

- PD-ABJ-482 ism 90663, 1-March-1994

PURPOSE LEVEL MONITORING SYSTEM

PROJECT: Management of Agricultural Research and Technology (MART) - (391-0489) OFFICE: ARD

PROJECT OFFICER: Muhammad Khalid

I. BACKGROUND INFORMATION

II. STATUS AS OF 3-31-94

<p>PURPOSE:</p> <ol style="list-style-type: none"> To develop and disseminate improved technology and information through key institutions; and, To foster a collaborative relationship whereby research institutions serve private agribusiness and farmers and use the private sector to disseminate marketable, improved technologies. <p>SCHEDULE:</p> <p>Date of Original Agreement.....09 Aug 84 Last ProAg Amendment:....No. 5 ;19 Aug 90</p> <p>Original PACD.....30 Sep 89 Last Evaluation..... Feb 93 Revised PACD.....07 Aug 94* Project Eval. Summary..... July 93 Next Evaluation.....</p> <p>* Not affected by Pressler</p> <p>COUNTERPART AGENCIES:</p> <p>Pakistan Agricultural Research Council (PARC); National Agricultural Research Center (NARC); Arid Zone Research Institute (AZRI); Agricultural Research Institutes (ARI) at Faisalabad, Sialkot and Tando Jam; Sindh Agricultural University; Agricultural University at Faisalabad (AUF); and the NWFP Agricultural University (NWFP/AU)</p> <p>CONTRACTORS:</p> <p>Winrock International (GCD 8/31/93); ICARDA (GCD 8/7/94); National Academy of Sciences/BOSTID (GCD 8/7/94)</p> <p>PROJECT OFFICER'S ASSESSMENT: Pakistan's agricultural research system has left behind the general expansion phase. As a result of assistance from the MART Project, the staff is now well trained and the laboratories are adequately equipped. Research leaders are striving to refocus research activities -- away from working to expand database and towards developing problem solving tools with active participation of the private agribusiness sector. Young scientists who have returned from the United States with better qualifications are appreciative and supportive of top management's initiatives in this direction. However, the progress is rather slow because of lethargic attitude of the scientific community at large. Financial constraints are also seen to be an outcome of indifferent attitude of scientists. Delegation of authority and an effective reward structure can help the agricultural research system deliver its full potential. Recommendations of the Agricultural Task Force, if effectively implemented, can significantly change the character and role of agricultural research. The World Bank's Agricultural Research Project-II (ARP-II) encompasses many key activities which were started under the MART Project. The MART Project will provide assistance to the ARP-II team and its GOP counterparts to help ensure the continuity of activities.</p> <p>MISSION DIRECTOR'S ASSESSMENT: Over the ten year life of this project, great strides have been made to improve Pakistan's agricultural research capabilities by enhancing the capabilities of its scientists and by providing necessary technical resources, such as well-equipped labs, computer equipment and improved libraries. Recent efforts have focussed on better utilization of this research potential through strategic planning of research and creation of closer communications ties within Pakistan's research community. The project is now concentrating on moving toward a more demand-driven system through the development of closer linkages between the researchers and the agribusiness community and through the development of a research commercialization strategy. In terms of sustainability, the World Bank's Agricultural Research Project II will continue funding many of the activities initiated under the project and provide increased momentum toward attainment of project objectives.</p>	<p>SIGNIFICANT ACCOMPLISHMENTS (over LOP):</p> <ul style="list-style-type: none"> Research Planning - Introduced strategic planning and management methods in agricultural research through on-the job training by four long-term technical assistance teams. Research Infrastructure - Upgradation of the research capability of nine key agricultural organizations -- four research institutes and three universities in the provinces and two federal research institutes through: <ul style="list-style-type: none"> - post-graduate and short-term training of 295 scientists - provision of laboratory equipment and computers, and repair facilities - updating of 17 libraries through CD-ROM databases - competitive research grants programs which allocate funds competitively, provide superior mentors on how to do research; stimulate excellence; and improve scientific linkages - coordinated research programs at the national level In-country Training - Established a Training Institute and funded in-country training of over 5000 persons in 145 short courses. Information Dissemination - Established an Audio-Visual Center at the federal level and four agricultural communication support cells in the provinces to accelerate technology transfer to farmers on a mass scale. More than 440 radio/TV modules produced and aired more than 4000 times. Research-Agribusiness Linkages - PARC established a Directorate of Agri-Business Relations and has signed 24 technical assistance agreements with private firms. The private sector is marketing 14 research based products with annual sales exceeding Rs. 30M. <p>IMPORTANT ACTIONS (during next 6 months):</p> <ul style="list-style-type: none"> Research-Agribusiness Linkages - Prepare a strategy for enhanced collaboration between agricultural research organizations and the private sector agribusiness sector with the assistance of BOSTID/National Academy of Sciences. Work with GOP to implement this strategy. Sustainability - Continue interaction with the GOP counterparts and the ARP-II team to foster extension of key activities started under the MART Project. Linkages with International Scientific Community - Provide INTERNET connections to all major agricultural research institutes and universities in collaboration with Sustainable Development Network of UNDP. FSR - Assist NARC in the development of the newly established Institute of Sustainable Agriculture as part of FSR institutionalization efforts. AZRI - Assist Director of AZRI in the optimal use of available resources and generation of new funding for sustainable operation after the MART Project PACD. Commodities - Procure equipment for computer R&M workshops and spare parts for laboratory and field equipment procured under the project. Project Close-out
<p>DIVISION CHIEF  John B. Swanson</p>	<p>MISSION DIRECTOR  John Blackton</p>

