

Agency for International Development		1. Cooperating Country Sudan		Page 1 of 7 Pages	
PACR Project Assistance Completion Report		2. Project Name & Number (650-0020) Western Sudan Agricultural Research Project		65214	
3. Functional Account(s) ARD		PD-ABA-578			
4. Project Assistance Completion Date (PACD) Original <u>12/31/84</u> Amended <u>9/29/88</u>			5. PRO/AG No. and Date 650-0020 September 30, 1978 Amend # 10 June 2, 1984		
6. Type of Agreement and					
<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Cooperative Agreement <input type="checkbox"/> LSCA <input type="checkbox"/> Other					
7. Financial Inputs					
		AID \$ 26,000,000		COS \$ 33,202,000	
		IDA \$ 15,000,000		Total \$ 74,202,000	
Project Element		PP Budget	Latest Budget	Earmarked	Unearmarked
#1 Technical Assistance	Dollars	16,790,000*	19,239,157	16,481,180	2,757,977
	LS	4,700,000	4,700,000	3,279,770	1,420,230
#2 Training	Dollars	-	1,200,000	280,667	919,333
	LS	150,000	150,000	112,696	37,304
#3 Commodities Capital	Dollars	9,210,000	3,554,973	2,975,993	578,980
	LS	50,000	50,000	22,500	27,500
#4 Other Cost	Dollars	-	-	-	-
	LS	403,625	403,625	240,498	163,127
#5	Dollars				
	LS				
#6	Dollars				
	LS				
#7	Dollars				
	LS				
Totals	Dollars	26,000,000	23,994,130	19,737,840	4,256,290
	LS	5,303,625	5,303,625	3,655,464	1,648,161

\*Training Budget was part of the TA budget

15

8. Outputs:Expected Outputs

(1) Research projects dealing with: (i) Livestock and crop production systems at El Obeid (integrated crop/livestock on non-cracking clays), Kadugli (integrated crop/livestock on cracking clays) and El Fasher (arid livestock)-Ghazala Gawazat (integrated crop/livestock on stabilized sands and semi-arid livestock); and (ii) water and land use management research at El Obeid including research support services.

(2) Development of an Agricultural Research Corporation (ARC) research center and regional Head-quarter at El Obeid and of research stations at El Obeid, Kadugli, Ghazala Gawazat and El Fasher, and Khartoum support office.

(3) Strengthening of ARC's head-quarters through the establishment of a Project Support Unit (PSU), a Planning Evaluation Unit (PEU), and a Training and Extension Unit (TEU).

(4) Contract research to be carried out by specialized research institutions other than ARC.

(5) Sudanese scientists trained and employed on project research stations (participant training of 7 for Ph.D, 8 for M.Sc. and 43 for non-degree specialization courses).

9. Remaining Actions:

a) Monitoring  
Required as objectives are not all met

b) Covenants and Conditions  
Expired, conditions are met

c) Project never audited

d) No final evaluation

e) Estimated Deobligation amount: \$ 4,256,290

f) Terminal date for Disbursement: 31 December 1989

Actual Outputs

Achieved for Kadugli and El Obeid research station. Despite the completion of research facilities at El Fasher and Ghazala Gawazat-no research project has started in these two stations.

Completed

Partially completed

Partially achieved

Completed

10. Close Out Check-List

X a. The Project Officer, in conjunction with the Controller and Contracting Officer, has reviewed all AID-financed commitments (contracts, sub-grants, PIO/Ps) to ascertain what, if any, amounts remain to be billed and paid; to discover any disputes that have arisen or are likely to arise and to expedite their settlement to the extent possible. An accrual worksheet has been filled in with the help of the Controllers office and all amounts committed but no longer required have been de-committed.

X b. The Project Officer, in conjunction with the Controller and Contracting Officer, has reviewed all earmarking documents to ascertain whether all disbursements can be made under existing earmarking documents and, where necessary, to make appropriate adjustments to ensure that sufficient funds will be available to cover all anticipated disbursements. All earmarked funds in excess of those required to complete the project's activities have been de-earmarked.

X c. Official project files have been cleaned up and organized, those no longer required for implementation and monitoring have been retired to storage.

