be wise to give this issue due consideration. For example, the assumed Rs.20/MT of capacity for R&M was taken from the 1986 Phase I report. It has been estimated that the annual net rate of inflation for construction has been approximately 4 percent per year. If this is true the 1986 R&M estimate should now be approximately 21.6 Rs/MT.

It is also noted that the accepted "new" formula for sourcing R&M funds removes this burden from the Provinces. The analysis does however suggest that if funding is insufficient under this formula then supplemental monies should be appropriated from provincial funds.

Overall this improved sourcing/expenditure and monitoring R&M program, if accepted and implemented, will aid in assuring that the capital investment in storage capacity will be better preserved. It will provide the care for local facilities which will maintain their structural integrity and provide an acceptable storage atmosphere for the design life of the facilities. This should also protect the quantity/quality of wheat moved through the public storage system by allowing local storage officers to utilize improved management practices and procedures.

CHAPTER 6**IMPROVED STOCK MANAGEMENT PLAN****I. INTRODUCTION**

The appropriate management of storage stocks in a well maintained facility is a major means of protecting the volume and quality of wheat moved through the public storage system. The stock management operations areas that should receive particular attention in the evaluation and/or design of an improved stock management plan include the following; pre-receipt, receiving, storage and handling, disbursements, inventory system and general house-keeping - interior and exterior. Design will include reports and records which, if properly executed and maintained, will yield data and information pertinent to overall management and planning for the system. This would be applicable to all sectors of the system divisional, regional, provincial and national.

II. PRE-RECEIPT ACTIVITIES

Storing clean wheat in clean facilities aids in protection against losses in storage. Therefore, the facility should be properly prepared prior to receiving wheat.

Proper preparation requires that the facility be thoroughly cleaned (walls, beam surfaces and floor), paying particular attention to any cracks and crevices that might harbor insects. All depressions, cracks and holes in the walls and floor should be repaired and levelled up. Any loose plaster should be removed and replaced. The interior then should be whitewashed to fill minor cracks and render the facility clean. The recommended R&M program should assure that most of these activities have been addressed and the required works completed.

Proper dunnage for storage should be kept in place per the regulations of the PFD and/or agency. The interior of the storage facility should then be treated with an approved pesticide at recommended levels or concentration using appropriate type of application. Again particular attention should be given to these areas that might harbor a carry-over of insect population.

A properly prepared storage facility will be clean, disinfected and contain nothing other than approved dunnage placed to store stacked wheat in the approved format or to receive bulk wheat. All extraneous materials such as empty gunnies, chemicals, etc. shall have been removed and placed in approved storage places.

III. RECEIVING WHEAT

Recent evidence suggests that wheat is procured at moisture levels which do not encourage development of attacks by storage pests. Further the storage atmosphere in Pakistan, with proper protection, reportedly deters insect and/or mold/fungae development.

Wheat procurement practices and regulations currently employed in Pakistan supply wheat for public storage of questionable quality attributes. Although it is reported that wheat is purchased under fair average quality (FAQ) standards procurement officials are required to accept all wheat delivered to their station. cursory inspection of purchased wheat has revealed significant levels of foreign material (FM), evidence of insect infestation, etc. Other investigators have cited certain deficiencies in the FAQ standards as they are now applied. To achieve improvement in storage and handling of wheat these standards should be modified. An example would be a need for the development of a wheat grading procedure which would properly define the grade. Similarly, the "no-loss" policy has tended to create unacceptable management practices such as adulteration, etc. This policy too should be modified.

A comprehensive report on FAQ standards and "no-loss" policy, is currently being prepared by KSU/STDT project team. The report will detail grading systems and standards, sampling techniques, discounting practices, etc. All these factors are directed toward quality determination and differences in value related to established quality standards. The report will contain recommendations that will contribute to improvements in management that should receive serious consideration by the GOP.

Current procedures require the receiving station check the weight of about every tenth (10th) bag to assure that the volume of wheat received corresponds closely to that reported shipped by the disbursing facility. The weight of the volume received is to be properly recorded along with the arrival date and its disposition into storage-that is the godown and/or godowns into which it is placed.

The stacking of sacked wheat received should be closely monitored to assure that the applicable regulations are followed. These apply to stacking format, appropriate aisle widths (between stacks, walls, columns, etc.), and heights. These regulations were developed to provide for treating (insecticides) and inspections as well as maintenance of a clean storage facility. Other regulations with respect to inspection of the condition of bags being received are to be followed including the rebagging of wheat when necessary as well as closing minor leakages by sewing etc.

If in the receiving process it is detected that insect infestation is present, grain is wet, or any other condition that would place the stored grain in danger of loss, it should be noted. Further, if possible the "damaged" grain should be segregated and steps taken to return the lot to a condition amenable to safe storage. This would include such actions as use of appropriate treatment for insect infestation, drying and rebagging, etc.

Finally, once the unloading and stacking has been completed the entire facility should be swept clean. Accumulation of dirt and spilled grain

provides an ideal atmosphere for insect growth and may attract birds and rodents.

IV. STORAGE AND HANDLING

During the period that the wheat remains in storage it should be checked each week for any evidence that it may tend to go out of condition and become unfit for human consumption. The monitoring process will involve a search for signs of insect population build-up, heating, dampness or wetting, mold, etc. The KSU/STDT team has developed a training program which includes a check list of specific things to look for when inspecting godown stocks. It is recommended that this inspection procedure incorporated in the training program be adopted by the PFDs.

Each inspection should result in a report of the findings for the lot(s) of stored wheat in each godown. This report would include, but not necessarily be limited to, remarks and/or statements detailing any change in volume and/or condition of the stored wheat. If changes in the condition of stored wheat are noted, treatment is to be suggested or requested if the local storage officer does not have the expertise to recommend appropriate treatment protocol.

The periodic inspection reports will be forwarded immediately through the management system, e.g. to the district, to the region, etc. Upon receipt of the report at the district level all requests for assistance should be promptly addressed. An inspector will visit the site, investigate stocks involved and make proper recommendations for treatment. The inspector will add his comments/recommendations to the subject report and forward to the next management level. He will also be responsible for making a return inspection trip ten to fourteen days later to see that his recommendations have been carried out.

Further, during the time that wheat is stored, the local storage officer should follow the recommended ventilation practices/procedures. The aisles in the godown should be kept free from accumulation of dust and leaking grain by periodic sweeping. If the volume of grain in these sweepings appears to be sizable, the local storage officer must decide if the sweepings will be winnowed and the clean grain placed in a bag for storage. If not, the sweepings will be deposited in a place well away from the storage godowns. Such debris will attract rodents and provide a medium for growth in insect population. The local storage officer will make the decision relative to the handling and disposal of the sweepings keeping in mind the "no loss" regulation that is in effect in public storage.

While grain is in storage it should be protected from insects by following the regulations applicable to treatment by approved insecticide(s). The storage officer should also protect the stored grain from wetness, especially during the rainy season. This can be accompanied by making certain the doors and ventilators are closed where appropriate. If there are leaks, the endangered stack is to be covered

by tarps or poly sheeting. It is expected that the improved R&M program will minimize this hazard, yet leaks can develop in the interim period.

In addition to preparing and maintaining all the storage records required, the officer in charge will also implement and carry out a program designed to prevent pilferage, another loss factor cited in numerous studies. This plan will include all those checks and activities which control access to stored wheat by unauthorized persons, which includes family and friends of all employees at the center. If a center is understaffed at any time, the doors and other entry points will be closed and/or locked, whichever is most appropriate.

Some deficiencies in the bag handling and storage system such as the difficulty in controlling insect pests, maintenance of clean wheat (sweepings of spillage), etc. can be improved upon. The adoption of a bulk handling and storage system that can be implemented in the new and rehabilitated HTGs would provide for changes in pest control and cleanliness reflecting improvements in handling and storage. These improvements will be even greater in facilities designed especially for bulk handling.

V. DISBURSEMENT OF STOCKS

Stocks are removed from storage under orders from the appropriate officer of the Provincial Food Department. If the order does not specifically identify the lot of wheat to be transferred, the shipment should be made up of the quantity(ies) of wheat which have been in storage for the longest period of time. This will be consistent with the first in-first out (FIFO) inventory control program. Limiting the time in storage under this inventory system will tend to minimize exposure of lots (receipts) of wheat to quality deterioration.

However in centers with a shortage of godown space, these stocks may be removed from quantities of wheat held on plinths in open storage. These stocks may have been placed in storage at a later date than quantities stored under cover (in godowns) but are at greater risk of deterioration and should be moved first. The only other variation in the FIFO inventory system would be the disbursement of a lot of wheat that was going out condition (spoilage). This will also aid in minimizing losses at the storage center.

Prior to off-loading any wheat the godown floors and load-out area should be cleaned. This will allow spilled/leaking grain resulting from the transfer activity to be salvaged in a much cleaner condition. If available, tarps may be placed on the ground at the load-out site to aid in the effort to keep the spilled grains as clean as possible. All spilled grain should be gathered, winnowed or screened and sacked for delivery under the load-out order.

It is suggested that every tenth sack being off-loaded should be weighed to make the required record of shipment as accurate as possible. The only system that would supply greater accuracy would be to weigh every

sack of wheat loaded out against the order. Some storage officers interviewed during Phase I of this project reported they weighed all the sacks being off-loaded.

Some storage sites have on-site or available nearby truck scales that can be used to establish the weight (quantity) of grain being loaded out. Trucks should be weighed empty with the weight recorded on a weighment ticket. After loading the truck will be weighed again and the gross weight record on the same weighment ticket. The differences in the two weights will indicate the quantity of grain being shipped in that truck. The same procedure can be used to determine deliveries by reversing the order of weighing. Care should be taken to insure that the truck weights will be the same for both weighments. Require that the driver remain on board and all passengers stand off the scale area in both cases.

When the load-out is finished and all records are completed the inventory (volume) recorded on the last periodic inspection report should be adjusted to reflect the change in inventory of wheat held in storage in a particular godown(s) and at the storage site. All required records should be immediately forwarded to the appropriate/specified offices and files.

VI. RECORDS AND RECORD KEEPING

Storage records serve as an input for management information reports used by PFD officers for decisionmaking purposes. The present storage records system is judged by the study team to be a good system. It is simple, easy to compile and contains the necessary information to construct management reports. The records systems of the PFD's are standardized for each respective province and similar enough to provide all information required by MINFA. These does not appear to be any reason to change the current records and practices.

It will likely require some additional information (inputs) in the future as grading practices are changed. For wheat grades to serve their most useful purpose lots of grain received, stored and shipped should move with the grade designation recorded.

The one weakness observed in the records system was that often when a local storage officer is transferred he takes the records of his previous assignment with him. These records of wheat transactions are of use only to the storage officer at the site. It is recommended that the practice be adopted which insures that all applicable records at a site remain on file at that site for use of the officer-in-charge.

VII. GENERAL HOUSEKEEPING AND UPKEEP

The contribution of cleaning as a housekeeping chore cannot be emphasized for improved storage practices. Many previous references were directed at the tasks inside the godowns. The focus of this section will be non-contractual type activities that can be undertaken by local staff on the outside of the godowns but within the compound. The items to be

discussed do not exhaust the list of such activities. They are the most obvious and are directed primarily at protection of the wheat in storage.

The area adjacent to each storage facility and throughout the compound should be kept free of weeds and other debris. These elements make attractive harbors for rodents which may enter the storage facility. There they will chew through the sacks and consume grain as well as causes spillage. They will also contaminate the stored stock with excretia and could be carrier of diseases harmful to mankind.