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31-March-94

III: INPUT ANALYSIS

A. STATUS AS OF MARCH 31, 1994 (\$000)							E. FINANCIAL ASSESSMENT
Element	Obligation To-Date (Pressler LOP)	Unexpended Balance	Percent Firmed	Percent Committed	Percent Expended	Percent Pipeline	
TA	13,331	207	99	99	98	2	<p>The MART Project escaped from severe cuts of the Pressler Amendment. Only the LOP amount was reduced from \$38.0 million to the obligated amount of \$33.0 million, with no change in the PACD. The overall financial profile of the project is satisfactory, since it has committed 99 percent and spent 95 percent of its obligated funds over 96 percent of its life. As of March 31, 1994, the Project had expended \$31.4 million out of total obligations of \$33.0 million, leaving a pipeline of \$1.6 million. The project achieved 66 percent of its expenditure projections during the first two quarters of FY 1994. Expenditures in the Training and Other Costs line items of the project budget, where sizeable pipelines remain to be expended, need to be monitored carefully in order to accelerate the rate of expenditure.</p> <p>The present pipeline of \$1.6 million is expected to be utilized by the August 1994 PACD, provided that the present expenditure rate is accelerated in the the Training and Other Costs line items.</p> <p>The Government of Pakistan has completed its financial obligation under the U.S. Foreign Assistance Act by contributing Rs.132.7 million vs. Rs.98.5 million against USAID DA obligation of \$21.5 million.</p>
Training	9,904	508	100	100	94	6	
Commodities	3,770	115	97	97	97	3	
Other Costs	6,795	755	100	100	89	11	
Contingency	0	0	0	0	0	0	
Evaluation	200	40	100	80	80	20	
TOTAL:	33,000	1,625	99	99	95	5	
PERCENT PRESSLER TIME ELAPSED:					96		
B. LOP EXPENDITURES (Actual Increments in \$000)							
FY	Actual Expended	CP Expenditure Projections	% Actual vs CP Projection				
1984		2,500	0				
1985	674	2,500	27				
1986	1,932	6,130	32				
1987	3,822	4,420	86				
1988	5,256	6,430	82				
1989	4,784	6,030	79				
1990	5,115	6,665	77				
1991	5,117	5,425	94				
1992	970	3,455	28				
1993	2,666	3,202	83				
TOTAL:	30,336	AVERAGE PERCENTAGE	65				
C. CP PROJECTED VS. ACTUAL EXPENDITURES (\$ 000)							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	
Projections for FY 94		880	710	590	488	2,668	
Actuals for FY 94		285	758			1,043	
D. GOP CONTRIBUTION - (Applicable to DA-funded Projects)							
USAID DA Obligations	Req. GOP Contr. Per ProAg	GOP Actual Contribution		% Actual Vs. Required			
Dollars (000)	Rupees (000)	Rupees (000)					
21,500	98,490	132,704		135			