11. Other Comments

12. Clearances

Project Officer	Date	Program Officer	Date
George Chobrial	1/21/90	Dirk Dijkerman	1/22/90
Raoul Youseef	1/8/90		
Contract Officer	Date	Controller	Date
David Osinski	1-11-90	Ronald Hammersley	1/30/90
C/ARD	Date	D/DIR	Date
James Franckiewicz	1/16/90	Frederick Macomber	1/27/90

13. Authorized Frederick Gilbert

Mission Director : Date 2/7/90

WESTERN SUDAN AGRICULTURAL RESEARCH  
PROJECT (650-0020)

Background and status

This project, which created the physical and human infrastructure necessary to support an applied agricultural research program in western Sudan, was originally designed by the IBRD and the GOS in 1977. AID was invited to participate as a major donor with special interest in providing technical assistance. Consequently, AID reviewed the documentation developed by the IBRD appraisal team, adapted this documentation to conform to AID requirements, and authorized AID funds for the project in September 1978.

The project purpose was "to increase the capability of the Sudanese Agricultural Research Corporation (ARC) to develop and test improved production systems that conserve and rehabilitate natural resources and improve the standard of living of the subsistence farmers and pastoralists of western Sudan"

The overall project was basically divided into two phases. Phase I primarily concerned with the development of the research facilities i.e. construction of the project center at El Obeid, the four research stations at El Fasher, El Obeid, Ghazala Gawazat, and Kadugli, and project support facilities in Khartoum. Phase II would begin with the actual initiation of the respective research programs.

As agreed on, AID has financed the following inputs toward achievement of the project purpose.

a. Technical Assistance

Total of 52 man/years of technical assistance from ten internationally recruited senior administrators and specialists in fields of land-water use, range/livestock, sociology, farm management economy, and agricultural engineering.

b. Specialized Technical Assistance Services

AID financed two main technical assistance services. The first was the recruitment of an Architect Engineering firm to prepare the building plans and contract documents, advise on the award of contracts, and supervise construction. The second was to secure the services of one senior research advisor. The services of the specialist to be assigned to the project center and the respective research stations had been contracted through the Title XII mechanism. The Consortium for International Development (CID) was the selected institution.

c. Operations support

AID financed the foreign exchange inputs following:  
Office expenditures, transport, building equipment maintenance and farm costs.

d. Capital costs

AID funded 100% of the foreign currency capital costs following:

- Furniture and equipment for the project center at El Obeid and the three new research stations (including staff house furnishing).
- Vehicles and farm equipment consisting of 50 four-wheel drive vehicles, 5 minibuses, 5 tractors and related farm implements and 9 pieces of heavy equipment for transport and road and airstrip maintenance.
- Farm development consisting of land improvement and fencing at research stations.
- A Small Purchases Fund to enable the ARC to buy and maintain experimental animals and cover other incidental expenses.
- Construction of Research Station facilities and Khartoum support offices in conjunction with the IBRD.

Summary of Accomplishments:

The project major objectives were as follows:

- o The establishment of a research infrastructure in western Sudan.
- o The development and conduct of applied/adaptive research programs.

A. Establishment of a research infrastructure in western Sudan.

Physical facilities developed under WSARP included:

- Renovation of existing buildings and construction of new facilities at the Kadugli station in southern Kordofan.
- Construction of a new research station and project headquarters facility at El Fasher in northern Darfur.
- Construction of new facilities at Ghazala Gawazat in southern Darfur (with some renovation of existing buildings),
- Construction of a project support unit/ARC liaison office at Shambat (Khartoum)
- Force account construction at all project sites of other types of facilities and procurement of station facility spareparts.

It must be noted here that the establishment of the research stations was four years behind schedule. This delay has seriously affected implementation of the research programs. Nevertheless, the basic components of Agricultural Research system design are now in place in western Sudan.

B. Development and conduct of applied/adoptive research program

On human resources development, the project recruited and trained scientific and technical staff. The training program was implemented for degree training in the U.S., short-term courses conducted in country, and IARC and on-the-job training within the project.

On development of a research program for southern Kordofan, WSARP has carried out a preliminary diagnostic survey in 1980. This survey has identified the major production constraints which should be addressed at the Kadugli research

station. Research activities were then prioritized based on potential maximum impact for improving productions through reduction of the identified constraints. Suitable technical and management methods were tested at the station before being implemented in the cooperative farmers' fields. However, because of administrative and logistical problems encountered with the technical staff and because of impassable roads during the rainy season, the on-farm research was only partially achieved.

For northern Korofan, the WSARP team at El Obeid worked closely with International Sorghum and Millet CRSP (INTSORMIL) personnel to define comprehensive research efforts for El Obeid. Because of the limited staff in El Obeid in 1983, research activities at this station were more disciplinary in focus and less of an integrated system program than in Kadugli. However, in the 1985 season, on-farm trials and other adaptive research activities occurred.