The area adjacent to the godowns should be kept filled and smooth to facilitate water drainage away from the facility. Any spots where water may pool and remain for some time, should be filled and smoothed out to prevent such accumulations. These are a source of moisture for rodents and may contribute to an increase in their population throughout the site.

Open drains should be kept clean and free of weeds and other debris to facilitate carrying water away from the storage site. Constant maintenance of these waterways will allow them to operate properly and perform the function for which they were designed.

Every effort should be made to keep the compound neat and clean thereby reducing the hazard of any build-up of vertebrate pests.

An in-depth review of the published rules and regulations relating to stocks management and reports appear to be adequate for describing an acceptable management plan for the public wheat storage system. ^{1/} In order for any plan to operate properly and function as designed, it must be diligently followed.

It is recommended that the position of District Compliance Officer be activated if it has been discontinued. The following activities describe the enforcement required to assure the stock/facility management practices are being followed at a storage site:

- o He will make unannounced visits to storage sites in his district on a random basis;
- o He will inspect the facility, grounds and records to determine if all applicable practices and regulations are used;
- o He will submit a written report on each site visited to the District Food Officer, with a copy to the officer-in-charge.

^{1/} Wheat Policy, Food Department, Government of Sind
 Wheat Procurement Policy, Food Department, Government of the Punjab
 PASSCO Field Manual, Pakistan Agricultural Storage and Services Corp.
 Manual of Food Accounts, Government of Baluchistan

The fact that the Compliance Officer's visits are on a random basis and unannounced should serve as an enforcement device. Since site managers will not be aware of when they may be inspected they will be more inclined to follow the practices and regulations specified by the PFD.

Viii: CONCLUSIONS AND RECOMMENDATIONS

A proper enforcement plan has three basic elements. The first is that each storage officer is fully informed of his responsibilities and the procedures and regulations established to guide his management activities. Included is provision for adequate back-up and support. This means that his supervising officer should be ready to coach and council in any management area in which he observes a deficiency. In addition to person-to-person assistance the upper management personnel should create appropriate training opportunities be made available and encourage the local storage officers to participate by making it convenient for them to attend. They should also make certain that the training programs are appropriate to the needs of the trainees.

The other two elements of the enforcement plan are opposites - rewards and penalties. The penalty element is much easier to describe since it would involve punitive action - even as severe as loss of job. The reward element for good management is more difficult to envision. Being trained as an employee is in itself a reward. It is believed, however, that managers who demonstrate exemplary skills should enjoy additional reward. The means to accomplish this under the standard employment practices of the Food Departments are not simple. It is suggested that provincial management give serious consideration to installing a remunerative reward system that encourages local managers to strive for superior management skills. Such improved skills might be reflected in management of stored wheat stocks and facilities, which would result in reduced losses.

The benefits of an improved management system, both for stocks and facilities will be demonstrated in savings attributable to smaller losses in both the quantity and quality of wheat moving through the system.

Improvements in facility management via a viable and effective R&M program is necessary before the full measure of stocks management can be realized. Thus, the improved facilities management program, not directly accountable to local managers, will result in not only savings from losses but also some protection against capital asset deterioration.

The project team firmly believes that the present sets of regulations and procedures for bagged storage are adequate if properly enforced. The adoption of the recommendations to be reported by KSU/STDT team on FAQ standards and the "no-loss" policy will contribute to improvements in the present system. Storage and handling improvements will be evidenced by less loss of wheat quantities and quality.

The introduction of a bulk handling and storage system is another potential area for improving storage management. This is discussed in the next chapter.

CHAPTER 7**PROJECT RELATIONSHIPS: KSU/STDT AND GR/RCA**

Both the Kansas State University/Storage Technology Development and Transfer (KSU/STDT) and this Godown Rehabilitation and Recurrent Cost Analysis (GR/RCA) projects have a common objective. It is to aid the GOP to improve the management of the public storage system in Pakistan. Although there are no direct and common task assignments between the projects the improvement in management sought in this project is heavily dependent upon the deliverables of the KSU/STDT program.

A principal objective of this GR/RCA project is to provide a better storage atmosphere via facility rehabilitation and assure upkeep (R&M) for all storage facilities in which improved management practices and procedures can be applied. A principal objective of the KSU/STDT project is to discover and transfer improved storage technologies (management practices). As such, that project is vital to the desired success of this program.

The study team believes the present stock management procedures are acceptable and if properly enforced would result in savings in wheat quantities and quality. However, there are areas that can be improved via "new, improved, applicable technologies". For example, current pest control protocols do not appear to be as effective as they should be. The KSU/STDT work in this area will result in improved pest control. The improvements in the storage environment accomplished by rehabilitation will provide for a fuller realization of the improved protocols discovered by KSU/STDT.

I. FACILITY MANAGEMENT

An important recommendation relates to the management of facilities, namely the R&M program. One part of this program is the discovery and reporting of R&M needs in each facility under the control of the officer in charge of a site. To properly address this issue the local managers will need to be informed or trained to properly inspect his facilities, recognize the defects and measure their extent and properly report it to an estimating engineer. The STDT project's training component would be a valuable source for such training. With the assistance of a storage engineer it could develop and administer a "hands-on" type of training course. Trainees would receive training in recognizing and measuring the repair needs which would qualify for expenditures or R&M funds. They would then be required to inspect a selected facility and complete an R&M request. These officers should receive such training even though there may be a field engineer in his district to assist in facility surveys. It will not be possible for the engineer to inspect all the facilities in a district. The training of local managers becomes an important facility management improvement requirement. It is recommended the KSU/STDT team consider including this as a training sector for storage managers.

II. MODIFICATION OF FAQ STANDARDS AND NO-LOSS POLICY

Presently wheat is purchased by PFDs and PASSCO in accordance with FAQ standards which were in use about 40 years ago. These standards, as now employed, contribute some unavoidable losses. Similarly, the No-Loss-Policy results in corrupt practices and unacceptable stock quality losses. If stock management is to be improved there is a need to modify both FAQ standards and the "No-Loss" Policy as presently enforced. As reported KSU/STDT project personnel are currently investigating the FAQ standards and are conducting storage loss studies under improved facility/management situations. These activities should result in findings which will lead to modification of both issues. The definition of an acceptable storage loss level should aid in defining modifications of the "No-Loss" Policy.

Modification of the FAQ standards would provide an opportunity to manage storage stocks in a way that reduces losses and improves stock management.

III. BULK HANDLING

Stock management in this report has centered upon bag handling only. Due to the lack of technical know-how and an infrastructure for bulk storage with the high cost of putting it in place, this handling technique will not be readily accepted to be introduced in the country. However, the team believes that Pakistan will convert to bulk handling. This is a primary reason for the recommendation that only HTG storage be rehabilitated. HTG facilities lend themselves to a transitional bulk storage system. Based on an estimated transition stage from bag to bulk, the rehabilitation was designed to extend the life of storage facilities by 15 years.

The KSU/STDT consultants have designed a pilot project to test and demonstrate the operation of a bulk handling and storage system in Pakistan. Results from this project will provide estimates of not only infrastructural requirements but operational costs in both systems viz bag and bulk. The findings and recommendations from such a project will be of great importance and value to the improvement of management in the grain handling, storage and marketing systems. It is recommended that the proposed bulk handling and storage project be implemented as soon as possible.

IV. NEW STORAGE

The storage management techniques cannot be successfully implemented with inadequate storage facilities. Therefore, new facilities need to be added to make up the deficiency. New storage development in Pakistan should be guided by the findings of the work being undertaken by the KSU team of consultants as well as those from this study and others. The current additional storage needs in Pakistan are reported to be approximately 1.9 million tons. Currently, discussions are underway with the Asian Development Bank for funding additional storage capacity - mainly in Punjab.

This storage is being designed to be readily converted to flat bulk storage and as such will fit very well as bag-to-bulk transition storage.

V. SUMMARY

Both the KSU/STDT and GR/RCA projects are designed to aid the GOP in improving the management of its public storage sector. This project focused more on provision of an improved storage environment through rehabilitation and implementation of an R&M program. The STDT project focuses on storage technologies (management practices and procedures) that can be transferred to personnel operating the system. Together they should, if recommendations are implemented and followed, provide for significant improvement in public sector storage management.

CHAPTER VIII**CONCLUSIONS AND RECOMMENDATIONS****I. INTRODUCTION**

The need in Pakistan to rehabilitate part of the public wheat storage capacity has been verified by the findings of this project. Likewise, the source of the poor physical condition of facilities was found to be the result of improper facility (asset) management and chronic under-funding of R&M. This was magnified by a record of under-spending already meager R&M allocations. As a result, many facilities do not provide a storage atmosphere that allows storage officers to protect their stocks from loss to the pests and fungi that attack stored wheat.

The general condition of wheat storage facilities, HTG's specifically, and the need for rehabilitation is evidenced by the findings of this project. For example, of the 455,500 MT of storage in 681 HTGs surveyed for rehabilitation only 358 godowns at 43 sites with a capacity of 334,500 MT qualified for rehabilitation. The qualifying guideline of a maximum Rs.350/MT was relaxed in many cases in the attempt to achieve target capacity levels in the provinces. Slightly less than 49 percent of these facility sites designed for rehabilitation were estimated to cost Rs.350/MT or less. It was estimated that cost of rehabilitation of the qualified sites exceeded the funds available by approximately Rs.3.3 million.

Based upon a critical review of the regulations and procedures in the annual wheat policy manuals of the Provincial Food Departments and PASSCO's operating manual it was concluded that, if followed, the present stock management plans were satisfactory. There was however, some evidence that the PFDs were lax in enforcement of the practices and procedures.

The recognition of the need to support the R&M efforts of the PFDs was evidenced by the agreement of MINFA to implement the R&M funding formula. The significance of this action by the GOP will be the savings in wheat resulting from the improvements in storages. It will also be evident in the preservation of the capital investment in public wheat storage godowns.

The basic recommendations flowing from the observations in order of their importance or priority, findings and analyses of both Phase I and II of this project are as follows:

II. REHABILITATION

- o The rehabilitation of storage facilities is an important step in the quest to improve the management of public wheat storage. Not only will it provide a better storage environment in the restored facilities but also provide the type and service life of storage which will contribute to the transition to bulk handling.

- o In light of the tentative rehabilitation schedule PFDs will quickly develop an alternative operating plan. The plan will insure facilities will be available for rehabilitation and minimize the disruption of on-going storage activities.
- o The expenditure of contingency rehabilitation funds will be closely controlled by AID/ENG and PASSCO. Required "extra works" will be conducted and paid only under an approved work order.
- o All savings in the rehabilitation of the qualified HTGs will be applied to further rehabilitation in Punjab. These savings may be sourced from unspent contingency allowances, contractor bids coming in under estimated costs, etc.
- o Monitoring of the progress will be accomplished by AID/ENG. In addition to construction progress reports from PASSCO AID/ENG will conduct random unannounced construction site investigations. They will report to the GOP and AID/ARD the progress of the rehabilitation activities.
- o USAID be prepared to allow PASSCO to complete the design/cost estimates for rehabilitation of additional capacity in Punjab. PASSCO will use the survey reports furnished by ZOR Engineers on deleted facilities in Punjab.
- o The GOP consider the implementation of a program to source additional rehabilitation funds similar to the R&M funding plan by adding Rs.30 to 40 per metric ton of wheat procured. Over time all facilities could be rehabilitated.

For example, what capacity of HTG storage could be rehabilitated in a province that procured 1.25 million MT wheat with the rehabilitation allowance of Rs.30/MT added to incidentals? The average (unadjusted for construction management, contingencies and inflation) rehabilitation cost for Pakistan is estimated to be Rs.334/MT.