IV. PURPOSE LEVEL INDICATORS

CY	85 THRU 1989	1990	1991	1992	1993	1994*	Cumul./ To Date	1994 Target	ANALYSIS OF CURRENT TRENDS
INSTITUTIONAL DEVELOPMENT									
1. Critical Events Agenda	-	10	6	3	0		19	21	Work on the 2 remaining events under MART Project - the completion of master research plans for ARI's at Tandojam and Faisalabad - has changed direction as technical assistance and funding for the preparation of these plans has been made available to the ARI's under the World Bank's Agricultural Research Project -II.
2. NARC									
a) Organizational Strength Index	-	12	16	18	18	18	18	24	The GOP has not only accepted responsibility for maintenance of the agricultural research system, but has moved to strengthen it. The Agricultural Task Force of the Prime Minister has recommended that the recurrent budget have a ratio of 60:40, operations: salaries and include incentives for the scientists. The Director General has made structural changes at NARC to optimize resource use. In this regard 13 existing programs have been re-grouped into 3 institutes -- Sustainable Agriculture Research Institute, Horticulture Research Institute and Plant Genetic Resources Research Institute. Ten Technical Committees of NARC/PARC held their annual meetings during May-June 1993 to discuss the 1993-94 research agenda. These meetings were attended by scientists from federal and provincial agricultural research organizations and agricultural universities. Technical Committee meetings are now being regularly held in preparation of annual research budgets. Research programs frequently hold meetings with related agribusiness firms to develop common strategies to address problems faced by the industry. The Directorate of Agribusiness Relations at PARC assists the research managers in holding these meetings.
b) Research Agenda Seminars	-	3	2	3	1	1	10	9	
1) # held annually	-	3	4	1	14	1	23	9	
2) # research topics identified	-	3	4	1	14	1	23	9	
3. AZRI									
a) Organizational Strength Index	-	12	13	14	14	14	14	23	While research continues on the institute premises, AZRI is implementing a package of improved technologies on farmer fields on an area of 50 ha in the Kovak Valley. This package of technologies includes conservation of rainfall, improved crop varieties, nutrition and health care of small ruminants, and range development. AZRI has established a nursery for mass production of saltbush seedlings. Baluchistan Agriculture Department and several NGOs are collaborating with AZRI in large scale planting of saltbush. A proposal has been submitted by AZRI to the Dutch Government to secure funds for a pilot project to regenerate deteriorated range lands in Baluchistan. Negotiations are also underway with Australia which has a similar agro-ecology as Baluchistan. A long-term technical assistance agreement exists between AZRI and ICARDA. Thus AZRI will continue to benefit from ICARDA after the MART PACD.
b) Research Development	-	1	1	1	1	0	4	5	
1) Research agenda seminars	-	1	0	1	1	0	4	5	
2) Technologies tested w/ farmer input	-	0	1	1	1	1	3	5	
3) # BOSTID grants awarded/implemented	-	2/0	-/0	-/2	-/2	0	2/2	3/3	
c) Research Collaboration	-	0/0	1/1	1/1	1/1	1/1	1/1	5/5	
1) # AZRI/NARC collaborative agreements identified/implemented	-	0/0	1/1	1/1	1/1	1/1	1/1	5/5	
2) # collaborative projects with GOS	-	0	1	1	1	1	1	5	
d) Research Utilization - # technologies used by private sector	-	0	0	0	0	0	0	2	