WSARP facilities were monitored continuously during implementation up to the termination of the CID contract in 1985, by A&E Grube Zimmer Inc, the engineering firm that designed the major facilities. Thereafter, Karplen Consultant Inc. was in charge of monitoring WSARP facilities until completion of all construction work in 1988. WSARP was also monitored on numerous occasions by several members of USAID/Sudan. At present the two WSARP stations in Kordofan, namely El Obeid and Kadugli, are functional. These two stations are reasonably well staffed and are carrying out the proposed research activities at satisfactory levels.

However, the WSARP stations in Darfur (El Fasher and Ghazala Gawazat) are not functional. Construction of these two stations was four years behind schedule and was not completed until late in 1988. Factors such as GOS policy changes, material shortages, political climate, and poor management by the contractor have all contributed to this delay. GOS has recently appointed a director and supporting staff at El Fasher Research Station, but research activities have not started at this station. For Ghazala Gawazat, the situation is complicated. This station was designed primarily to conduct research on livestock as an integrated part of the farming system in western Sudan. Similar to other WSARP stations, Ghazala Gawazat was to function under the Ministry of Agriculture. However, in 1987 the Administration of Animal Resources was separated from the Ministry of Agriculture and became a separate Ministry. The issue of which Ministry has control Ghazala Gawazat has not been resolved. For this reason, the station is not functioning. Therefore, monitoring of the two Darfur stations is needed to ensure that the two stations start proposed research activities.

Because of the delay in the construction program in Darfur, finalization of the research program for El Fasher and Ghazala Gawazat has not began. Project activities in the Darfur region will continue, utilizing funding by the World Bank in conjunction with the Western Savana Development Corporation (WSDC)

Lessons learned from the project:

o A multidisciplinary systems oriented research approach can be implemented. This can focus complementary efforts on developing adaptable technologies for solving Sudan's production problems.

o Recruitment, training, and retention of research, scientific, technical and support personnel must receive the highest priority in the management of WSARP to successfully carry out agricultural research development activities.

o The length of time required to complete a project must be carefully planned with due consideration to the numerous constraints. This is particularly important for projects such as WSARP with a large construction and infrastructure components.

o Support should be continued for WSARP and should be developed in concert with development of Sudan's rainfed agricultural sector.

Agency for International Development		1. Cooperating Country Sudan		Page 1 of 7 Pages	
PACR Project Assistance Completion Report		2. Project Name & Number (650-0020) Western Sudan Agricultural Research Project			
3. Functional Account(s) ARD					
4. Project Assistance Completion Date (PACD) Original <u>12/31/84</u> Amended <u>9/29/88</u>			5. PRO/AG No. and Date 650-0020 September 30, 1978 Amend # 10 June 2, 1984		
6. Type of Agreement and <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Cooperative Agreement <input type="checkbox"/> LSCA <input type="checkbox"/> Other					
7. Financial Inputs		AID \$ 26,000,000 IDA \$ 15,000,000		GOS \$ 33,202,000 Total \$ 74,202,000	
Project Element		PP Budget	Latest Budget	Earmarked	Unearmarked
#1 Technical Assistance	Dollars	16,790,000*	19,239,157	16,481,180	2,757,977
	LS	4,700,000	4,700,000	3,279,770	1,420,230
#2 Training	Dollars	-	1,200,000	280,667	919,333
	LS	150,000	150,000	112,696	37,304
#3 Commodities Capital	Dollars	9,210,000	3,554,973	2,975,993	578,980
	LS	50,000	50,000	22,500	27,500
#4 Other Cost	Dollars	-	-	-	-
	LS	403,625	403,625	240,498	163,127
#5	Dollars				
	LS				
#6	Dollars				
	LS				
#7	Dollars				
	LS				
Totals	Dollars	26,000,000	23,994,130	19,737,860	4,256,270
	LS	5,303,625	5,303,625	3,655,464	1,648,161

\*Training Budget was part of the TA budget

8. Outputs:Expected Outputs

(1) Research projects dealing with: (i) Livestock and crop production systems at El Obeid (integrated crop/livestock on non-cracking clays), Kadugli (integrated crop/livestock on cracking clays) and El Fasher (arid livestock)-Ghazala Gawazat (integrated crop/livestock on stabilized sands and semi-arid livestock); and (ii) water and land use management research at El Obeid including research support services.

(2) Development of an Agricultural Research Corporation (ARC) research center and regional Head-quarter at El Obeid and of research stations at El Obeid, Kadugli, Ghazala Gawazat and El Fasher, and Khartoum support office.