Rs 30 x 1,250,000 = Rs.37.5 million / Rs.334 = 112,300 MT capacity)

III. REPAIR AND MAINTENANCE

The implementation of an improved R&M program could possibly be the most important product of this project. The results of the neglect of R&M is apparent in the extensive rehabilitation requirements. The recommended program if initiated and continued would, if properly funded, eliminate the need for facility rehabilitation in the future. The only future needs might arise from changes in technology and would be classified as retrofit.

- o The proposed R&M program be implemented immediately and funded beginning FY 1989/90.

- o The R&M funding by formula for each FY be based upon the PFDs and PASSCO's procurement levels for the past year.
- o R&M funds to be placed in a non-lapsable account upon release to the Province. Interest earned, if any, will also be used for R&M.
- o PASSCO be appointed as the R&M management agency with the service fee to be agreed to by the GOP and PASSCO.
- o PFDs will transfer R&M funds to PASSCO on a periodic (quarterly) basis. PASSCO will be bound by the same fund banking rules as the PFD.

IV. STOCK MANAGEMENT

Stock management practices and procedures will provide greater benefits (savings in wheat quantities/quality) as improved facilities are provided. The current stated stock management practices, if enforced more rigorously, will provide significant improvement in management of the public sector wheat storage system.

- o All PFD units (local, district, regional, etc.) will continue to employ the current storage practices and procedures laid down by the Food Department in each Province.
- o Storage practices and procedures will be enforced by the compliance officer in each district. He will employ a random unannounced system for site visits to support the enforcement of adherence to established operating procedures.
- o The practices and procedures will be amended or changed as new storage management technologies are developed and proven.
- o A FIFO inventory system will be employed to minimize the time wheat remains in storage. The only exceptions are to move wheat stored in the open and lots of questionable (deteriorating) quality.
- o Current storage/disbursement records will be followed meticulously to provide appropriate data for management decisions.
- o Local storage officers will be required to continually practice the rules of good interior/exterior housekeeping to minimize storage pests.
- o The GOP and PFD continually review the STDT Project findings and adopt the proven improved practices relating to, among others:
 - FAQ standards and grain testing
 - Wheat treatment protocols
 - No-Loss policy/practices
 - Bulk handling practices

IV. OTHER

The GOP has from time to time expressed an interest in removing itself from the storage and handling of wheat. The only exception being the need for storage with sufficient capacity to retain the volume of wheat to satisfy the requirements of the strategic (emergency) and operational (price stabilization) volumes. The derationing action of the GOP was one step in that direction. Findings in the World Bank, IFPRI and other studies have addressed this policy issue. It is raised at this time in this report relative to the costs associated with rehabilitation and maintenance of the volume of public storage capacity. One way to reduce these costs is to involve the private sector in owning and operating more and more of the wheat storage requirements.

- o The GOP adopt the price policy recommendation in the IFPRI study. This recommendation was that the GOP raise the release price for wheat to 115 percent of the procurement price to allow for the cost of handling and storage. A price policy such as this would provide incentive to the private sector.

APPENDIX - A

COPY OF MINFA LETTER DETAILING

- a) Priority List of Godowns Requiring Rehabilitation
- b) Appointment of PASSCO as Rehabilitation Agency
- c) Formula for Sourcing R&M Funds

Telephone No. 821907

Telex No. 5844 MINFA PK
Telegram: AGRIDIV



Secretary

① DSR
② C.P.S.
③ G.C.

OFFICIAL FILE	ACTION	OFFICE	INFO
		D	✓
		DO	✓
		PPJ	
		ILA	
		C&C	
✓		PCM	✓
		E&E	
		ENG	
		HPN	
		HRT	
	✓	ARB	
		OFM	
		EYO	
		GSO	
		PER	
		PROG	
		BMS	
		ADP	

D.O. No. F.10-4/86-S.C.
Government of Pakistan
Ministry of Food, Agriculture,
and Cooperatives
(Food & Agriculture Division)

Islamabad, the 13 September 1987.

ACTION

Due Date: 9/23

Action Taken: [Signature]

Date: 12/5/87

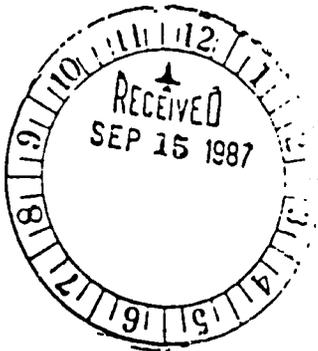
Initial: [Signature]

RF JCL # 4626

Dear Mr. Eugene S. Staples,

As per sections 4.4 and 4.5 of the conditions precedent to disbursement for rehabilitation of Grain Storage Facilities under Post Harvest Management Component of Food Security Management Project, I am forwarding herewith the following information:-

- i) Priority list of godowns requiring rehabilitation for all the four provinces and PASSCO.
- ii) Our agreement to appoint PASSCO as an independent/ Centralized agency for carrying out the rehabilitation and R&M works of storage.
- iii) A long-term plan for future R&M cost as per following formulation agreed to between the provinces & PASSCO (cost to be Included In the incidentals on wheat handling).



$$\text{R\&M cost/tonne of wheat procured during the year.} = \frac{(T - C) (S + F)}{P}$$

- T = Total Storage Capacity.
- C = Capacity to be rehabilitated during the year.
- S = Cost of R&M per tonne of storage as worked out in report by M/s. Experience Incorporated.
- F = Fee of Executing agency.
- P = Total procurement of wheat during the year.

2. It is proposed to meet the expenditure on R&M costs as part of the incidental transport and storage cost. Precise arrangements for this purpose would be finalized in consultation with the Ministry of Finance.

44
O/S [Signature]

-51

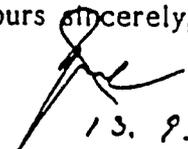
3. We also convey our agreement to the recommendations contained in M/s. Experience Incorporated report on "Rehabilitation and Recurrent Cost Analysis of Public Wheat Storage In Pakistan - Phase-I".

4. I hope the above information will meet the requirements under sections 4.4 and 4.5 of the Agreement.

5. Since we are already short of storage space we are very anxious to have these storages up-graded and available before the next wheat harvest season. We would appreciate that all formalities and preliminary action for starting phase-II of the Rehabilitation Programme as well as construction work and Engineering Services would now be taken in hand as early as possible.

With regards,

Yours sincerely,


I.S. P. F7
(Mohammad Siddique)

Mr. Eugene S. Staples,
Director,
USAID Mission In Pakistan,
Islamabad.

PUNJAB PROVINCE

District	Center (Sites)	No. of Godowns	Capacity (MT)	Serial No. as per MFAC list
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FIRST PRIORITY

(a) PASSCO

Sargodha	15,000
Kissan	4,400
Depal Pur	14,300

(b) P.F.D

Lahore	Moghalpura (F.G.G)*	24	46,000	1
Lahore	Badami Bagh <u>a/</u>	2	1,000	2
Sheikhupura	Farooqabad	8	8,000	3
"	Sheikhupura	18	9,000	4
Kasur	Habibabad	1	2,000	5
Okara	Okara	16	8,000	6
Sialkot	Sialkot	18	9,000	7
"	Pasrur	1	1,000	8
"	Pasrur (F.G.G)*	2	3,000	8
Gujrat	Gujrat	8	4,000	9
"	Lala Musa	5	2,500	10
"	M.B. Dir	8	4,000	11
"	Malkwal	1	1,000	12
Gujranwala	Gujranwala II	12	6,000	13
"	Hafizabad	6	3,500	14
"	Hafizabad (F.G.G)*	2	1,000	14
Multan	Multan I	5	2,500	16
"	Multan II	4	2,000	17
"	Dunyapur	2	2,000	18
Yenari	Yehari	9	6,500	19
Sahiwal	Fakpattan	9	5,500	20
"	Boncha Hayat	4	4,000	21
"	Sahiwal	2	2,000	22
"	Sahiwal (F.G.G)*	1	4,000	22

*Federal Government Godowns

a/ Dropped from ZOR's survey. Reference February 7 MemCon.

ENG:HAqil/ARD:QGulzar:mr
4973W:12/14/87
Revised 6/15/88

PUNJAB PROVINCE

District	Center (Sites)	No. of Godowns	Capacity (MT)	Serial No. as per MFAC list
Chakwal	Chakwal	11	5,000	23
Attock	Basal	2	1,000	25
"	Fateh Jang	2	1,000	26
"	Attock	4	2,000	27
"	Attock (F.G.G)*	6	3,000	27
Rawalpindi	Sihala	6	3,000	28
"	Sihala (F.G.G)*	3	3,000	28
"	Rawalpindi	29	14,500	29
"	Rawalpindi (F.G.G)*	3	4,000	29
Sargodha	Shahpur	2	2,000	30
Jhang	Siorkot Road	9	4,500	31
Faisalabad	PR III	4	4,000	32
"	PR III (F.G.G)*	4	5,000	32
"	Janawala	9	8,000	33
"	Janawala (F.G.G)*	1	4,000	33
"	Tandlianwala	5	4,500	34

SECOND PRIORITY

(a) PASSCO

Okara (PASSCO)	18,700
Manga (PASSCO)	16,500
Multan (PASSCO)	9,500
Lah (PASSCO)	15,400
Tooba Tek Singh	22,000

(b) P.F.D.

Faisalabad			
"	Tandlianwala (FGG)* <u>b/</u>	1	1,000
"	Kanjwani	5	5,000
T. T. Singh	T. T. Singh	11	5,500
"	T.T. Singh (F.G.G)*	2	7,000
"	Gojra	5	3,000
"	Gojra (F.G.G)	1	2,000
"	Fir Mahel (F.G.G)*	1	3,000
"	Kamalia	2	2,000
"	Kamalia (F.G.G)*	1	7,000

b/ Include in Priority I list to replace Bacari Bach site. Ref. Feb. 7 Mem. Con

ENG:HAqil/ARD:CGulzar:mr.
4973W:12/14/67
Revised 6/15/68

PUNJAB PROVINCE

District	Center (Sites)	No. of Godowns	Capacity (MT)	Serial No. as per MFAC list
D.G. Khan	D.G. Khan	4	2,000	40
Rajanpur	Rajanpur	2	1,000	41
Muzaffargarh	Muzaffargarh	5	4,000	42
"	Alipur	1	500	43
"	Kot Adu	1	500	44
Layyah	Layyah	5	5,000	45
Bahawalnagar	Bahwalnagar	5	2,500	46
"	Chishtian	11	5,500	49
R. Y. Khan	R. Y. Khan	11	5,500	52
"	Khanpur	4	2,000	53
Lahore (R)	Guiberg	19	9,500	54
Sheikhpura	Nankana Sahib	8	6,000	55
Okara	Basirpur	2	2,000	56
Sialkot	Samberial	3	1,500	57
Gujranwala	Gujranwala I	4	2,000	58
"	Gujranwala I (FGG)	3	2,000	58
"	Gujranwala III	8	8,000	59
"	Kamoke	43	7,000	60
"	Aminabad	7	3,500	61
"	Aminabad (F.G.G)*	3	3,000	61
"	Kaloke (F.G.G)	1	1,000	62
Khanewal	Khanewal		12,500	63
	Khanewal (F.G.G)*	-	2,000	63
Yehani	Burewala	6	6,000	64
Sahiwal	Chichawatni	6	6,000	65
"	Kaswal	5	5,000	66
"	Arifwala	1	500	67
	No of sites under First Priority		= 42	
	No of sites under Second Priority		= 41	
	Total No of sites in Punjab Province		= 83	

ENG:HAqil/ARD:QGulzar
4973W:12/14/87
Revised 2/10/88

61

SIND PROVINCE

District	Center (Sites)	No. of Godowns	Capacity (MT)	Serial No. as per MFAC list
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FIRST PRIORITY

(a) PASSCO

Sukkur 8,800

(b) P.F.D.