IV. PURPOSE LEVEL INDICATORS

CY	85 THRU 1989	1990	1991	1992	1993	1994*	Cumul./ To Date	1994 Target	ANALYSIS OF CURRENT TRENDS
TECHNOLOGY DEVELOPMENT									
4. Private Sector/PARC Collaborate Agreements									
a) # agreements formalized	-	5	10	5	3	1	24	15	<p>PARC's senior management is placing ever greater emphasis on participation of the private sector in research planning and for effective dissemination of research findings. This message was clearly conveyed by the PARC Chairman to the research managers during meetings of the Technical Committees held during May-June 1993. USAID is providing technical assistance to PARC in the development of a national strategy to promote research-agribusiness linkages and has engaged BOSTID/NAS for this task. The draft strategy will be presented to a joint audience from private agribusiness and public research and policy organizations in a meeting scheduled for July 1994.</p> <p>The D/ABR is continuing to play an active role in the transfer of technologies developed at PARC to the private sector. PARC has signed 24 agreements with agribusiness firms, 5 are in the area of training in the manufacture of quality agricultural machinery, 4 in the area of poultry production, 10 in the manufacture of specific agricultural machinery, 2 in potato production, and one each in feed production, insecticide evaluation and vegetable production.</p> <p>To further increase the role of GOP in promoting research-agribusiness linkages, the Federal Secretary Agriculture has decided to merge PARC's Directorate of Agri-Business Relations in MINFA's AgriBusiness Cell.</p>
b) Estimated Amt of private resources committed (Rs M)	-	20	1	2	2	1	26		
c) Number of staff committed by PARC	-	8	6	6	3	1	24		
d) # problems solved	-	3	9	1	3		16	15	
e) # products developed and marketed	-	2	3	-	3		8	10	
5. Farming System Research (FSR) Cells									
a) # cells established	6	0	0	0	0		6	9	<p>FSR is being implemented in all four provinces. An interdisciplinary approach is being followed to cover entire activities of farmers and to suggest solutions to enhance productivity. Interventions developed through FSR are now being moved in the pilot-to-production stages to promote a more rapid dissemination of technologies.</p> <p>To provide sustainability to FSR activities after the MART Project, PARC has created the Sustainable Agriculture Research Institute (SARI) at NARC by re-grouping the Farming Systems Research Program, the Operational Research Program, the Technology Transfer Unit and the Women in Development Program, with FSR Coordinator as its Director. The MART Project will provide assistance to the FSR Coordinator in the establishment of SARI on sound footings.</p>
b) Amount of resources allocated (Rs M)	2.5	2.5	2.5	2.5	3.1		13.1	5.0	
c) % of staff employed (full/part time)	2/23	2/13	2/12	2/12	3/12		3/12	36	
d) # Interventions introduced/Approaches adopted	9/na	10/na	12/na	10/12	3/12	2/12	46/12	10/10	
6. PARC/BOSTID Grants									
a) # of grants awarded/% of funds awarded	-	-	8/-	17/100%	-	-	25/100%	20	<p>117 research proposals were received by the PARC-BOSTID-USAID Grants Program. 25 proposals were selected and all research funds have been committed. All laboratory equipment is now in country and is in use by the scientists. The Project funded several sites visits of US scientists in Pakistan and visits of Pakistani scientists to laboratories in the United States in order to promote quality research and establish linkages between scientific communities of the two countries. Progress of research work is satisfactory.</p> <p>The scientists will present their findings of their research in a national meeting scheduled to be held in May 1994.</p>
b) # problems solved / # products developed	-	-	-/-	-/-	-	-	0/0	20/10	
c) # participating private sector scientists	-	-	0	0	0		0	10	

IV. PURPOSE LEVEL INDICATORS

CY	85 THRU 1989	1990	1991	1992	1993	1994*	Cumul. / To Date	1994 Target	ANALYSIS OF CURRENT TRENDS
DISSEMINATION OF TECHNOLOGY									
7. Ability to Produce Information transfer packages									
a) # modules produced	9	26	54	59	298		446	200	All AV cells are producing audio-visual information packages, with the Punjab being the strongest of the provinces. In general, there has not been an improvement in the AV budget. However, the AVC at NARC has been successful in generating additional funds by providing services to outside agencies. NARC AV cell is receiving a special budget of Rs. 1 M per annum to produce programs for the 2nd PTV channel. In addition, NARC has prepared a documentary "Migratory Bee Keeping" for ICIMCO. Production figures indicate broad activity at all the centers. In addition to the 450 radio/TV modules produced by the AVCs, more than 4000 radio/TV broadcasts have also been arranged by these units.
b) GOP budget of A/V cells (Rs M)	1.631	1.621	1.100	2.593	2.52		9.465	40%	
c) % budget for operational spending	18%	50%	35%	67%	58%			80%	
d) % of sanctioned posts filled	37%	65%	65%	70%	77%				
MARKETABILITY OF TECHNOLOGY DEVELOPED									
8. Commercialization									
a) # new products marketed	6	2	3	1	2		14	10	The private sector is marketing 14 products which are being produced on the basis of technologies developed at PARC. These include the Reaper-Windrower for wheat and rice, sugarcane planter, hydropericardium vaccine for poultry, potato seed, groundnut digger, groundnut thresher, cattle feed, low-cost wheat combine, hybrid sorghum seed, no-till drill, rice thresher and soybean thresher, row-crop planter and vegetable seed. Furthermore, PARC has helped the industry in the establishment of a marketing cooperative for honey, a cheese making plant and several mini livestock feed mills, on royalty basis. A vegetable seed processing plant established by NARC processes and certifies farmer grown seed for a fee. Other research commercialization mechanisms are being explored to commercialize new and improved technologies. In this regard, PARC has submitted a proposal to the GOP for approval to set-up the Agro-Industrial Development Board at NARC.
b) Estimated sales (Rs M)	81	26	32	34	34		207		
c) # of farmers adopting new product	8808	4264	6195	6940	9355		35562		