(3) Strengthening of ARC's head-quarters through the establishment of a Project Support Unit (PSU), a Planning Evaluation Unit (PEU), and a Training and Extension Unit (TEU).

(4) Contract research to be carried out by specialized research institutions other than ARC.

(5) Sudanese scientists trained and employed on project research stations (participant training of 7 for Ph.D, 8 for M.Sc. and 43 for non-degree specialization courses).

9. Remaining Actions:

a) Monitoring  
Required as objectives are not all met

b) Covenants and Conditions  
Expired, conditions are met

c) Project never audited

d) No final evaluation

e) Estimated Deobligation amount: \$ 4,256,290

f) Terminal date for Disbursement: 31 December 1989

Actual Outputs

Achieved for Kadugli and El Obeid research station. Despite the completion of research facilities at El Fasher and Ghazala Gawazat-no research project has started in these two stations.

Completed

Partially completed

Partially achieved

Completed

0. Close Out Check-List

X a. The Project Officer, in conjunction with the Controller and Contracting Officer, has reviewed all AID-financed commitments (contracts, sub-grants, PIO/Pa) to ascertain what, if any, amounts remain to be billed and paid; to discover any disputes that have arisen or are likely to arise and to expedite their settlement to the extent possible. An accrual worksheet has been filled in with the help of the Controllers office and all amounts committed but no longer required have been de-committed.

X b. The Project Officer, in conjunction with the Controller and Contracting Officer, has reviewed all earmarking documents to ascertain whether all disbursements can be made under existing earmarking documents and, where necessary, to make appropriate adjustments to ensure that sufficient funds will be available to cover all anticipated disbursements. All earmarked funds in excess of those required to complete the project's activities have been de-earmarked.

X c. Official project files have been cleaned up and organized, those no longer required for implementation and monitoring have been retired to storage.

1. Other Comments

12. Clearances

Project Officer	<i>[Signature]</i>	Date	1/21/90	Program Officer	<i>[Signature]</i>	Date	1/22/90
	George Ghorbani		1/8/90		Dirk Dijkerman		
	Raoul Yousef			Controller	<i>[Signature]</i>	Date	1/30/90
Contracts Officer	<i>[Signature]</i>	Date	1-11-90		Ronald Hammett		
	David Osniel			D/DIR	<i>[Signature]</i>	Date	1/25/90
C/ARD	<i>[Signature]</i>	Date	1/16/90		Frederick Hammer		
	James Franckiewicz						

13. Authorized Frederick Gilbert *[Signature]*

*[Signature]* : Date 2/7/90

Mission Director

WESTERN SUDAN AGRICULTURAL RESEARCH  
PROJECT (650-002C)

Background and status

This project, which created the physical and human infrastructure necessary to support an applied agricultural research program in western Sudan, was originally designed by the IBRD and the GOS in 1977. AID was invited to participate as a major donor with special interest in providing technical assistance. Consequently, AID reviewed the documentation developed by the IBRD appraisal team, adapted this documentation to conform to AID requirements, and authorized AID funds for the project in September 1978.

The project purpose was "to increase the capability of the Sudanese Agricultural Research Corporation (ARC) to develop and test improved production systems that conserve and rehabilitate natural resources and improve the standard of living of the subsistence farmers and pastoralists of western Sudan"

The overall project was basically divided into two phases. Phase I primarily concerned with the development of the research facilities i.e. construction of the project center at El Obeid, the four research stations at El Fasher, El Obeid, Ghazala Gawazat, and Kadugli, and project support facilities in Khartoum. Phase II would begin with the actual initiation of the respective research programs.

As agreed on, AID has financed the following inputs toward achievement of the project purpose.

a. Technical Assistance

Total of 52 man/years of technical assistance from ten internationally recruited senior administrators and specialists in fields of land-water use, range/livestock, sociology, farm management economy, and agricultural engineering.

b. Specialized Technical Assistance Services

AID financed two main technical assistance services. The first was the recruitment of an Architect Engineering firm to prepare the building plans and contract documents, advise on the award of contracts, and supervise construction. The second was to secure the services of one senior research advisor. The services of the specialist to be assigned to the project center and the respective research stations had been contracted through the Title XII mechanism. The Consortium for International Development (CID) was the selected institution.

c. Operations support

AID financed the foreign exchange inputs following:

Office expenditures, transport, building equipment maintenance and farm costs.

d. Capital costs

AID funded 100% of the foreign currency capital costs following:

- Furniture and equipment for the project center at El Obeid and the three new research stations (including staff house furnishing).
- Vehicles and farm equipment consisting of 50 four-wheel drive vehicles, 5 minibuses, 5 tractors and related farm implements and 9 pieces of heavy equipment for transport and road and airstrip maintenance.
- Farm development consisting of land improvement and fencing at research stations.
- A Small Purchases Fund to enable the ARC to buy and maintain experimental animals and cover other incidental expenses.
- Construction of Research Station facilities and Khartoum support offices in conjunction with the IBRD.