Karachi	S.G.G. III	3	30,000	1
"	S.G.G. III	3	48,000	2
"	S.G.G. III	2	30,000	3

SECOND PRIORITY

Karachi	Karachi (PASSCO)		8,800	
Hyderabad	Hyderabad	34	17,000	4
"	Hyderabad	26	13,000	5

No of sites under First Priority = 4
No of sites under Second Priority = 3
Total No of sites in Sind Province = 7

NWFP PROVINCE

<u>District</u>	<u>Center (Sites)</u>	<u>Capacity (MT)</u>	<u>Serial No. as per MFAC list</u>
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FIRST PRIORITY

(a) PASSCO

Nowshera	Nowshera (PASSCO)	6,600	-
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(b) P.F.D.

Karak	Karak Proper	500	1
Mardan	Swabi Proper	500	2
Chitral	Arandu	250	3
D.I. Khan	Tank	500	4
D.I. Khan	Nulachi	500	5
Mansehra	Battagram	500	6
Mardan	Buchdada	1,000	7
Peshawar	Kohat Road, Peshawar	25,500	8
Nowshera	Kabul River	7,000	9
Kohat	Pindi Road	5,800	10
Kohistan	Dassu	500	11
Mardan	Masiti Godowns	4,000	12
Kohat	Hanau, Kohat	2,000	13
Abbottabad	Jhandi <u>c/</u>	4,000	14
Havelian	Abbottabad Road <u>d/</u>	11,000	15

c/ Partially Surveyed by ZGR on

d/ Included in ZGR's SOW, March 31 (not in original list)

ENG:HAqil/ARC:CGulzar:mr
4973W:06/15/66

IIWFP PROVINCE

District	Center (Sites)	Capacity (MT)	Serial No. as per MFAC list
SECOND PRIORITY			
Charsadda	Charsadda (PASSCO)	3,300	-
Abbottabad	Opposit Rly.Stn. Havelian	1,000	14
"	"	500	14
"	Opposit Rly. Stn. Haripur	7,500	14
Peshawar	G.T. Road Peshawar	14,000	15
D.I. Khan	Agriculture Workshop	2,000	16
Peshawar	Mardan Road, Charsadda	3,000	17
		No of sites under First Priority	= 15
		No of sites under Second Priority	= 8
		Total No of sites in NWFP	= 23

ENG:HAqil/ARD:QGulzar:mr
4973W:12/14/87

64

BALUCHISTAN PROVINCE

Center (Sites)	Capacity (MI)	Serial No. as per MFAC list
FIRST PRIORITY		
Quetta	26,000	1
SECOND PRIORITY		
Pishin	4,000	2
Chaman	2,000	3
Zhet	2,000	4
Muslim Bagh	1,500	5
Loralai	3,400	6
Duki	2,000	7
Musakhel	1,000	8
Nushki	2,000	9
Delbandin	500	10
Sibi	2,500	11
Harnai	500	12
Mochh	500	13
Dharur	1,700	14
Bellput	1,500	15
Jhatput	3,850	16

No of sites under First Priority = 1
No of sites under Second Priority = 15
Total No of sites in Baluchistan = 16

ENG:HAqil/ARD:QGulzar:mr
4973W:12/14/87

65

APPENDIX - B

**SELECTED INFORMATION FROM TRIPARTITE AGREEMENTS
BETWEEN MINFA AND**

- o Punjab Food Department
- o Sind Food Department
- o NWFP Food Department
- o Baluchistan Food Department
- o PASSCO

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Telegram : ECONOMIC
Telex : ECDIV No. 08-834

No. 1(24)US.1/84.
Government of Pakistan
MINISTRY OF FINANCE AND
ECONOMIC AFFAIRS
(ECONOMIC AFFAIRS DIVISION)

Islamabad, the 15th June, 1988.

FROM: SECTION OFFICER
TELE: 820769.

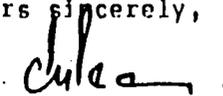
Subject:- FOOD SECURITY MANAGEMENT PROJECT.

Dear Mr. Olson,

Section 4.5 (d) of the Project Grant Agreement of Food Security Management Project requires GOP to furnish documentation to USAID that the Department of Food for that Province where the rehabilitation work is to be carried out has entered into an agreement for rehabilitation of existing grain storage facilities. The Ministry of Food and Agriculture have accordingly furnished four separate tripartite agreement, duly signed by the representatives of the Ministry of Food and Agriculture, PASSCO and by each Province of Punjab, Sindh, N.W.F.P and Baluchistan in respect of rehabilitation of old storages, as per above quoted section of Food Security Management Project agreement. A copy of the above mentioned four tripartite agreement, is enclosed for further action.

With best regards,

Yours sincerely,


(JAIJEES ALI KIANI)

Mr. Thomas M. Olson,
Agricultural Economist, ARD,
USAID,
Islamabad.

o **SOURCE AND VOLUME OF FUNDS FOR REHABILITATION**

USAID/Pakistan	\$ 7.546 million
GOP	\$ 1.888 million

Total:	\$ 9.434 million

o **MANAGEMENT FEE TO BE PAID FOR MANAGEMENT OF REHABILITATION CONTRACTS/WORKS**

PASSCO 22.5 percent

o **ALLOCATION OF REHABILITATION FUNDS**

Punjab	\$ 5.225 million <u>1/</u>
Sind	\$ 2.092 million <u>1/</u>
NWFP	\$ 1.338 million <u>1/</u>
Baluchistan	\$ 0.779 million

1/ Includes funds for rehabilitation of PASSCO target facilities in province.

o **TARGET CAPACITIES OF PRIORITY FACILITIES TO BE REHABILITATED 1/**

Punjab	214,800 MT
Sind	57,200 MT
NWFP	48,400 MT
Baluchistan	19,000 MT
PASSCO	50,600 MT

Total	390,000 MT

1/ Appendices to separate tripartite agreements.

APPENDIX - C
SPECIFICATIONS FOR CARRYING OUT A&E SURVEYS FOR REHABILITATION
OF
PRIORITY GODOWNS

Outline Specification for Godown Rehabilitation.

=====

(as agreed at joint meeting held at Lahore on 7 February 1988, and subsequent clarification per USAID letter Ref.ENG-281/88 dated 2 March 1988, and further requirements noted during joint survey. Also points added after joint meeting held at Lahore on 2nd May 1988)

General Conditions for Survey:-

- (a) Only House Type godowns over 5 years old are to be included in the Survey & rehabilitation design/estimates.
- (b) The target average cost is Rs. 280/- per M.T.
Any individual building which is considered structurally unsafe, or which the engineer considers would require a load test, is to be omitted from the Survey. If a rough estimate of the cost of repair of a building indicates that rehabilitation cannot be achieved within Rs.350/= per M.Ton for that building, it will also be omitted from the survey.
- (c) Roads: - Roads are not to be included at all. But if in the judgement of the engineers the roads are in such bad condition as to make any facility virtually useless, then that facility is to be omitted from the Survey.
- (d) Boundary Walls - are totally excluded.
- (e) External Drainage - shall be provided as necessary. In case this is estimated to cost more than Rs.35/= per M.Ton, the facility will not be included.
- (f) Deletion of priority site. In case any facility does not meet the above criteria ZOR are to immediately inform US AID who will advise them of the substituted facility as soon as possible.

1. Outline Specifications -

1.1 Structure (Roofs, columns etc.)

Where structural damage is noticed, the following criteria shall be applied:

- (a) Hair cracks - less than about 0.25 mm - ignore.
- (b) Minor cracks - up to about 1mm
 - chip off loose plaster if any, and expose crack in structural concrete.
 - clean out and seal with epoxy or similar sealer.
- (c) Major Structural cracks:
 - provide adequate supports to the structure.
 - cut out damaged concrete of the affected area and beyond up to good concrete; or the whole unit if a beam or precast member.
 - remove damaged rebar.
 - refix rebar and/or provide new/extra rebar.
 - re-concrete with the correct material.

- 1.5 Screens to Doors. - are to be provided everywhere.
- screen door shutters to be steel framed with expanded metal mesh 16 swg - 3/4" x 1/2", opening inwards shall be installed, double or single openings as required, as much as possible within the wall thickness.
 - in places where hinged screen shutters are not feasible top hung sliding screen shutters may be provided on the inside.
- 1.6 Ventilators. Generally poor quality frames shall be replaced with new in the existing openings. Repairable frames are to be modified as follows:-
- steel framed ventilators shall be at least 50% openable as specified in the drawings, and they shall be of a type which can be properly sealed as required for fumigation (see standard details).
 - glazing shall be 3mm clear plastic sheeting.
- 1.7 Screens to Ventilators. where existing wire screens are in good condition, these do not need action unless replacement of the ventilators dictates otherwise.
- where there are no screen or badly damaged ones, steel framed screens with expanded metal mesh 16 swg. 3/4" x 1/2" shall be fitted to all openable ventilator positions.
- 1.8 Roof Waterproofing.
- 1.8.1 Severe Leakage & Structural Dampness. - Existing waterproofing system if any shall be completely exposed and the roof shall be thoroughly cleaned over the whole area and the full waterproofing system suitable to the type of roof system (as per detailed drawings) shall be applied.
- 1.8.2 Minor Leakage & Dampness. - If on inspection the waterproofing system appears to be mostly sound, the roof shall be repaired locally with the same system existing, the extent of repair to be determined by Engineer.
- 1.8.3 No leakages or Dampness.
- if the roof has been recently waterproofed (within about three years) with bitumen only but not tiled for protection, and no leakage is apparent, tiles shall be added for protection, provided roof is adequate to take the load.
 - in case there is not adequate slope to the roof, foam concrete screed shall be applied to give slopes before laying the tiles.
 - roofs shall be left free from growth (moss, etc.) and tiles regouted where necessary with a 1:3 cement/sand mix.
 - where drain downpipes are not working, they are to be replaced with spouts.
- 1.9 Steel Ladders for roofs. A fixed steel ladder approx. 16" wide shall be installed on each block of adjoining godowns, as per the detailed drawing, with access above 6 feet from platform or ground level. Where buildings are adjacent and sufficiently close together, a bridging walkway arrangement at roof level shall be considered.

- 1.10 Internal Painting and Cleaning. The inside of each building shall be thoroughly cleaned.
- all internal surfaces shall be whitewashed as required.
 - all doors and windows shall be painted with enamel paint in three coats, one coat of red oxide primer.
- 1.11 External Platforms and Verandahs. Damaged edges to platforms and verandahs shall be repaired with new concrete slabs. Settlement in platforms or verandah slabs, etc., shall be repaired or replaced as necessary.
- steel angle iron, 2" x 2" shall be provided to the edge of all platforms, as per the standard details, except where the platform is to be too low to be liable to damage - viz less than 15" above road level.
 - exposed corner columns shall be provided with a robust system of large diameter steel pipes or girders solidly embedded in concrete and braced.
- 1.12 Expansion Joints. Where existing godowns with expansion joints have a unit capacity greater than about 2000 M.Ton capacity, the unit shall be divided at the expansion joint with a double brick or block wall with a suitable foundation if necessary, to create more effective unit capacities for fumigation.
- In other cases, all expansion joints shall be sealed internally from bird or rodent ingress, by use of 6" wide 16 swg. galvanised steel vee-grooved strip rawl bolted to both sides of the joint. External vertical surfaces shall be similarly treated, but with 3" vertical overlaps.
 - joints on roof shall be reconstructed as per the standard drawings depending on what presently exists at each location.
2. Electrification. Repairs to existing electrical installation shall only be done where there is a connected mains supply and shall consist of basic lighting only.
- wiring shall be PVC in good quality earthed steel conduit.
 - light fixtures shall be robust type and be placed out of easy reach.
 - new Main Switch and D.R. Panel shall be provided if necessary.
3. External Works.
- 3.1 Drainages. Adequate drainage channels shall be provided or, if existing, brought up to standard as per the detailed drawings.
- all debris and growth removed to provide free flow, proper slope for run-off, adequate ditches to handle the flow, etc..
- 3.2 Surrounding Areas. All areas adjacent to existing stores shall be thoroughly cleaned of scrub and rubbish, and if necessary, raised to prevent standing water in the rainy season.