V: AGENDAS AND INDICES

CRITICAL EVENTS AGENDA

ORGANIZATIONAL STRENGTH INDEX

Target	Completed	Critical Event	Indicator/Rating	Definition	MARC				AZRI			
					91	92	93	94	91	92	93	94
1990	1990	Master plans for research programs and physical facilities developed and approved by the appropriate research institution's management: NARC SARIAB AARI Faisalabad ARI Tando Jam	Staffing	Percent of scientific staff with Ph.D. degrees	2	2	2	2	2	2	2	3
1991	1992		1- < 20%									
1992			2- 21-39%									
1992			3- 40-60%									
1990	1990	Agribusiness Relations Cell at PARC established to identify joint PARC/Agribusiness needs and collaborative projects and to facilitate PARC/Agribusiness interaction	Budgeting Ratio	Ratio of salaries to operating funds	3	3	3	3	2	2	2	2
			1- >90:10									
			2- 89:11-80:20									
			3- 79:21-60:40									
		Provincial Agricultural Communications Support Cells established and equipped; staff being trained to give communications support to the provincial agricultural research system:	Budgeting	Operating funds per scientist	1	1	1	1	1	1	1	2
			1- <\$3000									
			2- \$3001-5000									
			3- \$5001-8000									
1990	1990	NARC	Equipment & Facilities	Equipment and facilities inadequate	3	4	4	4	2	3	3	3
1990	1990				Balochistan	2-Fair	Equipment or facilities inadequate					
1990	1990				Punjab - Faisalabad	3-Good	Equipment/facilities adequate for basic operations					
1991	1991				Punjab - Lahore	4-Excellent	Equipment/facilities permit advanced operations					
1991	1991				Sindh	Research Planning	- Master Plan prepared - Master Plan accepted by management - Master Plan implemented in a systematized manner - Monitoring mechanism in place - Master Plan being reviewed and updated regularly - In-service training courses held - Projectized budgets being used					
1991	1990	NWFP	1- 0-2 items									
			2- 3-4 items									
			3- 5-6 items									
1990	1991	PARC/BOSTID Grants program established and operational	4- 7 items		2	2	2	2	2	2	2	1
1990	1992	Reentry Program initiated by PARC to facilitate returning participants' reentry into Pakistan and to orient them to procedures, problems and changes in the research system	Administrative System	- Job descriptions prepared for all principal posts - Authority delegated to appropriate levels - Procurement system operating efficiently - Maintenance system operating efficiently - Financial system providing up-to-date acctg info - Personnel evaluations performed annually - Institute wide communications system operational - Key posts filled	1	3	3	3	2	2	2	1
		Audio Visual Center/Training Institute building at NARC is completed	1- 0-2 items									
			2- 3-4 items									
			3- 5-6 items									
			4- 7-8 items									
1990	1990	National and Provincial Technical Information Transfer Committees established and functioning with representative from the public and private sectors:	Information System	- Library up-to-date and being used - Newsletters published regularly on several subjects - Scientific articles appearing regularly - Multimedia modules produced & broadcast to public - PR officer in place; news articles appearing - Field days, other public events held regularly - Publications, TV/radio modules produced	4	3	3	3	2	2	2	2
1991	1990		Balochistan									
1991	1991		Sindh									
1990	1990		Punjab - Faisalabad									
1991	1991	Punjab - Lahore										
1990	1990	NWFP										
1991	1991	PARC publishes a newsletter to disseminate news about Pakistan's agribusiness sector and the cooperative activities between the public and private sectors										