Summary of Accomplishments:

The project major objectives were as follows:

- o The establishment of a research infrastructure in western Sudan.
- o The development and conduct of applied/adaptive research programs.

A. Establishment of a research infrastructure in western Sudan.

Physical facilities developed under WSARP included:

- Renovation of existing building and construction of new facilities at the Kadugli station in southern Kordofan.
- Construction of a new research station and project headquarters facility at El Fasher in northern Darfur.
- Construction of new facilities at Ghazala Gawazat in southern Darfur (with some renovation of existing buildings),
- Construction of a project support unit/AFU liaison office at Shambat (Khartoum)
- Force account construction at all project sites of other types of facilities and procurement of station facility spareparts.

It must be noted here that the establishment of the research stations was four years behind schedule. This delay has seriously affected implementation of the research programs. Nevertheless, the basic components of Agricultural Research system design are now in place in western Sudan.

B. Development and conduct of applied/adoptive research program

On human resources development, the project recruited and trained scientific and technical staff. The training program was implemented for degree training in the U.S., short-term courses conducted in country, and IARC and on-the-job training within the project.

On development of a research program for southern Kordofan, WSARP has carried out a preliminary diagnostic survey in 1980. This survey has identified the major production constraints which should be addressed at the Kadugli research

112

station. Research activities were then prioritized based on potential maximum impact for improving productions through reduction of the identified constraints. Suitable technical and management methods were tested at the station before being implemented in the cooperative farmers' fields. However, because of administrative and logistical problems encountered with the technical staff and because of impassable roads during the rainy season, the on-farm research was only partially achieved.

For northern Korofan, the WSARP team at El Obeid worked closely with International Sorghum and Millet CRSP (INTSORMIL) personnel to define comprehensive research efforts for El Obeid. Because of the limited staff in El Obeid in 1983, research activities at this station were more disciplinary in focus and less of an integrated system program than in Kadugli. However, in the 1985 season, on-farm trials and other adaptive research activities occurred.

WSARP facilities were monitored continuously during implementation up to the termination of the CID contract in 1985, by A&E Grube Zimmer Inc, the engineering firm that designed the major facilities. Thereafter, Karplen Consultant Inc. was in charge of monitoring WSARP facilities until completion of all construction work in 1988. WSARP was also monitored on numerous occasions by several members of USAID/Sudan. At present the two WSARP stations in Kordofan, namely El Obeid and Kadugli, are functional. These two stations are reasonably well staffed and are carrying out the proposed research activities at satisfactory levels.

However, the WSARP stations in Darfur (El Fasher and Ghazala Gawazat) are not functional. Construction of these two stations was four years behind schedule and was not completed until late in 1988. Factors such as GOS policy changes, material shortages, political climate, and poor management by the contractor have all contributed to this delay. GOS has recently appointed a director and supporting staff at El Fasher Research Station, but research activities have not started at this station. For Ghazala Gawazat, the situation is complicated. This station was designed primarily to conduct research on livestock as an integrated part of the farming system in western Sudan. Similar to other WSARP stations, Ghazala Gawazat was to function under the Ministry of Agriculture. However, in 1987 the Administration of Animal Resources was separated from the Ministry of Agriculture and became a separate Ministry. The issue of which Ministry has control Ghazala Gawazat has not been resolved. For this reason, the station is not functioning. Therefore, monitoring of the two Darfur stations is needed to ensure that the two stations start proposed research activities.

Because of the delay in the construction program in Darfur, finalization of the research program for El Fasher and Ghazala Gawazat has not began. Project activities in the Darfur region will continue, utilizing funding by the World Bank in conjunction with the Western Savana Development Corporation (WSDC)

Lessons learned from the project:

o A multidisciplinary systems oriented research approach can be implemented. This can focus complementary efforts on developing adaptable technologies for solving Sudan's production problems.

o Recruitment, training, and retention of research, scientific, technical and support personnel must receive the highest priority in the management of WSARP to successfully carry out agricultural research development activities.

o The length of time required to complete a project must be carefully planned with due consideration to the numerous constraints. This is particularly important for projects such as WSARP with a large construction and infrastructure components.

o Support should be continued for WSARP and should be developed in concert with development of Sudan's rainfed agricultural sector.