EXPERIENCE INC./ZOR ENGINEERS (PVT) LIMITED.

FEBRUARY 1980
1st Rev.1/4/88
2nd Rev.8/4/88

12

(d) Precast concrete roof repairs shall be provided for in the drawings.

- 1.2 Walls. All cracks (other than hair cracks) are to be repaired.
- chip out affected area.
 - repair brickwork/blockwork and replaster using 1:4 mortar.
 - cracks between brickwork/blockwork and structural members, are to have expanded metal fixed over the joint prior to replastering.
 - in area where damp has been seeping through the walls - especially at joints between verandah or chajja slabs and walls, 1:3 mortar with "PUDLO or equivalent waterproofing compound is to be used.
 - in areas where walls have settled, chip out to 50% depth of wall and provide a reinforced concrete beam on one side; repeat at a different height on the other side of the wall,
 - external walls are also to be repaired where badly spalling or cracked.

- 1.3 Floors. All floors are to be repaired to leave a clean smooth concrete surface:
- minor cracks and construction joints - if not badly pitted, require no action.
 - major cracks over 1mm are to be cleared out and sealed with cement slurry or cold bitumen.
 - holes are to be chipped out to full depth of the concrete slab, and reconcreted.
 - irregular surfaces are to be chipped and plaster in panels with 1:1:3 screed - 1.5" thick, with cement slurry.
 - slightly sunken slabs or small depressions are to be chipped out and filled with P.C.C. concrete 1:2:4 with cement slurry, well compacted and trowelled smooth or bitumen (5%) grit/sand mix compacted and cement dusted.
 - badly sunken slabs are to be broken out and reconstructed with compacted fill below and polythene D.P.C.
 - floors that are liable to be flooded are to be raised by building a complete new floor above the old one to the required safe plinth height, providing a polythene D.P.C. Where this would involve a substantial extra work of raising the door lintels, the floors may be raised inside the building leaving the entrances at a lower level - with ramps up as required.
 - Termite Proofing is to be provided in all buildings where there is evidence of infestation

- 1.4 Doors. Generally, all doors are to be made airtight:
- existing door sizes generally to be maintained, except that large openings may be reduced in width with masonry and plaster to 4ft min.
 - poorly fitting swing doors, if not repairable to prevent rodent and bird ingress, shall also be replaced.
 - where sliding doors or overhead shutter doors occur, these shall be replaced by steel swing doors opening outwards.

APPENDIX - D

EXAMPLE: BILL OF QUANTITIES FOR
GODOWN REHABILITATION SURVEY/DESIGN

EXAMPLE
BILL OF QUANTITIES FORM FOR GODOWN REHABILITATION
BILL OF QUANTITIES FOR RENNOVATION

<u>Item No and Description</u>	Quan- tity tity	Unit	Rate	Amount Rs. Rs.
1. STRUCTURE WORKS				
1.1 Replacement of slab and/or chujjas with class 2 concrete.		Sft.		
1.2 Replace main beam with class 1 concrete.		No.		
1.3 Replace 2ndry beams with class 1 concrete.		No.		
1.4 Replace columns with class 1 concrete.		No.		
1.5 New RCC lintles/proj'n & slabs in class 2 concrete.		Sft.		
1.6 Reinforcing steel for above repair		Kgs.		
1.7 Repairs to minor cracks up to 1 mm thick in RCC		No.		
1.8 Other repairs		-		
2. WALLS				
2.1 Demolition of brick work		Cft.		
2.2 Demolition of skylight/vent system on roof ridge		Rft.		
2.3 New masonry in 1:4		Rft.		
(a) 6" blockwork		Sft.		
(b) 9" blockwork		Sft.		
(c) 13.5" Brickwork		Sft.		
(d) 18" brickwork		Sft.		
(e) Stonework		Cft.		
2.4 New Plaster 1:4				
(a) Slabs & Beams		Sft.		
(b) Walls, insided		Sft.		
(c) Walls, outside		Sft.		
(d) To cracks and joints with ex-metal mesh		Rft.		
2.5 Pudlo Plaster (outside)		Sft.		
2.6 Cement Pointing in 1:3		Sft.		
2.7 Providing RCC beams for full cracks in class 2 concrete		No.		
2.8 Other repairs		-		

15

3. FLOORS	
3.1 Demolition of existing damaged floor 3" to 6".	Sft.
3.2 Compacted havoc 1:6:1.2	Cft.
3.3 Polythene D.P.C.	Sft.
3.4 3" PCC floor 1:2:4 in class 2 concrete.	Sft.
3.5 Floor Screed Repair	Sft.
3.6 Major crack repair	Rft.
3.7 Termite treatment	Sft.
3.8 Other repairs	-
4. DOORS	
4.1 Remove existing doors and/or screens.	No.
4.2 Repairs to existing doors.	No.
4.3 Provide & fix screen with frame to existing door.	Sft.
4.4 Provide & fix new door frame with shutter.	Sft.
4.5 Provide new door frame with shutter and screen.	Sft.
5. VENTILATORS AND SCREENS	
5.1 Remove existing vents.	No.
5.2 Remove existing screens.	No.
5.3 New ventilators with plastic glazing.	Sft.
5.4 New screens.	Sft.
5.5 Repair and refix existing good condition screens to inside of vents.	No.
6. WATER PROOFING (INCL. VERANDAS)	
6.1 Remove existing water proofing system and/or cleaning.	Sft.
6.2 Repair existing file with 1:3 mortar.	Sft.
6.3 Foam concrete (average 2" thick)	Sft.
6.4 B-work, pavepet 9"x9" incl. plaster (also rain water stopper).	Rft.
6.5 Water proofing	
(a) Specification A.	Sft.
(b) Specification B.	Sft.
(c) Specification C.	Sft.
(b) Specification D.	Sft.

6.6 PCC Khurrahs 24"x24".	No.	
6.7 Remove damaged rain water pipes.	No.	
6.8 Provide C.I. rain water spouts 24" length.	No.	
7. EXPANSION JOINTS		
7.1 16 swg 6" wide GI cover strips to wall joints.	Rft.	
7.2 Roof Joints	Rft.	
7.3 GI angle to movement joints.	Rft.	
7.4 Bitumen/Sand fill in floor joints.	Rft.	
8. INTERNAL PAINTINGS & CLEANING		
8.1 Clean & white wash unpainted surfaces:		
a) Slabs & beams.	Sft.	
b) Walls & columns.	Sft.	
8.2 Clean & W-washing to painted surfaces:		
a) Slabs & beams.	Sft.	
b) Walls & columns.	Sft.	
8.3 Enamel paint to doors.	Sft.	
8.4 Enamel paint to vents.	Sft.	
8.5 Enamel paint to screens.	Sft.	
8.6 Bitumen paint to rainwater pipes & sports.	Rft.	
9. STEEL LADDERS & CATWALKS		
9.1 Vertical ladder.	Rft.	
9.2 Sloping ladder.	Rft.	
9.3 Horizontal bridge.	Rft.	
9.4 Catwalk	Rft.	
10. EXTERNAL PLATFORMS/VERANDAS		
10.1 Demolish damaged roof slabs/beams	Sft.	
10.2 New RCC ver. beams in class 2 concrete	Cft.	
10.3 New 4" RCC ver. slab in class 2 concrete	Sft.	
10.4 Demolish damaged ver. columns	No.	
10.5 New reinforced brick columns	CFT.	
10.6 Reinforced steel for above items	Kg.	
10.7 Demolish existing concrete platform edge	Rft.	
10.8 Repair to platform plinth & edge	Sft.	

11

10.9	Steel angle nosing with RCC edge beam in class 2 concrete with reinforcing	Rft.		
10.10	Demolish damaged veranda floor	Sft.		
10.11	3" PCC floor in class 2 concrete	Sft.		
10.12	Screed repair to floors	Sft.		
10.13	Steel pipe protection to corner columns	Per Repair		
11. ELECTRIFICATION (INTERNAL ONLY)				
11.1	Wiring in steel conduit	Pf.		
11.2	40 watt tube patti light	Each		
11.3	6 Amp MCCB switch	No.		
12. EXTERNAL WORKS				
12.1	Clean existing drains	Rft.		
12.2	Repair existing drains	Rft.		
12.3	Provide new drains			
	a) Type A	Rft.		
	b) Type B	Rft.		
	c) Type C	Rft.		
	d) Type D	Rft.		
	e) Type E	Rft.		
12.4	Plinth protection	Sft.		
12.5	Clearing scrub and leveling surround	Lump Sum	-	

SUB-TOTALS FOR:

1. Structural works	Rs. _____
2. Walls	Rs. _____
3. Floors	Rs. _____
4. Doors	Rs. _____
5. Ventilators & screens	Rs. _____
6. Waterproofing	Rs. _____
7. Expansion joints	Rs. _____
8. Internal paint/clean	Rs. _____
9. Steel ladders/catwalks	Rs. _____
10. External platforms/verandas	Rs. _____
11. Electrical	Rs. _____
12. External works	Rs. _____
GRAND TOTAL COST:	Rs. _____
COST PER METRIC TON CAPACITY	Rs. _____

TS

APPENDIX - E
SUMMARY OF A&E COST ESTIMATES
FOR
REHABILITATION OF PRIORITY GODOWNS

2955.2/DAB/(GDOWNDAB.BAK)

Date: August 19, 1988

P.H.M. Survey - Phase 2 - SIND GODDOWNS

Summary of Godowns Surveyed, Deleted & Qualified for Rehabilitation

MFAC Ref.	ZOR Ref.	Location	District	Capacity in M.T.			GODDOWNS (Nos)			DELETED GODDOWNS		QUALIFIED FOR REHAB.	
				Total Deleted	Qualif.d	M.T.	Tot. Del.	Qual.	Mos.	Total Cost Rs.	Rs./M.T.	Total Cost Rs.	Rs./M.T.
1	S.1	SGG III	Karachi	30,000	-	30,000	3	-	3	-	-	8,874,247	295.80
2	S.2	SGG III	Karachi	48,000	-	48,000	3	-	3	-	-	13,651,682	284.41
3	S.3	SGG III	Karachi	30,000	-	30,000	2	-	2	-	-	8,705,407	290.18
-	S.12	PASSCO	Sukkur	8,800	-	8,800	1	-	1	-	-	1,986,234	225.18
Totals				116,800	nil	116,800	9	Nil	9	Nil	Nil	33,217,570	284
				M.T.	M.T.	M.T.	Nos.	Nos.	Nos.	Del.costs Rs.	Rs./MT	Qualified Cost	Rs/MT

Signed for
Zor Engineers (Pvt) Limited

.....
D. A. Bavinston
PROJECT MANAGER

2055.2/DAB/(6DNWFDB)

Date: August 20, 1988

P.H.M. Survey - Phase 2 - M.W.F.P. GUDOWNS
 Summary of Gudowns Surveyed, Deleted & Qualified for Rehabilitation