SIGNIFICANCE OF INDICATORS	SOURCE/MEASUREMENT
INSTITUTIONAL RESPONSIVENESS 1. Critical Events Agenda This indicator is a collection of events judged to be crucial to the achievement of project objectives. Achievement of the critical events in itself will not guarantee that the project's purposes will be fulfilled, but conversely, non-attainment will almost certainly preclude fulfillment of the objectives.	IA team
2. Organizational Strength Index This indicator details the organizational strength of PARC's two largest research institutions, NARC and AZRI. The seven components of the index relate to the adequacy of the staff, budget, facilities, planning, administration and information system.	The index involves both objective and subjective ratings. The objective measurements will come from PARC, NARC and AZRI records. The subjective ratings will be prepared by the IA team.
3. Research Agenda Seminars The purpose of these seminars is to enhance the knowledge and appreciation of scientists in public institutions regarding private agribusiness and vice versa. These seminars, organized by PARC's Agribusiness Cell, will be held at locations throughout the nation and will be attended by members of the research community and by representatives of the agribusiness sector. An important result will be a better understanding of the research needs of the private sector and thus more focused research projects. The target is to hold at least nine seminars and identify nine research topics by the end of the project.	IA team
TECHNOLOGY DEVELOPMENT 4. Private Sector/PARC Collaborative Agreements The objective of this activity is to foster direct collaboration of PARC and agribusiness in research and development projects. With the assistance of PARC's Agribusiness Cell, opportunities will be identified for joint research and development activities. For example, a project already identified is the development of a poultry disease diagnostic laboratory in Karachi. After an opportunity for collaboration has been identified, a memorandum of understanding will be developed describing the role of each party and the anticipated results. A target of 15 such collaborations has been set.	The IA team will collect the data from PARC's Agribusiness Cell.
5. Farming Systems Research (FSR) Cells A major objective of this project is to establish a national FSR program - a multi-disciplinary, on-farm research project that involves farmers' participation. The organization of the FSR project is based on FSR cells composed of scientists from different disciplines working at a research site that is confined to a single recommendation domain. This indicator includes the number of cells, the amount of budget and staff allocated, and the numbers of problems solved or products produced.	National FSR coordinator's office
6. PARC/BOSTID Grants The grants program administered by BOSTID will include a rigorous preparation, including a systematic review of the literature and adherence to the principles of scientific investigation.	PARC/BOSTID
DISSEMINATION OF TECHNOLOGY 7. Ability to Produce Information Transfer Packages A major objective of the project is to build the capacity to produce audiovisual modules for information transfer to farmers and agribusiness. To do this an AV production studio at NARC will be built, equipped and staffed. Also a nationwide network of agricultural communicators consisting of a national and provincial Technical Information Transfer Committees (TITC) and Provincial Agricultural Communications Support Cells (PACS) will be established to promote, assist, and coordinate agricultural information transfer. Information will be collected on staffing, budget and information modules produced. NARC's AV unit, the PACS and TITC's. Budget data will be that portion of the budget that is used to produce and disseminate the modules, exclusive of salaries, rent, utilities, and other basic fixed costs.	NARC's AV unit, the PACS and TITC's. Budget data will be that portion of the budget that is used to produce and disseminate the modules, exclusive of salaries, rent, utilities, and other basic fixed costs.
MARKETABILITY OF TECHNOLOGY DEVELOPED 8. Commercialization The end result of the technology developed through research is its use by farmers or agribusiness. Technology developed as information can be transferred through TV, radio and the printed word. Technology developed as products, such as new machinery, is best transferred by commercializing it - that is, agribusiness takes it up, fabricates it, and sells it. This indicator will measure the extent of this commercialization by measuring the number of new products developed and the cumulative value of their sales.	The source of data will vary with the product, most coming from research institutions, individual research projects, private agribusiness firms, PARC, the Ministry of Agriculture, and the Ministry of Industries.