MFAC Ref.	ZOR Ref.	Location	District	Capacity in H.T.			GUDOWNS (Nos)			DELETED GUDOWNS		QUALIFIED FOR REHAB.	
				Total	Deleted	Qualif.d	Tot.	Del.	Qual.	Total Cost Rs.	Rs./M.T.	Total Cost Rs.	Rs./M.T.
8	N1A	Kohat Rd	Peshawar	24,500	2,000	22,500	40	1	39	840,000	420.00	8,826,784	392.30
14	N2A	Jhangi	Abbottabad	3,000	3,000	-	6	6	-	Not estimated	-	-	-
-	N3A	Abbott.d Rd	Havelier	8,500	1,000	7,500	17	2	15	722,500	722.50	2,636,603	351.54
-	N5	PASSCO	Nowshera	6,600	-	6,600	6	-	6	-	-	890,566	134.94
9	N6	Kabul River	Nowshera	7,000	2,500	4,500	12	5	7	1,031,000	412.40	1,658,697	368.59
12	N7	Masiti	Mardan	4,000	-	4,000	8	-	8	-	-	1,946,233	486.55
7	N8	Baghdadu	Mardan	1,000	1,000	-	2	2	-	371,479	371.48	-	-
2	N9	Swabi	Mardan	500	500	-	1	1	-	325,000	650.00	-	-
6	N10	Battagram		500	-	500	1	-	1	-	-	133,202	266.40
10	N11	Pindi Road	Kohat	4,500	-	4,500	9	-	9	-	-	1,839,231	408.72
13	N12	Hangu	Kohat	2,000	-	2,000	4	-	4	-	-	613,932	306.96
1	N13	Karak	Korak	500	500	-	1	1	-	Not estimated	-	-	-
4	N14	Tank	D.I.Khan	500	500	-	1	1	-	335,090	670.00	-	-
5	N15	Kulachi	D.I.Khan	500	500	-	1	1	-	240,000	480.00	-	-
11	N16	Dassu	Kohistan	500	-	500	1	-	1	304,490	609.00	-	-
Totals				64,100	11,500	52,600	110	20	90	4,169,469	363	18,515,248	353
				M.T.	M.T.	M.T.	Nos.	Nos.	Nos.	Del. Costs Rs.	Rs./MT	Qualified Cost	Rs/MT

Signed for
 Zor Engineers (Pvt) Limited

.....
 D. A. Bavington
 PROJECT MANAGER

2055.2/DAB/(GDBALDAB)

Date: August 20, 1988

P.H.M. Survey - Phase 2 - BALUCHISTAN GODOWNS

Summary of Godowns Surveyed, Deleted & Qualified for Rehabilitation

MFAC Ref.	ZOR Ref.	Location	District	Capacity in M.T.			GODOWNS (Nos)			DELETED GODOWNS		QUALIFIED FOR REHAB.	
				Total	Deleted	Qualif.d	Tot.	Del.	Qual.	Total Cost	Rs. /M.T.	Total Cost	Rs. /M.T.
1	B.1	Whyte Road	Quetta	6,400	-	6,400	89	-	89	-	-	3,824,000	597.50
1	B.2	Gwalmandi	Quetta	1,800	1,800	-	34	34	-	1,323,000	735	-	-
1	B.3	Spinney Rd	Quetta	4,200	4,200	-	84	84	-	3,213,000	765	-	-
1	B.4	Sariab Rd	Quetta	15,000	2,000	13,000	13	1	12	790,000	395	4,848,829	372.98
Totals				27,400	8,000	19,400	220	119	101	5,326,000	666	8,672,829	447
				M.T.	M.T.	M.T.	Nos.	Nos.	Nos.	Del.costs Rs.	Rs./MT	Qualified Cost	Rs/MT

Signed for
Zor Engineers (Pvt) Limited

.....
D. A. Bavington
PROJECT MANAGER

82

2055.2/SGA/DHM/ (GODOWNS.BAK) Date: August 11, 1988

P.H.M. Survey - Phase 2 - PUNJAB GODOWNS

Summary of Godowns Surveyed, Deleted & Qualified for Rehabilitation

MFAC Ref.	Location	District	Capacity in M.T.			GODOWNS (Nos)			DELETED GODOWNS		QUALIFIED FOR REHAB.		
			Total	Deleted	Qualif.d.	Tot. Del.	Qual.	Total	Cost Rs. /M.T.	Total	Cost Rs. /M.T.		
1	P.1	Moghulpura	Lahore	48,000	4,000	44,000	24	2	22	2,200,000.00	550.00	17,083,086.00	388.25
27	P.4A	Attock	Attock	2,000	2,000	-	4	4	-	950,000.00	475.00	-	-
	P.4B	Attock	(F66)	6,000	-	6,000	6	-	6	-	-	1,933,000.00	322.17
19	P.8A	Vehari	Vehari	500	500	-	1	1	-	215,321.00	430.64	-	-
	P.8B	Vehari	Vehari	2,000	-	2,000	4	-	4	-	-	733,394.00	366.70
	P.8C	Vehari	Vehari	2,000	-	2,000	4	-	4	-	-	720,381.00	360.19
	P.8D	Vehari	Vehari	2,000	-	2,000	4	-	4	-	-	710,732.00	355.17
33	P.10A	Jaranwala	Faisalabad	4,000	-	4,000	8	-	8	-	-	1,440,965.00	360.24
	P.10B	Jaranwala	(F66)	4,000	-	4,000	8	-	8	-	-	1,450,958.00	362.74
				4,000	4,000	-	1	1	-	2,156,676.00	539.17	-	-
31	P.17	Shortot Rd	Jhang	4,500	500	4,000	9	1	8	242,500.00	485.00	1,572,036.00	393.01
18	P.18	Dunyapur	Multan	2,000	-	2,000	4	-	4	-	-	800,467.00	400.23
22	P.21A	Sahiwal	Sahiwal	2,000	2,000	-	4	4	-	1,001,359.00	500.68	-	-
	P.21B	Sahiwal	(F66)	4,000	2,000	2,000	1	1/2	1/2	1,400,000.00	700.00	525,000.00	262.50
20	P.23A	Pakpattan	Sahiwal	2,000	-	2,000	4	-	4	-	-	759,963.00	379.98
	P.23B	Pakpattan	Sahiwal	3,500	3,500	-	7	7	-	1,704,370.00	486.96	-	-
5	P.31	Habibabad	Kasur	2,000	2,000	-	1	1	-	900,000.00	450.00	-	-
4	P.32A	Sheikhpora	Sheikhpora	6,000	6,000	-	12	12	-	3,020,398.00	503.40	-	-
	P.32B	Sheikhpora	Sheikhpora	3,000	3,000	-	6	6	-	1,360,495.00	453.50	-	-
-	P.33	Kissan	(PASSCO) Dkara	6,600	-	6,600	6	-	6	-	-	2,064,142.00	312.75
16	P.34A	Multan I	Multan	2,500	2,500	-	5	5	-	1,195,284.00	478.11	-	-
17	P.34B	Multan II	Multan	2,500	2,500	-	5	5	-	1,443,883.00	577.55	-	-
21	P.35	Bonga Hayat	Sahiwal	4,000	-	4,000	8	-	8	-	-	1,464,786.00	366.20
6	P.36	Dkara	Dkara	8,000	8,000	-	16	16	-	3,565,483.00	445.69	-	-
-	P.37A	Depalpur	Dkara	1,000	1,000	-	2	2	-	420,763.00	420.76	-	-
	P.37B	Depalpur	(PASSCO)	11,000	-	11,000	10	-	10	-	-	3,191,455.00	290.13
	P.37C	Depalpur	(PASSCO)	2,200	-	2,200	2	-	2	-	-	637,563.00	289.80
3	P.38A	Faruqabad	Sheikhpora	4,000	4,000	-	8	8	-	2,149,640.00	537.41	-	-
	P.38B	Faruqabad	Sheikhpora	2,000	-	2,000	4	-	4	-	-	701,332.00	350.67
13	P.39	Gujranwala	Gujranwala	6,000	6,000	-	12	12	-	2,844,720.00	474.12	-	-
14	P.40A	Hafizabad	Gujranwala	2,500	2,500	-	5	5	-	1,620,200.00	648.08	-	-
	P.40B	Hafizabad	Gujranwala	1,000	1,000	-	2	2	-	584,990.00	584.99	-	-
	P.40C	Hafizabad	(F66)	500	500	-	2	2	-	255,020.00	510.04	-	-
SUR-TOTALS.....				157,300	57,500	99,800	199	96	102	29,231,102.00	508.37	35,749,862.00	358.21

NFAC Ref.	ZOR Ref.	Location	District	Capacity in M.T.			BODDAMS (Nos)			DELETED BODDAMS		QUALIFIED FOR REWARD	
				Total Deleted	Qualif.d	Tot. Del.	Tot. Del.	Qual.	Total Cost Rs.	Rs./M.T.	Total Cost Rs.	Rs./M.T.	
7	P.41A	Sialkot	Sialkot	4,000	4,000	-	8	8	-	1,790,000.00	447.50	-	-
	P.41B	Sialkot	Sialkot	5,000	4,000	1,000	10	8	2	2,412,840.00	603.21	333,758.00	333.76
8	P.42	Pasrur	Sialkot	4,000	3,000	1,000	2	1	1	2,292,000.00	764.00	310,853.00	310.85
9	P.43	Eujrat	Eujrat	4,000	4,000	-	8	8	-	1,886,600.00	471.67	-	-
10	P.44	Lalamusa	Eujrat	2,500	1,500	1,000	5	3	2	719,445.00	479.63	348,627.00	348.63
11	P.45A	M.B.Din	Eujrat	2,500	2,500	-	5	5	-	1,682,025.00	672.81	-	-
	P.45B	M.B.Din	Eujrat	1,500	-	1,500	3	-	3	-	-	571,395.00	380.93
12	P.46	Malakwal	Eujrat	1,000	-	1,000	2	-	2	-	-	342,253.00	342.25
30	P.47	Shahpur	Sargodha	2,000	-	2,000	4	-	4	-	-	769,722.00	384.86
-	P.48A	Sargodha I (PASSCO)		13,200	-	13,200	12	-	12	-	-	3,743,626.00	283.61
	P.48B	Sargodha I (PASSCO)		2,200	-	2,200	2	-	2	-	-	726,626.00	330.28
23	P.49A	Chakwal	Chakwal	4,000	4,000	-	8	8	-	1,648,000.00	412.00	-	-
	P.49B	Chakwal (FGG)		1,000	1,000	-	8	8	-	424,000.00	424.00	-	-
28	P.50	Sihala	Rawalpindi	6,000	3,000	3,000	9	6	3	1,420,380.00	473.46	1,131,652.00	377.22
29	P.51	Rawalpindi	Rawalpindi	18,500	14,500	4,000	32	29	3	8,143,740.00	561.64	1,611,164.00	402.79
25	P.52A	Basal	Attock	1,000	1,000	-	2	2	-	475,000.00	475.00	-	-
	P.52B	Basal (FGG)		2,000	1,000	1,000	2	1	1	700,000.00	700.00	345,585.00	345.59
26	P.53	Fatehjang	Attock	1,000	1,000	-	2	2	-	800,000.00	800.00	-	-
32	P.54	Faisalabad	Faisalabad	9,000	-	9,000	9	-	9	-	-	2,997,000.00	333.00
34	P.55	Tandlianwala - F'abad		5,500	500	5,000	10	1	9	237,500.00	475.00	1,894,680.00	378.94
TOTALS (Incl. page 1)				247,200	102,500	144,700	342	186	155	53,862,712.00	525.49	50,975,865.00	352.97
				M.T.	M.T.	M.T.	Nos.	Nos.	Nos.	(Del.costs Rs)	(Rs./MT)	(Qual.cost Rs)	(Rs./MT)

for ZOR Engineers (Pvt.) Limited,

D.A. Davington
Managing Director

84

APPENDIX - F
BRIEFING PAPER RE: HOST COUNTRY CONTRACTING
AND
TENTATIVE TIME SCHEDULE TO IMPLEMENT CONTRACTS
FOR
REHABILITATION WORKS

85

**BRIEFING PAPER
ON
HOST COUNTRY CONTRACTING (HCC)**

Host Country Contracting (HCC) is a form of project assistance under which the host country uses its own contracting process under the guidance and with the approval of USAID. USAID, upon receipt and verification of the vouchers, pays the contractor directly. Payment may be made at various stages of the construction process as agreed to. The emphasis is upon reimbursement of inputs and costs rather than outputs, although final payment is held until verification of the output. AID is directly concerned about the procedures used by the Cooperating Country in acquiring the inputs and pays only for what is actually purchased or used. In its review of bids and approval of the final contract USAID determines the amount of funds which will be paid for a contract.

Two essential aspects of the HCC are:

1. Involvement of USAID in the review and approval of the contracting process at several stages.
2. Payment and partial payment at various points as agreed to in the contract, with final payment upon verification of the output.

The major rules and guidance for host country contracting for construction services is contained in AID Handbook 11, Chapter 2, Procurement of Construction Services.

Attachment A outlines the steps for procurement of construction services, with references to specific parts of Chapter 2 of Handbook 11.

Attachment B lists the major events involved, the agency responsible for taking up the action, and a tentative time schedule for performing these activities.

Some advantages of HCC are:

1. The host country does not need to pay the contractor "up front" and wait for reimbursement from AID.
2. Contracts on lumpsum fixed price basis are awarded through open competition which helps in getting a fair and reasonable price. These contracts must be approved by AID. AID can pay direct to the contractor after necessary certificates by Host Government Implementing Agency and AID Project Officer at various stages in the contract. It is the Contractor's risk to complete the job within that amount agreed to in the contract.

86

3. AID will make partial payments at various stages throughout the contract period, with final payment upon verification of the output.
4. AID assumes a larger amount of responsibility in reviewing bids and approving contracts and contract amendments.

Some disadvantages of HCC are:

1. The contracting process may take longer because of the increased responsibility of AID in reviewing bids, concurring in the selection process and approving the final contract.
2. The contracting process must conform to USAID Handbook 11, Chapter 2, Procurement of Construction Services, which may be unfamiliar to host country contracting agencies and may differ from their common contracting practices.
3. There are more restrictions on source/origin of materials.

87.

PROCUREMENT PROCEDURES

Pre-qualification of Construction Firms

Refer to Section 3.5 of Chapter 2, AID Handbook 11. The following steps are required:

- Preparation of Pre-qualification Questionnaire. AID approval is required.
- Advertising: A notice of the availability of the pre-qualification questionnaire in the local papers. If over \$500,000 (Rs 8m), advertisement in the Commerce Business Daily (CBD) is required. AID will arrange the advertisement with CBD.
- Evaluation: PASSCO should evaluate the information submitted by the interested firms responding to the pre-qualification questionnaire. After evaluation, PASSCO will submit for AID approval its recommendations of prospective firms for pre-qualification.
- PASSCO should then inform firms whether qualified or not qualified.

Invitation for Bids (Tender Documents)

Refer Section 4.0 to 4.8 of Chapter 2, AID Handbook 11.

- Preparation of IFB. PASSCO should prepare the following required documents:
 - o Cover letter inviting bids.
 - o Instruction to Bidders.
 - o Form of Tender.
 - o Bill of Quantities.
 - o Forms of Bid, Performance and Payment Bonds.
 - o Form of Agreement.
 - o Conditions of Contract, Part I and II.
 - o A/E's Technical specifications and drawings.
- Approval of IFB: PASSCO should submit IFB documents for formal AID approval.
- Issuance of IFB: PASSCO provides, the IFB to the pre-qualified firms.

88

- Bid opening and evaluation of IFB: PASSCO performs the opening of the bids and prepares a comparative statement of the responsive bidders. Furthermore AID approval is required, even if the host country rejects all the bids.

Host Country Contract Award

See Selection 3.8.5 to 3.8.10 of Chapter 2, AID Handbook 11. AID approval is required to approve the contractor and the contract before signature. PASSCO should submit the following documentation to AID:

- The final contract (unsigned): If, for any reason the contract included in the IFB is not used, PASSCO will submit a draft of the proposed contract to AID for its approval.
- The record of bids received.
- A statement that the selected bidder is responsible and submitted the lowest responsive bid, contractor's eligibility, and reasonableness of the bid price.

TENTATIVE TIME SCHEDULE

	<u>Action by</u>	<u>Time</u>
Develop pre-qualification questionnaire	PASSCO	1 week
Questionnaire approval	AID	1 week
Advertising for pre-qualification	PASSCO	2 weeks
Questionnaire return	Construction Firms	6 weeks
Evaluation of firms for pre-qualification	PASSCO	2 weeks
Evaluation approval	AID	1 week
Inform firms qualified/not qualified	PASSCO	1 week
IFB document preparation	PASSCO	*
IFB approval	AID	2 weeks
Issuance of IFB to pre-qualified firms	PASSCO	1 week
IFB return	Pre-qualified Firms	8 weeks
Public opening of bids	PASSCO	1 day
IFB evaluation	PASSCO	2 weeks
Approval of HCC award	AID	2 weeks
Contract Award	PASSCO	<u>1 week</u>
Total Time Required:		32 weeks

* PASSCO can complete IFB document during pre-qualification stage.

SOURCE: AID/ENG, H. Aqil

APPENDIX - G

COST ACCOUNTING PROCEDURE

FOR

REPAIRS AND MAINTENANCE

WITH

SUGGESTED REPORT FORMS

STORAGE SITE R&M BUDGET REQUEST
Budget Year _____ / _____

Identification:

- a) Location _____ d) Storage Officer incharge _____
 b) Number of Godowns _____ (Name)
 c) Capacity(site) _____ MT e) Date _____, 19 _____

Survey Repair Needs	Year Same Work Performed Previously	Estimated Cost	Expected Date Available	Estimated Date completed	Remarks
f) <u>Structure</u>					
Columns					
Walls					
Floors					
Roofs					
Doors					
Windows/ Vents.					
Verandas					
g) <u>Compounds</u>					
Roads					
Drains					
Walls					
Gates					
Office					
Guard House					
Residence					
h) TOTAL					

i) Prepared by (Name/Title) _____

cc: DFC (1)
 Local File (1)
 R&M Agency Engineer (1)

NOTE: Copy to R&M agency engineer
 to be accompanied by one each, copy
 of individual godown survey sheets.

This form constitutes the aggregation of works/cost information from the R&M survey form in report text. It is to be completed from information on the survey forms for all godowns at a storage site. The form is to be completed in triplicate with copies distributed as indicated above. The form will be completed by the local storage officer and attested by the R&M agency engineer. Information should be as follows:

- o Col. 1, from previous records which will exist after program is implemented.
- o Col. 2, from cost data prepared by agency engineer on each godown survey form.
- o Col. 3, to be determined by the local storage officer.
- o Col. 4, to be determined by R&M agency engineer (best estimate).
- o Col. 5, by either or both parties for items of special importance.

92

Identification:

a) District Name _____
b) Region _____
c) Number of Godowns _____

Budget Year _____ / _____
d) District Storage Capacity _____ MT
e) District Storage Officer _____
(Name)

f) Date Prepared _____, 19 _____

Repairs Requested by Local Officers	Estimated Cost	Remarks
g) <u>Structure</u> Columns Walls Floors Roofs Doors Windows/ Vents. Verandas		
h) <u>Compound</u> Roads Drains Walls Gates Office Guard House Residence		

i) TOTAL: _____

j) Prepared by: _____
(Name)

k) Approved by _____
(Name)

cc: DFC (1)
Finance Officer (1)
Regional Engineer, R&M (1)
Executing Agency (1)

Title Date

This summary request form is an aggregation of request estimates from all storage sites in a district. It is to be completed by the District Food Controller's office and forwarded to the Regional Office (DDF). It forms the basis for the requests for R&M funds at the district level as well as a possible tool for allocation of spending authority especially if R&M were to be under funded based upon requests from all sites.

APPENDIX G
ANNEX 2
PAGE 2

The form is self-explanatory as to source of data and remarks may either be by the DFC or excerpts from those from local storage officer reports. This form constitutes the second principal step in provisions for an audit trail and potential management records.

This summary request form provides the basis for construction of the R&M budget request by District Food Officers as well as for selection of works to be accomplished if funds are not sufficient to accomplish all requested R&M works. This form should be executed within the recommended time frame for submission to the district. Also, the local officer should file all individual survey sheets with this record for future reference.

SUMMARY, R&M BUDGET REQUEST FOR DISTRICT
REGION R&M BUDGET REQUEST
BUDGET YEAR _____ / _____

a) Regional Food Officer _____ c) Date Prepared _____, 19 _____
b) Regional Finance Officer _____ d) Date Approved _____, 19 _____

Requesting District (Name)	Estimated Cost	Remarks
e)		
f)		
g)		
h)		
i)		
j)		
k)		
l)		
m)		
n)		
o)		
p)		
q)		
r)		
s)		
t)		
u)		
v)		
w)		
x)		
y)		
z)		

TOTAL:

Prepared by Regional Finance Officer (Initial)
Approved by Regional DDF (Initial)

cc: DDF (1)
Provincial Director Food (1)
Regional Engineer, R&M Executing Agency (1)

This form consolidates the R&M requests from the District Food Officers. It contains the estimated costs of R&M from each district and is to be completed by Regional Finance Officer from the reports from each district. This summary form will serve as an allocation device for R&M spending authority as indicated by the Provincial R&M fund balance. It also provides an additional point in the audit and trail as well as basis for management records.

95

PROVINCIAL R&M BUDGET REQUEST
AND
ALLOCATION SPENDING AUTHORITY
BUDGET YEAR _____ / _____

Date Issued _____, 19____

Region (Name)	Regional Requested Budget	Allocated	Remarks Amount
---------------	---------------------------	-----------	----------------

TOTAL: _____

a) Name of Accountant Preparing _____
b) Name of Budget & Accounts Officer Reviewing _____

c) Approval by Provincial Food Director

(Name) (Date)

- cc: Provincial Accounts Officer (1)
- Provincial Director Food (1)
- Regional DDF (1)
- Regional Engineer of R&M Executive Agency (1)

This form represents the R&M requests from each Region of the Province. It is prepared by the Officer of Budgets and Accounts at the Provincial Food Directorate. It is the consolidation of the requests from all regions, by region and thus serves as a basis for allocation of spending authority to each region.

The Director of Food will review and approve the repair amounts for each Region and dispatch a copy of the approved, budgeted spending authority (this form) to each Regional Officer with an official letter from the Budget and Accounts Officer. The letter will confirm and provide the authority to spend the approved amounts of R&M funds. As such this form provides one more point in the audit/management format for R&M.

96

6.6 PCC Khurrahs 24"x24".	No.	
6.7 Remove damaged rain water pipes.	No.	
6.8 Provide C.I. rain water spouts 24" length.	No.	
7. EXPANSION JOINTS		
7.1 16 swg 6" wide GI cover strips to wall joints.	Rft.	
7.2 Roof Joints	Rft.	
7.3 GI angle to movement joints.	Rft.	
7.4 Bitumen/Sand fill in floor joints.	Rft.	
8. INTERNAL PAINTINGS & CLEANING		
8.1 Clean & white wash unpainted surfaces:		
a) Slabs & beams.	Sft.	
b) Walls & columns.	Sft.	
8.2 Clean & W-washing to painted surfaces:		
a) Slabs & beams.	Sft.	
b) Walls & columns.	Sft.	
8.3 Enamel paint to doors.	Sft.	
8.4 Enamel paint to vents.	Sft.	
8.5 Enamel paint to screens.	Sft.	
8.6 Bitumen paint to rainwater pipes & sports.	Rft.	
9. STEEL LADDERS & CATWALKS		
9.1 Vertical ladder.	Rft.	
9.2 Sloping ladder.	Rft.	
9.3 Horizontal bridge.	Rft.	
9.4 Catwalk	Rft.	
10. EXTERNAL PLATFORMS/VERANDAS		
10.1 Demolish damaged roof slabs/beams	Sft.	
10.2 New RCC ver. beams in class 2 concrete	Cft.	
10.3 New 4" RCC ver.slab in class 2 concrete	Sft.	
10.4 Demolish damaged ver. columns	No.	
10.5 New reinforced brick columns	CFT.	
10.6 Reinforced steel for above items	Kg.	
10.7 Demolish existing concrete platform edge	Rft.	
10.8 Repair to platform plinth & edge	Sft.	

98

10.9	Steel angle nosing with RCC edge beam in class 2 concrete with reinforcing	Rft.		
10.10	Demolish damaged veranda floor	Sft.		
10.11	3" PCC floor in class 2 concrete	Sft.		
10.12	Screed repair to floors	Sft.		
10.13	Steel pipe protection to corner columns	Per Repair		
11. ELECTRIFICATION (INTERNAL ONLY)				
11.1	Wiring in steel conduit	Pf.		
11.2	40 watt tube patti light	Each		
11.3	6 Amp MCCB switch	No.		
12. EXTERNAL WORKS				
12.1	Clean existing drains	Rft.		
12.2	Repair existing drains	Rft.		
12.3	Provide new drains			
	a) Type A	Rft.		
	b) Type B	Rft.		
	c) Type C	Rft.		
	d) Type D	Rft.		
	e) Type E	Rft.		
12.4	Plinth protection	Sft.		
12.5	Clearing scrub and leveling surround	Lump Sum	-	

SUB-TOTALS FOR:

1.	Structural works	Rs. _____
2.	Walls	Rs. _____
3.	Floors	Rs. _____
4.	Doors	Rs. _____
5.	Ventilators & screens	Rs. _____
6.	Waterproofing	Rs. _____
7.	Expansion joints	Rs. _____
8.	Internal paint/clean	Rs. _____
9.	Steel ladders/catwalks	Rs. _____
10.	External platforms/verandas	Rs. _____
11.	Electrical	Rs. _____
12.	External works	Rs. _____
GRAND TOTAL COST:		Rs. _____
COST PER METRIC TON CAPACITY		Rs. _____

EXAMPLE
BILL OF QUANTITIES FORM FOR GODOWN REHABILITATION
BILL OF QUANTITIES FOR RENNOVATION

<u>Item No and Description</u>	Quan- tity	Unit	Rate	Amount Rs. Rs.
1. STRUCTURE WORKS				
1.1 Replacement of slab and/or chujjas with class 2 concrete.		Sft.		
1.2 Replace main beam with class 1 concrete.		No.		
1.3 Replace 2ndry beams with class 1 concrete.		No.		
1.4 Replace columns with class 1 concrete.		No.		
1.5 New RCC lintles/proj'n & slabs in class 2 concrete.		Sft.		
1.6 Reinforcing steel for above repair		Kgs.		
1.7 Repairs to minor cracks up to 1 mm thick in RCC		No.		
1.8 Other repairs		-		
2. WALLS				
2.1 Demolition of brick work		Cft.		
2.2 Demolition of skylight/vent system on roof ridge		Rft.		
2.3 New masonry in 1:4		Rft.		
(a) 6" blockwork		Sft.		
(b) 9" blockwork		Sft.		
(c) 13.5" Brickwork		Sft.		
(d) 18" brickwork		Sft.		
(e) Stonework		Cft.		
2.4 New Plaster 1:4				
(a) Slabs & Beams		Sft.		
(b) Walls, insided		Sft.		
(c) Walls, outside		Sft.		
(d) To cracks and joints with ex-metal mesh		Rft.		
2.5 Pudlo Plaster (outside)		Sft.		
2.6 Cement Pointing in 1:3		Sft.		
2.7 Providing RCC beams for full cracks in class 2 concrete		No.		
2.8 Other repairs		-		

1/80

3. FLOORS			
3.1 Demolition of existing damaged floor 3" to 6".		Sft.	
3.2 Compacted havoc 1:6:12		Cft.	
3.3 Polythene D.P.C.		Sft.	
3.4 3" PCC floor 1:2:4 in class 2 concrete.		Sft.	
3.5 Floor Screed Repair		Sft.	
3.6 Major crack repair		Rft.	
3.7 Termite treatment		Sft.	
3.8 Other repairs		-	
4. DOORS			
4.1 Remove existing doors and/or screens.		No.	
4.2 Repairs to existing doors.		No.	
4.3 Provide & fix screen with frame to existing door.		Sft.	
4.4 Provide & fix new door frame with shutter.		Sft.	
4.5 Provide new door frame with shutter and screen.		Sft.	
5. VENTILATORS AND SCREENS			
5.1 Remove existing vents.		No.	
5.2 Remove existing screens.		No.	
5.3 New ventilators with plastic glazing.		Sft.	
5.4 New screens.		Sft.	
5.5 Repair and refix existing good condition screens to inside of vents.		No.	
6. WATER PROOFING (INCL. VERANDAS)			
6.1 Remove existing water proofing system and/or cleaning.		Sft.	
6.2 Repair existing file with 1:3 mortar.		Sft.	
6.3 Foam concrete (average 2" thick)		Sft.	
6.4 B-work, pavepet 9"x9" incl. plaster (also rain water stopper).		Rft.	
6.5 Water proofing			
(a) Specification A.		Sft.	
(b) Specification B.		Sft.	
(c) Specification C.		Sft.	
(b) Specification D.		Sft.	

APPENDIX - D

EXAMPLE: BILL OF QUANTITIES FOR
GODOWN REHABILITATION SURVEY/DESIGN

102

- 1.10 Internal Painting and Cleaning. The inside of each building shall be thoroughly cleaned.
- all internal surfaces shall be whitewashed as required.
 - all doors and windows shall be painted with enamel paint in three coats, one coat of red oxide primer.
- 1.11 External Platforms and Verandahs. Damaged edges to platforms and verandahs shall be repaired with new concrete slabs. Settlement in platforms or verandah slabs, etc., shall be repaired or replaced as necessary.
- steel angle iron, 2" x 2" shall be provided to the edge of all platforms, as per the standard details, except where the platform is to be too low to be liable to damage - viz less than 15" above road level.
 - exposed corner columns shall be provided with a robust system of large diameter steel pipes or girders solidly embedded in concrete and braced.
- 1.12 Expansion Joints. Where existing godowns with expansion joints have a unit capacity greater than about 2000 M.Ton capacity, the unit shall be divided at the expansion joint with a double brick or block wall with a suitable foundation if necessary, to create more effective unit capacities for fumigation.
- In other cases, all expansion joints shall be sealed internally from bird or rodent ingress, by use of 6" wide 16 swg. galvanised steel vee-grooved strip rawl bolted to both sides of the joint. External vertical surfaces shall be similarly treated, but with 3" vertical overlaps.
 - joints on roof shall be reconstructed as per the standard drawings depending on what presently exists at each location.
2. Electrification. Repairs to existing electrical installation shall only be done where there is a connected mains supply and shall consist of basic lighting only.
- wiring shall be PVC in good quality earthed steel conduit.
 - light fixtures shall be robust type and be placed out of easy reach.
 - new Main Switch and D.R. Panel shall be provided if necessary.
3. External Works.
- 3.1 Drainages. Adequate drainage channels shall be provided or, if existing, brought up to standard as per the detailed drawings.
- all debris and growth removed to provide free flow, proper slope for run-off, adequate ditches to handle the flow, etc..
- 3.2 Surrounding Areas. All areas adjacent to existing stores shall be thoroughly cleaned of scrub and rubbish, and if necessary, raised to prevent standing water in the rainy season.

EXPERIENCE INC./ZOR ENGINEERS (PVT) LIMITED.

FEBRUARY 1988
1st Rev.1/4/88
2nd Rev.8/4/88

103

(d) Precast concrete roof repairs shall be provided for in the drawings.

- 1.2 Walls. All cracks (other than hair cracks) are to be repaired.
- chip out affected area.
 - repair brickwork/blockwork and replaster using 1:4 mortar.
 - cracks between brickwork/blockwork and structural members, are to have expanded metal fixed over the joint prior to replastering.
 - in area where damp has been seeping through the walls - especially at joints between verandah or chajja slabs and walls, 1:3 mortar with "PUDLO or equivalent waterproofing compound is to be used.
 - in areas where walls have settled, chip out to 50% depth of wall and provide a reinforced concrete beam on one side; repeat at a different height on the other side of the wall,
 - external walls are also to be repaired where badly spalling or cracked.
- 1.3 Floors. All floors are to be repaired to leave a clean smooth concrete surface:
- minor cracks and construction joints - if not badly pitted, require no action.
 - major cracks over 1mm are to be cleared out and sealed with cement slurry or cold bitumen.
 - holes are to be chipped out to full depth of the concrete slab, and reconcreted.
 - irregular surfaces are to be chipped and plaster in panels with 1:1:3 screed - 1.5" thick, with cement slurry.
 - slightly sunken slabs or small depressions are to be chipped out and filled with P.C.C. concrete 1:2:4 with cement slurry, well compacted and trowelled smooth or bitumen (5%) grit/sand mix compacted and cement dusted.
 - badly sunken slabs are to be broken out and reconstructed with compacted fill below and polythene D.P.C.
 - floors that are liable to be flooded are to be raised by building a complete new floor above the old one to the required safe plinth height, providing a polythene D.P.C. Where this would involve a substantial extra work of raising the door lintels, the floors may be raised inside the building leaving the entrances at a lower level - with ramps up as required.
 - Termite Proofing is to be provided in all buildings where there is evidence of infestation
- 1.4 Doors. Generally, all doors are to be made airtight:
- existing door sizes generally to be maintained, except that large openings may be reduced in width with masonry and plaster to 4ft min.
 - poorly fitting swing doors, if not repairable to prevent rodent and bird ingress, shall also be replaced.
 - where sliding doors or overhead shutter doors occur, these shall be replaced by steel swing doors opening outwards.

GROUP SITE NO.	CAPACITY M.T.	ESTIMATED COST RS.	1988-89*				1989-90*				1990-91*					
			111	121	131	141	111	121	131	141	111	121	131	141		
6. Kohistan (Dassu)	500	274,000									x	x	=	=	=	=
GRAND TOTAL H.W.F.P:			53,600	17,626,800												
IV. BALUCHISTAN																
1. Quetta (Whyte Road)	6,400	3,289,600														
Quetta (Sariab Road)	13,000	4,693,000														
GRAND TOTAL BALUCHISTAN:			19,400	7,982,600			x	x	x	=	=	=	=	=	=	=
GRAND TOTAL PAKISTAN:			341,200	118,699,600***												

* Financial year: 1 July - 30 June.
 ** Exclusive of Contingencies and escalation.
 xxx Time for advertizing, recieving and accepting bids.
 === Implementation of rehabilitation work.

105